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Volume I consists of the Policy Report, prepared by Indermit S. Gill, Andreas Blom (Consultant, World Bank), Ricardo Paes de Barros, Carlos Henrique Corseuil (Economist, IPEA) and Mirela Silva (Economist, IPEA).

Volume II, prepared by Andreas Blom and Indermit Gill, contains the background papers commissioned for the report, that diagnose labor market developments in Brazil, present relevant international experience, and discuss the policy implications. The authors of the papers are José Marcio Camargo (PUC-Rio de Janeiro), Francisco Galvão Carneiro (Universidade Católica de Brasília), Jorge Arbache Saba (Universidade de Brasília), Ricardo Paes de Barros, William Maloney (Lead Economist, LCRCE), Wendy Cunningham (Economist, LCSPR), Norbert Fiess (Economist, LCRCE), Marco Fugazza (Consultant, CERAS, Ecole Nationale des Ponts et Chaussées, Paris), Dorte Domeland-Narvaez (Consultant, Universidad Pompeu-Fabra, Barcelona), Amit Dar (Senior Economist, HDNSP) and Andreas Blom.

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## 1. ROADMAP TO VOLUME II: DETAILED REPORT

1.1. This is the second of two volumes of the World Bank's "Brazil Jobs Report", which studies the Brazilian Labor Market. Volume I summarizes the analysis and the policy recommendations building upon analysis from background papers and other relevant research. Volume II presents the ten background studies in their entirety. This introductory chapter provides a roadmap to the volume by recapitulating each chapter.

### I. ROADMAP

1.2. Chapter 2. by Norbert Fiess (World Bank), Marco Fugazza (CERAS, Ecole Nationale des Ponts et Chaussées) and William Maloney (World Bank) analyzes ***the functioning of the labor market for the success of macro-economic policies***, like fiscal adjustment, stabilization and trade liberalization. The chapter contrasts the traditional "dualistic" view of labor markets in less developed countries with a new "integrationist" view.<sup>1</sup> The authors argue that these views are not necessarily incompatible. The labor market functioning in three Latin American countries—Mexico, Colombia and Brazil— is examined. The study finds that in Brazil in the 1990s, the labor market oscillated between segmentation and integration of the formal and informal labor markets. They show that the degree of labor market segmentation is not uniquely determined by the existence of labor market rigidities, but varies with the country's macroeconomic environment. The policy implications are compelling: only if there exists evidence of segmentation, is a large informal sector a signal of distorting labor market regulations, in which case a reduction of labor market rigidities would be welfare improving. In the opposite case, where there is evidence of integration then the informal sector may prove to be an important source of efficient employment and reducing labor market rigidities may have a weak or even counter-productive effect.

1.3. In Chapter 3. , Wendy Cunningham (World Bank) discusses ***the definition of the informal sector and the reasons for its existence drawing on cross-country evidence***. Issues on which three decades of research have failed to reach a consensus. Broadly speaking, the small-scale, semi-legal, often low-productivity, frequently family-based and perhaps pre-capitalistic enterprises continue to employ between 30% and 70% of the urban work force in Latin America. A long tradition views informal workers as comprising the less-advantaged sector of a dualistic or segmented labor market. This chapter challenges the traditional dualism theory and seeks a better understanding of the informal sector: why it exists, and the quality of its jobs. It goes through a series of assumption about the informal sector and presents recent evidence to test the validity of the assumption. The review shows that the informal sector is a dynamic sector that is an outgrowth of the entrepreneurial sector in any country in the developing or developed world. Its

<sup>1</sup> The traditional "dualistic" view sees the informal sector as the residual of a highly distorted formal sector labor market, where unions and/or government regulations keep wages above their equilibrium level and thereby ration workers into the informal sector where they are left unprotected by labor legislation. Participation in the unregulated sector of the economy is thus seen as involuntary. The outcome is a segmented labor market. The "integrationist" view perceives the flow of workers between the informal and the formal sector as voluntary.

workers are rational people who largely select informal sector employment due to many non-wage and - in some instances- wage benefits. These findings suggest that policies that attempt to create a single market by eliminating labor market rigidities are perhaps misguided. Instead, the sector should be brought into the formal tax and benefit system, as in developing countries, by improving the public goods associated with the formal sector.

1.4. In Chapter 4. , Jorge Saba Arbache (University of Brasilia) **analyzes the effect of unions on the labor market in Brazil**. The study attempts to answer the following questions: How do labor laws and union legislation affect the collective bargaining process? Do unions influence wage formation and income distribution? Do unions increase labor market rigidity? He finds evidence that institutions are essential in explaining the behavior of unions, their effects on income distribution, macroeconomic stability and the current state of collective bargaining in Brazil. The paper concludes with recommendations for enhancing the role of unions in the collective bargaining process.

1.5. Chapter 5. , by Amit Dar (World Bank) and Francisco Galvão Cameiro (Catholic University of Brasilia) focuses on **the economic impact of the freedom of association of workers and employers within an international context**. The author considers two questions similar to those in the previous chapter: (a) what are the microeconomic effects of unions and employers' organizations (unionism); and (b) how do different institutional approaches to collective bargaining affect macroeconomic performance? This study answers the question by reviewing international evidence primarily from OECD countries. The review suggests that the economic consequences of unionism differ significantly depending upon the interaction between unionism and the economic, political and institutional environment in which collective bargaining takes place.

1.6. Chapter 6. by José Márcio Camargo (Pontificia Universidade Católica do Rio de Janeiro) examines **the role of the labor justice in Brazil**. This institution has been the subject of intense debate among Brazilian labor market economists. Opinions differ on its impact on the performance of the labor market. In general, analysis suggests that it plays an important role in the protection of less organized workers, but few analysts have focused on the effect of the institution on the functioning of the labor market, which is the aim of this paper. The author argues that labor justice currently gives incentives to workers and employers that distort their behavior towards a low quality work-relationship, and therefore reduces productivity and real wage gains, specially for the unskilled workers. These points are illustrated by data from a sample of labor justice cases in Minas Gerais. The study concludes by recommending that the labor courts concentrate on its core functions within the judiciary branch.

1.7. In Chapter 7. , Francisco Galvão Cameiro (Catholic University of Brasilia) reviews the principal findings on **the impact of the minimum wage on the Brazilian labor market**. The effects of the minimum wage on employment, wage level, poverty and fiscal deficit are analyzed. The chapter opens with a brief history of the minimum wage policy in Brazil and then characterizes the typical minimum wage earner in Brazil. Special attention is paid to the various methodologies and databases used to analyze the impact of the minimum wage on employment, wage levels, and poverty. The overview is intended to aid discussions about the future of minimum wage policy in Brazil. The author finds a certain degree of consensus among the reviewed studies. The minimum wage has (a) a negative effect employment in the formal sector, (b) only a marginal and positive



increase on wages above the minimum wage, (c) an insignificant effect on poverty and (d) a significant impact on the deficit in the social security system.

1.8. Chapter 8. by Wendy Cunningham (World Bank) examines ***the effectiveness of minimum wage regulation as a poverty alleviation tool in developed and developing countries***. The discussion puts into perspective the analysis in the previous chapter by examining how minimum wage policies have affected labor market outcomes, poverty and government's fiscal accounts internationally. Although the evidence is scarce, particularly for developing countries, the minimum wage is not an effective poverty alleviation tool. Instead it serves to reshuffle households who are clustered near the poverty line. However, it is a useful tool for decreasing inequality, as it does pull up the wages of all workers, particularly in developing countries. Furthermore, its reach is wider than previously thought. As evidence from Latin America shows, the minimum wage is more binding in the informal sector than in the formal sector. Moreover the minimum wage is commonly a unit of measure for social programs. To improve the effectiveness of the minimum wage in the fight against poverty, policy makers need to (a) better understand the poverty impacts of the minimum wage in their country, since poverty evidence only exists for industrialized countries, (b) link the minimum wage to long-run poverty rather than short-run political gains, (c) identify other social programs necessary to compensate for the welfare reducing impacts of the minimum wage, and (d) de-link the minimum wage from social programs such that fiscal concerns do not interfere with the minimum wage adjustment criteria.

1.9. Chapter 9. by Dorte Domelaïd (Universidad Pompeu Fabra, Spain) and Norbert Fiess (World Bank) discusses ***the Brazilian unemployment insurance system*** and the *Fundo de Garantia do Tempo de Serviço* (FGTS). After a description of the two systems, the study analyzes the access and impact of the system using data from the Monthly Employment Survey (PME). They find that the Brazilian unemployment insurance system is characterized by a low replacement ratio and a short benefit duration. The authors examine the determinants of the probability of becoming unemployed and of the unemployment duration. The estimations show, on the one hand, that informal sector employees who have neither access to unemployment insurance nor FGTS are most likely to become unemployed in Brazil. On the other hand, unemployment duration among formal sector workers is higher for those who received FGTS before becoming unemployed. The study argues that the system suffers from two shortcomings: (a) more than half of the population is excluded from participating in the programs, since it is restricted to formal sector workers only, (b) the two programs overlap, since the unemployment insurance is conditional on having access to the FGTS.

1.10. In Chapter 10. , Ricardo Paes de Barros, Mauricio Blanco Cossio and Jorge Luiz Teles (IPEA) describe and ***investigate the efficiency of Brazilian active labor market policies for poverty reduction***. The paper is motivated by a recent rise in permanent unemployment, which increases the importance of labor market interventions for poverty alleviation. Three types of labor market policies are investigated; Compensatory, Distributive and Structural. Using the "*Perquisa sobre Padrões de Vida (PPV)*" and the national household survey (PNAD), the authors show that (a) the income compensatory programs are badly targeted towards middle-income workers, (b) the minimum wage as a distributive policy only marginally increases the wage of low-income families, and (c) structural policies, like training and job-matching, are far from reaching their potential impact on poverty.

1.11. Chapter 11. by Amit Dar (World Bank) describes ***active labor market policies in an international perspective***. The study summarizes the impact of active labor market policies on labor market outcomes drawing on more than 70 reports.<sup>2</sup> The purpose of this paper is to review international experience with active labor market policies and to discuss their applicability in more developing countries, such as Brazil. Most of the evaluations come from industrialized countries, though some evidence presented also comes from developing economies. The impacts are found to be mixed, with many programs assessed to have little or no impact on the employability or earnings of participants. The chapter completes the review by assessing the key considerations involved in balancing active and passive labor market policies.

<sup>2</sup> Active labor market policies (ALMP) consist of a wide range of activities, intended to increase the quality of labor supply and to increase labor demand; or to improve the matching of workers and jobs (e.g., through job search assistance). ALMPs are usually regarded as a valuable alternative to "passive" support (e.g. unemployment insurance, safety net).

## 2. LABOR MARKETS AND ECONOMIC ADJUSTMENT: THE BRAZILIAN CASE

Prepared by Norbert Fiess, Marco Fugazza and William Maloney

### I INTRODUCTION

2.1. Over the last two decades, most Latin American countries went through the experience of fiscal adjustment, stabilization and trade liberalization. Recent, growing attention has been devoted to assessing the role of the labor markets in the transmission process of such economic policies to the population's standards of living, in particular the poor<sup>1</sup>. One of the main conclusions of these studies is that market imperfections prevent an efficient allocation of resources, and hence are likely to mitigate the success of such policies and a fair distribution of their potential benefits.

2.2. The predominant conceptual approach adopted in the existing labor market literature is based on the assumption that labor market institutions are always a source of distortion. It corresponds to the traditional "dualistic" view of labor markets in less developed countries<sup>2</sup>. This view sees the informal sector as the residual of a highly distorted formal sector labor market, where unions and/or government regulation keep wages above their equilibrium level, rationing workers into the informal sector where they are then left completely unprotected by labor legislation. Participation in the non-regulated section of the economy is thus seen as non-voluntary, with workers regarding the regulated section always as the better alternative. The perceived reaction of a dualistic labor market to negative shocks is then also predetermined. As wages in the formal sector are downwardly rigid, wages in the informal sector will fall in response to the increase in informal labor supply. The outcome is a segmented labor market, where relative earnings and relative employment shares of the formal and informal sector move in opposite directions<sup>3</sup>.

2.3. However, there is empirical evidence that the labor market does not exclusively behave in a segmented fashion<sup>4</sup>. In particular, the observed increase in informality over the last decade in Latin America reflected prolonged episodes where—despite potentially distorting labor market regulations<sup>5</sup>—participation rates in the formal and informal sector move up and down together, that is, formal and informal labor markets behave in an "integrated" rather than a segmented or dualistic fashion. These studies attempt to explain the integrated behavior of labor markets and present the alternative view that as a first approximation, the informal sector should be treated as an

<sup>1</sup> See, e.g. Horton and Mazumdar (1994).

<sup>2</sup> The Harris-Todaro (1970) model is perhaps the seminal statement of this view.

<sup>3</sup> Agenor (1996) presents a more sophisticated approach, although it stands within the dualistic paradigm, based on a fully articulated theory of the channels through which wages in the formal and informal sectors interact.

<sup>4</sup> See, for instance, Vijverberg (1986), Yamada (1996), Maloney (1998a), Aroca and Maloney (1999).

<sup>5</sup> See Davila Capalleja (1994) and Marquez (1997).

unregulated/unprotected entrepreneurial sector that may be desirable to many workers. In other words, the choice to participate in the informal sector is a rational one. This rationality could be linked to elements like the misalignment of implicit and explicit labor taxes with perceived benefits or the desire of workers to retain a degree of independence in their work<sup>6</sup>.

2.4. In this study, following Fiess, Fugazza and Maloney (2001), we argue that for any given developing country labor market, the dualistic and integrated views are not necessarily incompatible with each other and could be seen as special cases of the same model. The informal sector may well be a prosperous non-traded goods sector, but one which also contains involuntarily informal workers.<sup>7</sup> We believe that this is a more realistic characterization of labor markets in low and middle income countries. We show that in this more realistic setting, wage differentials across sectors are not exclusively due to rigidities and, hence, the removal of such rigidities would not lead to wage equalization even with perfect mobility of factors of production. The degree of labor market segmentation is not determined by the existence of labor market rigidities per se. From a policy point of view, this is both somewhat novel and important.

2.5. But this is not all. This approach also illustrates that the extent to which labor market rigidities are binding, viz., the degree of segmentation of labor markets, is not determined exclusively by labor legislation but varies depending on the macroeconomic stage that the economy is passing through. That is, we propose that the macroeconomic environment itself can affect the degree of segmentation in the labor market and consequently the impact of policy interventions. Viewed another way, the expected outcome of stabilization and adjustment policies varies whether the labor market behaves like an integrated or a segmented market. The approach thus postulates an interdependence between labor market composition and macroeconomic environment. This study attempts to provide a better understanding of these linkages and, eventually, to equip policy makers with a more sophisticated instrument for policy analysis.

2.6. The policy implications emerging from our study are quite compelling: only if there is clear evidence of segmentation, a large informal sector can be a signal of effective labor market distortions and policy could then consist of reducing labor market rigidities. However, if there is evidence of integration or only weak evidence of segmentation then the informal sector may prove to be an important source of efficient employment and reducing labor market rigidities may have weak or even counter-productive effects on labor composition.

2.7. We use this approach to briefly contrast labor market functioning in three Latin American countries—Mexico, Colombia and Brazil—in order to draw policy lessons in specific settings. The result of the exercise (the details of which are in Fiess, Fugazza and Maloney (2001)) is that Mexico appears to have had the most “flexible” or integrated labor markets until the mid-1990s, Colombia exhibits traits that can be better classified as segmented or dualistic, and Brazil appears to oscillate between these two forms during the 1990s. The case of Brazil is examined further in some detail,

<sup>6</sup> See Maloney (1998b) for a comprehensive presentation of the arguments.

<sup>7</sup> This characterization is consistent with a description proposed by Fields (1990) which distinguishes an “easy-entry” informal sector (the involuntary tier) and an “upper-tier” informal sector (the voluntary tier).

and policy implications are drawn. The main conclusion is that labor policy priorities change depending upon macroeconomic conditions. This paper makes an attempt to establish a mapping between macroeconomic developments and relevant labor policies.

2.8. The remainder of the paper is organized as follows. Section 2 provides the conceptual and empirical background of the study, and also presents additional evidence for other Latin American countries. Section 3 presents detailed empirical findings for the Brazilian economy and relates the Brazilian experience to conceptual insights. General and Brazil-specific policy implications are developed in section 4. Finally, section 5 summarizes the main results of the study and concludes.

## II CONCEPTUAL AND EMPIRICAL MOTIVATION<sup>8</sup>

2.9. The main scope of this section is to present some empirical findings for Colombia, Mexico and Brazil that sustain the view that despite the presence of potentially distorting labor institutions, labor markets can behave like integrated markets and not only like segmented markets. The empirical analysis is based on a simple model that combines Lucas's (1978) idea of workers characterized by differing levels of entrepreneurial ability, with a small economy trade model of the style most recently elaborated by Obstfeld and Rogoff (1996) and capital adjustment costs, which relate to the Tobin's q model to capture the existence of imperfections in capital markets. This simple model also captures the argument that the macroeconomic environment plays a central role in defining the degree of segmentation of the labor market.

### A New Conceptual Framework

2.10. There are different definitions of informality in the developing economics literature<sup>9</sup>, which rely on a variety of criteria such as establishment size, type of employment, technological or capital level, income level, legal status, type of goods produced, and type of transactions that are carried out.<sup>10</sup> The last criterion refers to the fact that activities being encompassed in the informal sector are unregulated. As discussed by Charmes (1990), some of these criteria overlap in practice.<sup>11</sup> The formal sector is then characterized by large firms producing essentially traded goods and complying

<sup>8</sup> The empirical results and the conceptual framework presented in that section are drawn from Fiess et al. (2001).

<sup>9</sup> See Peattie (1987), Turnham and Eröcal (1990), James (1992), Tokman (1992), Portes and Schaffler (1993) for comprehensive overviews.

<sup>10</sup> We usually distinguish three major sectors in the labor market in developing countries: the rural sector, the informal sector and the formal sector. Our study concentrates on urban areas where only the last two sectors are present.

<sup>11</sup> In this study, the informal sector is characterized by self-employed individuals or small privately owned enterprises (with no more than six workers) producing essentially services and non-traded goods and, not (fully) complying with government imposed taxes and regulations (mainly labor related). The reason why informal wage workers are excluded relies on the fact that the informal wage sector takes on the form of a transitory sector essentially populated by young people closely linked to self-employment activities (see Maloney (1999) and Packard (2001)). This is reinforced by our empirical investigation for Brazil which shows positive co-movements in relative earnings and labor force size of informal wage workers and self-employed. Tests results are reported in Appendix 2.

with fiscal and labor legislations. Workers classified as belonging to the formal sector are those who benefit from labor unions influence in the wage formation process and labor protection.

2.11. Just as there are more than one criteria for an empirical delineation of the formal from the informal sector, there are different interpretations of why informality arises in the first place. These can be classified into two categories. The traditional “dualistic” view sees the informal sector as the residual of a highly distorted labor market in the formal sector. Unions and/or government regulation push wages above their equilibrium level, rationing workers into the informal sector where they are not protected by labor legislation. Participation in the non-regulated section of the economy is non-voluntary, the regulated section always offering a better alternative. Thus, distorting labor market regulations are the cause for a formal-informal segmentation of the labor market. As part of this segmentation, relative wages and relative employment shares of the formal and informal sector move in opposite directions. Implying, that, e.g., wages of informal sector workers relative to those in formal employment fall at the same time as the employment share of the informal sector increases.

2.12. A more recent line of thought presents the view that as a first approximation, the informal sector could be treated as an unregulated/unprotected entrepreneurial sector that offers work and working conditions that are desirable to many workers. In other words, the choice to participate in the informal sector is a rational and unforced one. This view also implies that there is voluntary movement of workers both to and from the formal sector. This rationality could be related to elements like the desire of independence and/or the misalignment of implicit and explicit labor taxes with perceived benefits. This “integrated labor markets” view stands in sharp contrast with the dualistic view.

2.13. In this study we argue that the two views are not necessarily incompatible with each other and should instead be seen as special cases of the same model. The informal sector may very well be a dynamic and entrepreneurial sector, but one which also contains unfortunate workers holding poor jobs. The relative shares of voluntary and involuntary workers will reflect the degree of segmentation in the labor market which can vary depending on the shocks to the economy. And depending upon the general health of the economy, one of these phenomena may dominate the other. The main technical characteristics of the model are presented in Box 2.1 and Box 2.2.

2.14. Our conceptual approach offers a rich framework for policy analysis as it can nest both the dualistic and integrated views characteristics in a non-trivial way. Wages differential across sectors are not due to rigidities exclusively and the removal of such rigidities would not lead to wages equalization even in a context of perfect mobility of factors of production. These features reflect a more realistic view of the economy and enrich the discussion of possible policy implications.

2.15. To reiterate, the usefulness of our conceptual framework is twofold. First, it offers insights that can be used to qualify empirically a labor market:

- the market is segmented if earnings in the informal sector and the size of the latter, relative to their respective counter-part in the formal sector, move in opposite directions: relative earnings fall while participation in the informal sector increases
- the pattern of relative earnings and participation inherent to segmentation can be observed only if there are effective downward wage rigidities in the formal sector (the labor legislation is binding)

- downward wage rigidities in the informal sector are of first order relevance in the event of a negative shock (technology and/or preferences) to the formal sector and of second order relevance in the event of a negative shock (technology and/or preferences) to the informal sector
- any evidence of positive co-movements in relative earnings and participation allows to conclude in favor of an integrated labor market

2.16. Second, accounting for the nature of the labor market (segmented versus integrated), and observing movements of macroeconomic indicators like the real exchange rate, enables the identification of the underlying macroeconomic environment. Put another way, our framework allows us to determine the likely impact of policy shocks, i.e., changes in the macroeconomic environment, on employment and earnings according to the nature of the labor market. We delve deeper into the analysis in the next section

## Box 2.1 The Conceptual Framework

### The Core Model

- Open economy model based on Obstfeld and Rogoff (1996) and Lucas (1978)
- Agents in the economy:
  - households: consume goods available in the economy, hold foreign traded bonds
  - producers: firms of indeterminate size and self-employed
- Sectors of production:
  - Formal sector: production of traded goods, wage work, compliance with regulations
  - Informal sector: production of non-traded goods, self-employment, non compliance regulations, non perfect access to physical capital
- Production factors characteristics:
  - Capital:
    - mobile both internationally and across sectors
    - not instantaneously: capital market is not perfect for informal producers (installation costs )
  - Labor:
    - constant total labor force
    - workers are homogenous when salaried in the formal sector *but* differ in terms of their entrepreneurial capability when self-employed
    - mobile across sectors
    - not instantaneously because of capital market imperfections
- Properties of the framework:
  - interactions between macroeconomic variables and the labor market
  - steady state analysis *and* transitional dynamics due to non instantaneous adjustment of both capital and labor

### The Government

Government characteristics can be easily introduced in the core model and can include some or all of the following elements. The listing is obviously not exhaustive.

- Expenditures:
  - Consumption of traded and/or non-traded goods
  - Production of services that can be used as intermediate inputs
  - Social security benefits and assistance
  - Debt interests payments
- Revenues:
  - Taxes: payroll, corporation and individuals income taxes, indirect taxes, tariffs ( according to the above specification, none of these taxes are expected to be voluntary paid by individuals involved in informal activities)
  - Other sources of revenues can consist of domestic and foreign credit and transfers from the central bank including seignorage and/or interest receipts on net foreign assets

### The Labor Market

- Segmentation implies that the formal section of the labor market is characterized by downward rigidities in wages which can be related to the presence of unions and/or indexation practices and/or legal minimum wages
- It is further possible to look at the impact of upward/downward pressures on formal wages due to the introduction of specific labor market policies



**Box 2.2 Fundamental Equilibrium Relations in the Core Model**

We present steady state responses of the variables of interest to the various shocks that can possibly occur in our framework. The following equations are used to formulate Table 1.

The relative price of non-traded goods in terms of traded goods is denoted by  $p$  that is,  $p = \frac{P_N}{\varepsilon}$ , where  $P_N$  denotes the price of non traded goods and  $\varepsilon$  the price of traded goods (the nominal exchange rate). In other words  $p$  stands for the inverse of the real exchange rate. Then, a real appreciation would correspond to a rise in  $p$ .

A  $T$  subscript refers to the traded goods sector and a  $N$  subscript to the non-traded goods sector. A  $L$  subscript refers to formal labor and a  $se$  subscript to self-employment.  $\eta$  refers to the share in the respective sector total earnings while  $\varphi$  refers to the share in total revenues. Then,  $\varphi_{LT}$  denotes the share of formal workers labor earnings in total revenue.  $N_{se}$  is the self-employed labor force,  $\theta$  is the intra-temporal elasticity of substitution and  $\gamma$  is the share of individuals' revenue spent on traded goods.  $A$  stands for a technology shock. Average earnings are denoted by  $w$ .  $\varepsilon$  denotes the nominal exchange rate and  $r$  the real interest rate. Finally, variables with hats refer to rates of change ( $\hat{x} = \frac{\Delta x}{x}$ ).

$$\hat{p} = \frac{\eta_{LN}}{\eta_{LT}} (\hat{A}_T + \hat{\varepsilon}) - \hat{A}_N + \left(1 - \frac{\eta_{LN}}{\eta_{LT}}\right) \hat{r} \quad (1)$$

If only technological shocks are considered, we obtain the standard Balassa -Samuelson result (Balassa (1964).

$$\hat{N}_{se} = \Omega_1 \left[ \hat{A}_N (1 - \gamma(1 - \theta)) - \hat{r} - \frac{\hat{A}_T + \hat{\varepsilon} + \left(1 - \frac{\eta_{LT}}{\eta_{LN}}\right) \hat{r}}{\eta_{LT}} [1 - \varphi_{LT} - \varphi_{se} - (1 - \alpha_N)(\gamma(1 - \theta) - 1)] \right] \quad (2)$$

$$\hat{w}_T = \frac{1}{\eta_{LT}} [\hat{A}_T - (1 - \eta_{LT}) \hat{r}] \quad (3)$$

$$\hat{w}_N = \frac{\hat{A}_T + \hat{\varepsilon}}{\eta_{LT}} + \left(\eta_{LT} - \frac{1}{\eta_{LN}}\right) \hat{r} + \left(\Psi - \frac{N_{se}^*}{1 - N_{se}^*}\right) \hat{N}_{se} \quad (4)$$

where  $\Omega_1 = [(1 - \varphi_{se})\Psi + \varphi_{LT}]^{-1}$ ,  $\Psi = \frac{2 - \alpha_N}{1 - \alpha_N} \left[ \frac{(N_{se}^*)^{\frac{2 - \alpha_N}{1 - \alpha_N}}}{1 - (N_{se}^*)^{\frac{2 - \alpha_N}{1 - \alpha_N}}} \right]$  and  $N_{se}^*$  represents the initial steady

state level self-employment.

## Some Empirical Evidence

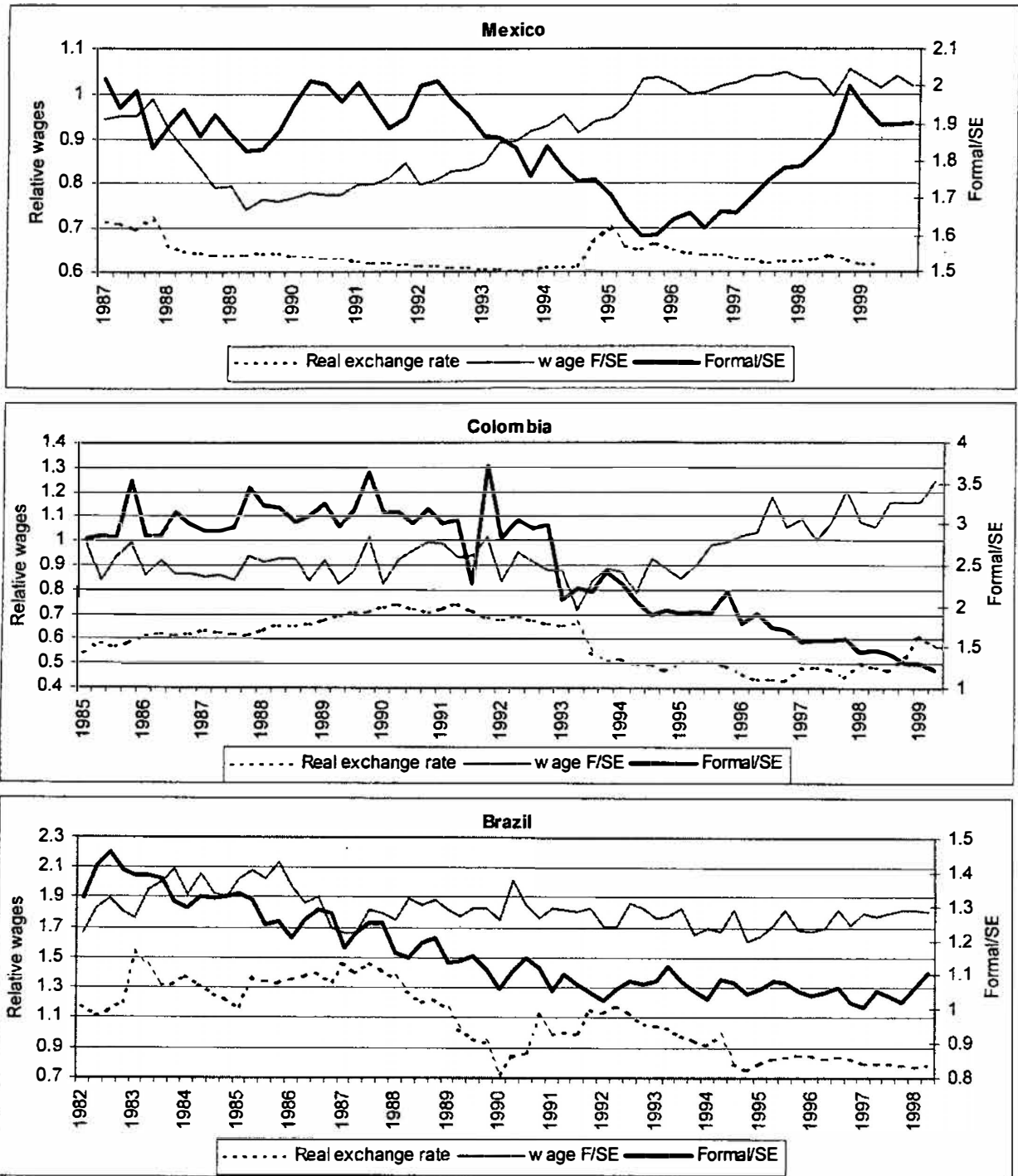
2.17. We use a multivariate Johansen approach (Johansen 1988) to explore cointegration relationships in relative earnings, relative sector size and the real exchange rate with the aim of establishing the degree of dualism—as defined above—in the labor market in Mexico, Brazil and Colombia. This exercise can give us a preliminary answer to the question: whether and to what degree are the labor markets in these three countries “flexible” in the broadest terms, viz., whether key earnings and employment indicators respond to macroeconomic shocks in a manner that is consistent with efficient functioning of markets. The empirical analysis is also used to extract some conclusions about the source of real appreciations in the three countries. These results are explored in more detail in the next section.

2.18. Figure 2.1 displays the time series of the three variables under consideration for the three countries respectively. We limit ourselves here to a qualitative presentation of the results and refer the reader to Fiess, Fugazza and Maloney (2001) for technical details. The period under consideration runs from 1985:Q1 to 1999:Q2 for Colombia, from 1987:Q1 to 1999:Q1 for Mexico and from 1992:Q1 to 2000:Q4 for Brazil. By looking first at the whole sample, we find that for Mexico the test of integrated markets can be strongly rejected while the test of segmentation cannot be rejected. For Brazil, the hypothesis of integration cannot be rejected and the hypothesis of segmentation is rejected at the 1% level. For Colombia, the hypothesis of segmentation cannot be rejected while the hypothesis of integration can be.

2.19. In all three cases, however, tests of the stability of the cointegration space suggest the possibility of different relationships in different sub-periods. This finding is consistent with the previous argument that rigidities in the formal sector may bind in some periods and not in others depending on the macroeconomic environment.

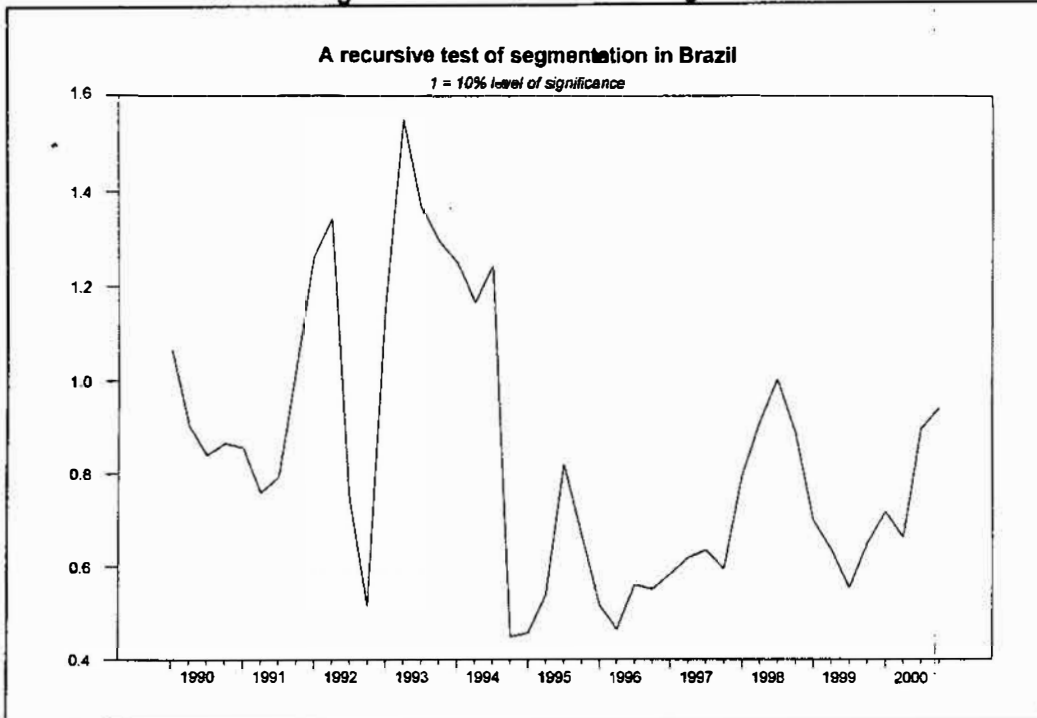
- For **Mexico**, the segmentation hypothesis is only accepted from 1995 onwards and the hypothesis of integration cannot be rejected prior to 1995. This suggests that the Mexican labor market behaves pretty much like a flexible market in the recovery period leading up to 1995.
- For **Colombia**, statistical tests support the hypothesis of a segmented labor market post 1995 onwards and never support the view of integration for any time sub-sample. These findings are in accordance with the view that regulations in the Colombian labor market are binding strongly and that the dualistic view reflects relatively well its functioning.
- In **Brazil**, despite full sample evidence of integration, there is evidence of segmentation during the pre-Real plan period and in the post Asian crisis period (see Figure 2). These findings indicate that the labor market nature in Brazil is likely to have changed over the decade.

Figure 2.1 Real Effective Exchange Rate, Relative Wage and Share of Informal Workers



Source: Fliess, Fugazza and Maloney (2001)

Figure 2.2 Some Evidence for Segmentation in Brazil



Note: Figure 2.2 shows a recursive test of the hypothesis of segmentation in the Brazilian labor market. The hypothesis of segmentation cannot be rejected for test statistics below 1 and the shaded areas are thus indicative for segmentation. Starting with an original sample from 1982:01 to 1989:04, the estimation period is increased by one observation at a time and the corresponding test statistic is calculated. It is important to realize that the periods where the hypothesis is rejected do not indicate exact break points. Much rather, they reveal what a researcher would find if she had only access to data stretching from 1982:01 to the specific point in time where the test statistic is calculated.

2.20. Brazil represents an interesting case as periods of evidence in favor of segmentation and periods of evidence in favor of integration alternate. This again strongly supports the argument that the degree of segmentation in labor markets, even though strictly linked to the severity of regulations, is also a function of the specific macroeconomic conditions prevailing in an economy at a given moment in time.

2.21. The Brazilian experience of the 1990's gives us the opportunity to assess practically the foregoing argument. Indeed, the economy went through three macroeconomic policy interventions of major importance: trade liberalization starting at the beginning of the decade, disinflation with the Real plan launched in 1994 which was followed by a conspicuous fiscal adjustment in the late 1990's.

### III THE BRAZILIAN CASE

2.22. This section is devoted to a closer examination of the Brazilian case. We focus mainly on the 1990s as we do not find any significant variation in the labor market behavior in the 1980s<sup>12</sup>. We first present evidence of changes in the labor market behavior across the period based on Okun coefficients for total employment and average labor earnings. Then we briefly discuss the major macroeconomic events of the decade and provide possible and plausible explanations, based on the insights of our conceptual framework from the overall behavior of the economy.

#### Further Empirical Evidence

2.23. While the cointegration approach in the last section allowed an identification of segmentation and integration based on negative and positive co-movement of relative wages and sector sizes, in this section we make use of a different technique to identify segmented and integrated labor market episodes based on the sensitivity of employment and real wages with respect to output based on Okun coefficients. As we would expect, quantities adjust more than prices in a segmented market and the reverse holds in an integrated market.

2.24. To investigate the sensitivity of real wages and employment with respect to output we follow Gonzalez Anaya (1999) and estimate rolling Okun coefficients for total employment and real wages for 1982 to 2001.<sup>13</sup> The advantage of a rolling regression approach is that as the estimation procedure moves through the sample, new observations are picked up and changes in the Okun can be attributed to changed circumstances in the latest incorporated period. The resulting period-specific wage and employment Okun coefficient are graphed in Figure 3.

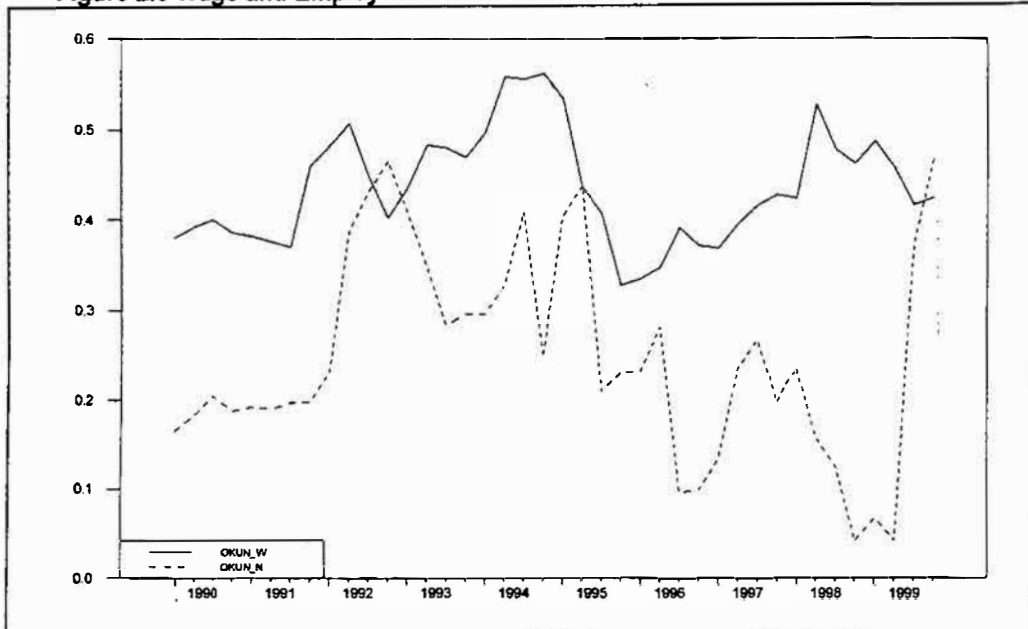
2.25. As already mentioned, we expect quantities to adjust more to macroeconomic shocks than prices in a segmented market. This appears to be the case for the years 1991 and 1992. Even though wage reaction is not monotonic, it roughly remains less pronounced than employment reaction during these two years. The Collor Plan failed to rein in inflation and the economy was on a recessive path with increasing fears of the effects of a rapid and incisive opening of the economy. The return of hyperinflation without perfect indexation of workers' wages allowed firms to adjust through prices rather than quantities in 1993 and in the first half of 1994. In that period the labor market behaved in an integrated manner, and the economy recovered from a period of negative growth

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<sup>12</sup> As suggested in the previous section, the labor market behaved essentially as an integrated market over the full decade. The usual explanation relies on the capability of firms to adjust real wages through imperfect indexation.

<sup>13</sup> As Okun's law was developed for total employment and overall GDP, we do not distinguish between the formal and informal sector.

Figure 2.3 Wage and Employment Okun Coefficients: 1989Q1 to 1999Q4



Note: Shaded areas indicate segmentation, i.e. situations where employment Okun coefficients react stronger than wage Okun coefficients.

2.26. In July 1994, as the Real Plan was implemented, inflation fell sharply and indexation practices were stopped. As a consequence firms were less able to erode real wages and adjustment occurred increasingly through quantities. This corresponds to the second shaded area in Figure 3. In the last quarter of 1994 and the first quarter of 1995, the labor market behaved in a segmented manner until the economy adapted to the low-inflation environment, reverting then to an integrated market. With the Asian crisis, once again, adjustment through quantities picked up while wage reactions were more muted. This corresponds to the third shaded area covering the last quarter of 1997 and beginning of 1998. The labor market again behaved more like an integrated market in the rest of 1998. Generally speaking, therefore, the Real Plan period was characterized by a roughly integrated labor market, with the exception of the period that follows the Asian crisis. However, since the devaluation in January 1999, the labor market has been showing an increased tendency to adjust more through quantities than prices, a phenomenon that corresponds to increased segmentation.

### Box 2.3 Empirical Estimation of Okun Coefficients

Okun coefficients reflect the sensitivity of real wages and employment to changes in output. We follow Gonzalez Anaya (1999) and estimate "rolling" Okun coefficients for 1982 to 2001. Rolling coefficients implies that these magnitudes are estimated for consecutive sub-periods. The advantage of a rolling regression approach is that as the estimation procedure moves through the sample, new observations are picked up and a change in the Okun coefficient can be attributed to an innovation in the latest period.

We make use of the Okun (1962) initial method which relates first differences of unemployment and output. Although Okun's initial approach has given way to more sophisticated methods, it still represents a simple and efficient tool.

We use quarterly data for real wage, total employment and seasonally adjusted GDP. The wage data is from PME and the output data from IBGE.

Since we deal with quarterly data, we introduce a lag structure to reflect the fact that a change in output might not fully adjust within one period and also to control for serial correlation. We find that real wages adjust in the same period to changes in output, while lagged changes in output up to the third lag impact contemporaneous changes in employment. This findings is not surprising as prices tend to react faster than quantities. The estimated equations are:

$$\Delta w_t = \alpha_w + \beta_w \Delta Y_t + \delta_w \Delta w_{t-1} + \varepsilon_{wt}$$

$$\Delta N_t = \alpha_N + \beta_N \Delta Y_t + \sum_{i=1}^3 \eta_{iN} \Delta Y_{t-i} + \delta_N \Delta N_{t-1} + \varepsilon_{Nt}$$

where  $\Delta N_t$ ,  $\Delta w_t$  and  $\Delta Y_t$  are changes in total employment, real wages and output respectively.

The respective wage and employment Okun coefficients are calculated as follows:

$$Okun_w = \frac{\beta_{Nt}}{1 - \delta_w} \quad \text{and} \quad Okun_N = \frac{\beta_{Nt} + \sum_{i=1}^3 \eta_{iN}}{1 - \delta_N}$$

Given the period-sensitivity of the computation of Okun coefficients we estimate 9-year rolling regressions (36 observations per regression). Operationally, the Okun coefficient for  $t$  is the result of a regression based on the last 36 quarters, i.e. the Okun coefficient for 1999Q1 is the results from a regression based on 1990Q1 to 1999Q1.

#### Data

Based on Augmented Dickey Fuller tests we find real wages, output and employment are nonstationary (I(1)) in levels and stationary in first differences. Recursive cointegration tests (see appendix) indicate no evidence of cointegration between the labor market variables and output, thus eliminating the need to introduce an error correction mechanism.

### ***The Macroeconomic Environment***

2.27. The experience of Brazil is usually recognized as being quite peculiar in the sense that reforms were effectively implemented in a credible way only a decade or so after the other countries in the region. The opening of the Brazilian economy started effectively only in the early 1990s and price stabilization was successfully achieved only in 1994. The succession of trade liberalization and disinflation measures coupled with a sharp fiscal adjustment produced a substantial change in the macroeconomic environment. In the 1980s, Brazil had high and growing inflation, relatively modest fiscal deficits, a weak currency and a relatively comfortable current account surplus. In 1995, the Brazilian economy began to display the opposite characteristics: low and declining inflation, high fiscal deficits, a relatively stronger currency and a deteriorating current account.

#### **Price Stabilization**

2.28. Between 1986 and 1991 there were five attempts to stabilize prices but all failed. The major ones were the Cruzado Plan in 1986 and the Collor Plan in 1990. They were all based essentially on freezing prices for a certain period of time in an attempt to break the indexation mechanisms prevailing in the economy.

2.29. A major shift in economic policy occurred under Itamar Franco, when Henrique Cardoso became Minister of Finance in 1993. He presented an innovative stabilization program largely based on market forces. The Real Plan, launched at the end of June 1994, proved to be very successful in bringing down inflation.<sup>14</sup> The monthly inflation rate dropped from 50 percent in June 1994 to about 2 percent in the fourth quarter of 1994. The plan broke with the previous indexation mechanism which automatically transmitted past inflation into current and future rates of inflation. In addition, indexation clauses were prohibited in contracts lasting less than one year, including wages contracts.

2.30. Fears of the return of high inflation rates reappeared in the post Asian and Russian crisis periods essentially as a consequence of the sharp deterioration of the fiscal stance during 1995-1998. These fears were contained by raising real interest rates and foreign investors trust was recovered thanks to an accommodating devaluation and a free float since January 1999 (with only occasional interventions by the Central Bank, e.g., July 2001).

#### **Trade Liberalization**

2.31. The Collor Plan announced a sustained opening of the Brazilian economy which officially started in the late 1980s. Trade liberalization was deepened with the Real plan. In less than five years, all non-tariff barriers were removed and average import tariffs fell from 32.3 percent in 1990 to 12.6 percent in 1995. The Real Plan was characterized by the use of the exchange rate as an instrument of the stabilization strategy. This was a deliberate choice of the government aimed at increasing the competitive pressure on the prices of tradable goods. Imports were then expected to play the role of the adjustment variable between aggregate supply and aggregate demand. Imports

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<sup>14</sup> The plan presented a mechanism to avoid the usual price freeze. This process of de-indexation was based on the establishment of a transitional unit of account (*Unidade Real de Valor*) fully indexed to inflation.



of intermediary goods increased roughly 150 percent in 1995-1996 and imports of consumption goods increased 300 percent. As a result Brazil began to record sizeable trade deficits while trade surpluses were the leitmotiv of the balance of payments up to that date. The Real Plan also initiated a process of financial liberalization and deepening.

### **Fiscal Adjustment**

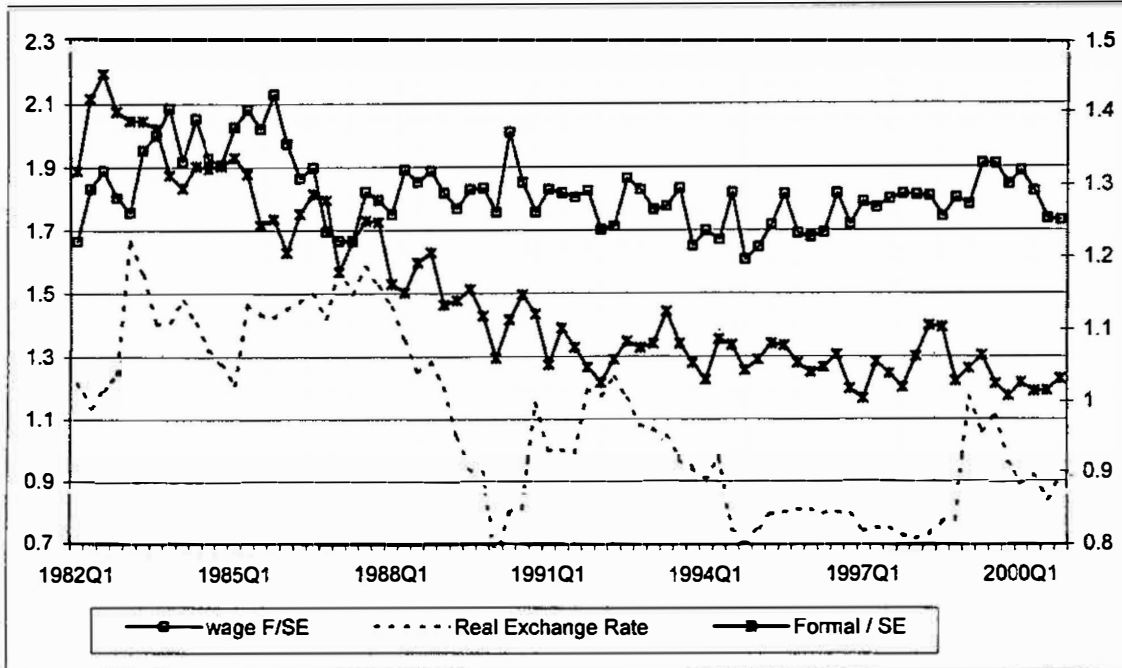
2.32. The post-Real Plan period has been characterized by a dramatic worsening in the state governments budgets. One of the major structural causes of the 1995-1996 fiscal crisis was the heavy reliance of the states on the inflation tax during the high inflation period. Large increases in salaries were granted to state employees at the end of 1994, up to 56 percent in real terms, without being covered by equivalent tax revenues. In addition, domestic interest rates rose sharply in early 1995 and the federal government strongly reduced the borrowing opportunities available to the states. As a consequence, exceptional measures had to be undertaken to prevent a deep fiscal crisis. A comprehensive restructuring of state debt was elaborated by the government by the end of the third quarter of 1996. However, increases in discretionary spending were observed in 1997 and 1998 shifting the debt dynamics into an unsustainable path. In late 1998, a strong adjustment program was implemented at all levels of government. This program, still in place today, appears to have put the net Brazilian public debt back on a sustainable and declining path.

2.33. There is some empirical evidence, even though it remains weak, of a monetary dominance regime for 1999 and 2000.<sup>15</sup> The latter indicates that monetary policy appears to be non subordinated to and unconstrained by fiscal financing requirements contrarily to the pre-Real period.

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<sup>15</sup> See IMF (2001)

Figure 2.4 Real Effective Exchange Rate, Relative Wage and Share of Informality in Brazil



Note: Real Exchange Rate and wage F/SE are scaled to left-hand axis.

### *A Conceptual and Factual Assessment*

2.34. We concentrate on three variables, namely the informal workers' earnings relative to formal workers' wage, the size of the informal sector relative to that of the formal sector and the real exchange rate (price of non-traded goods over price of traded goods). The behavior of these three variables in the 1990s are reported in

Figure 2.4.

2.35. It might be argued that real interest rate should not be treated as an exogenous variable as it is the case in our framework. Nevertheless, as far as Brazil is concerned, we found that the real interest rate does not form part of the cointegration relationship and can thus be treated as an exogenous variable<sup>16</sup>.

2.36. Our conceptual framework offers a wide spectrum of causes of real exchange rate movements which correspond to a specific macroeconomic environment and labor market behavior. We have:

- a real depreciation (non-traded goods become less expensive relative to traded goods) with evidence of segmentation could be the outcome of either a negative shock to the traded-goods sector, or a shift in preferences towards traded-goods, or a rise in the real interest rate
- a real appreciation with evidence of segmentation could only be the outcome of a negative shock to the non-traded goods sector
- a real depreciation with evidence of integration could be the outcome either of a positive shock to the non-traded goods sector, or of a negative shock to the traded goods sector, or a shift in preferences towards traded-goods, or of a rise in the real interest rate
- a real appreciation with evidence of integration could be the outcome of either a positive shock to the traded-goods sector, or a negative shock to the non-traded goods sector, or a shift in preferences towards non-traded goods or a fall in the real interest rate

2.37. These results are summarized in Table 2.1. Box 2.4 presents heuristically the effects of macroeconomic policies by referring the latter to the shocks considered previously.

**Table 2.1 Sources of Real Exchange Rate Variations and Labor Market Behavior**

	Real Appreciation		Real Depreciation	
	Segmentation	Integration	Segmentation	Integration
$\hat{A}_T, \hat{\epsilon}$	-	> 0	< 0	< 0
$\hat{A}_N$	< 0	< 0	-	> 0
$\hat{\gamma}$	-	< 0	> 0	> 0
$\hat{r}$	-	< 0	> 0	> 0

<sup>16</sup> Indeed, a joint test of long-run exclusion and weak-exogeneity of the real interest rate could not be rejected (LR-test:  $\chi^2(2)=2.91$ , p-value=0.23).

## **Box 2.4 The Impact of Macroeconomic Policies In the Core Framework**

### **Trade Liberalization**

**Production.** If the traded goods sector is competing directly with imports then liberalizing trade corresponds to a negative shock to the formal sector in the short (medium) run. However, the sign of the shock is expected to be reverted in the longer run because of imported technological improvements. Inputs costs are also expected to fall a fortiori if trade liberalization is accompanied by financial liberalization and/or deepening. Then the cost of borrowing physical capital is expected to fall and borrowing constraints to be eased, possibly also in the informal sector.

**Consumption.** Consumption is expected to boom because of the fall in the price of traded goods. The inherent positive income effect also leads to a rise in the level of consumption of non-traded goods.

**Government.** If trade liberalization implies a conspicuous fall in government revenues because of lower tariffs proceedings, then other tax rates may have to be increased and/or expenditures reduced. Any rise in taxation could generate a bias towards informality. In general, if the government adjusts immediately for revenue losses, then the negative impact on formal production is likely to be more pronounced. If the government adjusts its expenditure level by reducing its consumption of non-traded goods then this would have the effect of a negative shock to the informal sector. The overall income effect is discussed in more detail in the fiscal adjustment section.

### **Exchange-Rate-Based Disinflation**

**Production.** Exchange-rate-based disinflation has the effect of a negative shock to the traded-goods sector as it corresponds to a fall in the price of the traded good.

**Consumption.** A fall in the inflation rate leads to two contrasting effects. First, lower prices imply a higher consumption based real interest rate, which tends to lower the current level of consumption. Second, lower price levels reduce the opportunity cost of holding money (or equivalently it generates a positive real balances wealth effect), which tends to increase the current level of consumption. Then, the predominant effect has to be determined empirically.

**Government.** Lower inflation implies lower revenues from seignorage. Then, government may be willing to reduce expenses and/or increase tax rates to avoid fiscal crisis like in the case of trade liberalization.

### **Fiscal Adjustment**

Both, a trade liberalization and an exchange-rate-based disinflation program are expected to be coupled with fiscal adjustment to offset losses in government revenues. Fiscal adjustment could consist either in an increase in taxation or a reduction in expenditures or both.

Higher taxation, besides having a negative impact on formal production, makes the informal sector more attractive as the latter is characterized by tax evasion. This is specially true if formal production (firms and/or workers earnings) is the target of higher tax rates. This would also be true, although to a lower extent, if indirect taxes are raised.

As to a reduction in the level of expenditures, its impact depends essentially on the consequent changes in expenditure composition. If reduction in consumption of non-traded goods is the main target then the informal sector is directly affected and this could increase the degree of segmentation in the labor market.

The purpose of fiscal adjustment can also be the reduction of government debt per se. In that case interest rates could be expected to fall consequently.

2.38.

2.39. The **Collor period** is characterized by evidence of a segmented labor market. We also have that the price of non-traded relative to traded goods is falling dramatically. The real interest rate remains at very high levels. All these elements seem to indicate that through this period the formal sector was undergoing a negative shock or at least was behaving as if. The fact that the economy was opening progressively and in a credible manner makes this explanation quite plausible. The end of the Collor brought back some positive growth prospects and the labor market appeared to be less

segmented. At the same time the real exchange rate path was reverted. As real interest rates remained very high, essentially because of the return of hyper-inflation, a possible explanation of the phenomenon could be a shift in preferences towards the non-traded goods sector.

2.40. The **Real Plan** has been a path-breaking economic event. After a relatively short period of adjustment, characterized by segmentation in the labor market due to a substantial rise in labor costs brought about by a fall in inflation which led to depreciation, we observe a sharp increase in the relative price of non-traded goods essentially driven by a surge in consumption. The latter was due to the fall in the cost of holding money, the relaxation of liquidity constraints and increased access to credit brought about by financial liberalization. There is no clear evidence of any positive shock to the traded goods sector. On the contrary, productivity improvements appear to have been the consequence of lower worker participation in that sector. The expansion of the informal sector together perhaps with a possible positive shock could have explained the fall, even though not a dramatic one, of the relative price of non-traded goods in the period leading up to the **Asian crisis**, the **Russian crisis** and the subsequent recessionary period that includes the devaluation of January 1999. Again labor regulations appear to have been binding beginning in late 1997. Even though the economy as a whole has been hit by these external shocks, the formal sector which was more exposed to foreign investments may have suffered the most.

2.41. The year of 1998 is characterized by negative growth rates, a falling relative price of non-traded goods in terms of traded goods, falling self-employed earnings relative to formal wages and an increasing participation in the informal sector. These elements corroborate evidence of a predominant negative shock to the formal sector which has led to a higher degree of segmentation in the labor market. The first signs of overall economic recovery are perceived in late 1998 and are strengthened by the devaluation that occurred at the beginning of 1999. There is some evidence of an industry-led recovery which explains the reverted tendency in the real exchange rate. We may also interpret the real appreciation as the outcome of a negative shock to the non-traded goods sector as there is still some evidence of a segmented labor market to date. The contribution to gross domestic product of the industrial sector has risen from 34.6 % in 1998 to 35.5 % in 1999 while that of the services sector has fallen from 62.3 % in 1998 to 61.1 in 1999. These tendencies were maintained in 2000. GDP growth has jumped to more than 4 % and the relative size of the formal sector has increased in terms of the size of the informal sector. The degree of segmentation has fallen since 1999 and there is some evidence (

Figure 2.4) of the return of job creating growth after a mitigated decade.

2.42. The decade of the 1990s has been characterized by a growing informal sector. This trend has not exclusively been the result of an increasing degree of segmentation in the labor market. Rather it has been the result of the conjunction of a series of economic events that hit negatively and predominantly the formal sector and of always threateningly binding labor legislation. In addition, a general shift of preferences in favor of non-traded goods also has contributed to this pattern in the composition of the economic activity.

2.43. Nevertheless, since the beginning of 2000 there are signs of a long-term oriented recovery in the formal sector. This may indicate an increase in productive efficiency and competitiveness in the formal sector which have been expected since the beginning of the 1990's.

#### IV POLICY IMPLICATIONS

2.44. Empirical evidence presented in previous sections supports the view that neither a purely "dualistic" nor a purely "non-dualistic" approach can be applied to labor markets in less developed economies without referring to any further qualification. We argue that an approach able to encompass both views is rather desirable, specially in terms of policy implications. We argued previously that in the presence of a labor market that behaves like an integrated labor market, then, reforming labor regulations should not be the core of policy orientation as there is no evidence that the latter are either strongly binding and/or distorting. Rather, efficiency improvements should be eased in both formal and informal sectors. On the contrary, if there is evidence of segmentation in the labor market, then reforming the labor regulation is likely to generate efficiency and eventually equity gains. In the case of a labor market that behaves both like a segmented and an integrated market, then policy orientation should be defined according to both set of characteristics. A rise in the degree of segmentation at some points in time underlines the necessity to reform labor market legislation in order to dampen the effects of activity downturns. Nevertheless, evidence of integration in other periods is the signal of a potentially efficient labor market and, policies aiming at reducing operational costs and at improving economic growth potential in all sectors of the economy are likely to be efficiency and equity enhancing. Again, labor-related policy orientations could not be disentangled from other macroeconomic objectives as the two are expected to interact.

#### **Less Segmentation *versus* More Integration**

2.45. A higher degree of segmentation is the outcome of a negative shock to the economy in the presence of downward wage rigidities in the formal sector. Sources of downward rigidities include wage inertia due to indexation mechanisms (backward-looking contracts)<sup>17</sup>, unions and government imposed wage floors. Then, we would expect the removal of these downward rigidities to generate

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<sup>17</sup> See Crowley (1997) for an extensive analysis.

strong efficiency gains as worker flows would be driven essentially by earnings differentials considerations<sup>18</sup>.

2.46. It has been argued that the implementation of macroeconomic reforms can take advantage of a dramatic economic environment<sup>19</sup>. However, as far as labor institution reforms are concerned, the validity of this argument can be questioned.

2.47. Recently, various authors presented the view that labor institution reforms have proved difficult to implement essentially because of political opposition<sup>20</sup>. Lora and Pagés (1996) argue that this is effectively the case in most of Latin American countries. Political opposition is mounted by formally employed workers as they constitute the labor cohort who benefit directly from labor market institutions. Indeed, the latter generate rents that take the form of high relative wages and high relative employment security. Moreover, in contrast to informal and unemployed workers, formal workers are usually strongly represented in the political decisional process despite the fact that they do not represent the largest cohort in the labor force. As a consequence, the interest of workers with formal work contracts would prevail, even though the inherent economic outcome proves to be suboptimal and often unfair.

2.48. The Cardoso experience can be an illustration of the above arguments. The Real plan in Brazil was seen as a necessary adjustment program and eventually put the economy on a sustained path for economic development. However, the implementation of potentially beneficial labor reforms were refrained by political opposition. Indeed, as the economy, driven by a consumption boom, recovered rapidly from the initial negative impact of the Real plan, labor reforms have been perceived as an unnecessary additional sacrifice by the concerned individuals and their representatives.

2.49. The above process is likely to be reinforced by electoral concerns of politicians. Indeed, formal workers usually express their voting right more extensively than other workers. In other words, in a context where political interaction is taken into consideration, it is not surprising to not witness radical and effective changes in labor legislation within short spells of time.

2.50. In terms of policy implications, efforts put toward the implementation of radical labor reforms may not be highly effective unless they can be inserted into a broader set of policy interventions.

2.51. The previous sections suggest that in a market that behaves like an integrated market, the informal sector and specially the self-employed, are likely to present the features of a dynamic and potentially highly productive sector. In this context, the main challenge for policy makers is to make the informal sector to act like the formal sector with respect to compliance with social security contributions and taxation. Indeed, when there is evidence of labor market integration, tax and social security contribution evasion should be a major concern for policy makers.

<sup>18</sup> Earnings would also include any kind of non-wage benefits as specified in Cunningham and Maloney (2001).

<sup>19</sup> See Rodrik (1996) for a general discussion of the argument.

<sup>20</sup> See, for instance, Saint-Paul (2000) for a comprehensive theoretical analysis and further references.

2.52. In the same way that rigidities in the formal sector represent rents to formal workers, tax evasion can be seen as a rent seeking activity for informal individuals that is detrimental for the economy.

2.53. However, it is important to stress that tax evasion and non compliance with regulations are only a characteristic of the informal sector, not its very and only nature. Then, it could be counter-effective and harmful to impose on the informal sector compliance with taxes and regulations as long as other possible production impediments are not removed from that sector. Indeed, despite signals of a quasi well-functioning of the labor market, inefficiencies may still prevail in the informal sector. These inefficiencies result from the existence of costs not related to the very process of production. As such labor regulations for formal firms, weak judicial protection and high cost of capital can represent a bulk of "excessive" costs of production for informal producers<sup>21</sup>.

2.54. Weak judicial protection, as well as weak political representation, are essentially due to the fact that activities in the informal sector are not fully legal. Therefore, producers can not exercise full property rights over their capital and product and contracts can not be enforced through the judicial system. This translates into abnormally higher transaction and monitoring costs for the informal sector compared to the formal sector.

2.55. Capital accumulation is also severely affected by non fully enforceable contracts. Indeed, effective borrowing rates paid by informal producers are higher than those paid by their formal counterpart.

2.56. A promotion of the efficiency of productive activities in the formal sector would contribute to lowering the cost of compliance with taxation and regulations to informal workers. This cost would be further reduced through a social security reforms that strives to align the costs with the benefits of contributors.

2.57. In the light of the above discussion, we argue that pursuing in the first place higher integration rather than lower segmentation, leads eventually to lower segmentation. Higher labor market integration implies better production conditions and a higher ability to take advantage of government-provided services in the informal sector. Subsequently the informal sector becomes increasingly attractive to all workers, implying that opposition to labor institution reforms could be weakened because of lower rents attached to formal activity. Moreover, the political weight of informal workers can be expected to increase, which could further contrast formal workers opposition. This tendency would be made even stronger by social security reforms that would ensure compliance of the full labor force.

2.58. In a country like Brazil, where segmentation and integration periods alternate, working for higher integration of the labor market is likely to produce almost immediate results.

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<sup>21</sup> De Soto (1989) presents evidence of the phenomena for Peru.



2.59. In generic terms, the medium-to-long run policy objective is to fully align interests of participants in the formal sector with the interests of the participants in the informal sector, that is, to make sector-participation arbitrage rely exclusively on the skills and intrinsic ability of the individual.

2.60. The policy intervention orientation in the short-to-medium-run depends on the one hand on the behavior of the labor market and on the other hand on decision-making efficiency of the political process.

### **Labor Policy Orientations and the Macroeconomic Environment**

2.61. In this section, we present "anti-segmentation" and "pro-integration" policies suitable for macroeconomic environments inherent to the three type of macroeconomic policies analyzed previously.

#### *Trade Liberalization*

2.62. Economic opening and integration are expected to affect negatively the traded goods sector as competition from foreign producers increases. Thus, trade liberalization is likely to affect labor earnings negatively. However, an offsetting positive income effect may appear due to a fall in the general price index as tariffs on imported goods are lowered. When wages are relatively flexible in the formal sector, those who flow to the informal sector are expecting to pursue higher income. Then, no segmentation should be identified. Moreover, the real exchange rate could either appreciate or depreciate depending on the amplitude of the offsetting income effect.

2.63. In the presence of downward wage rigidities in the formal sector, workers are expected to be rationed out from the formal sector and the fall in labor earnings is expected to be essentially concentrated in the informal sector. In that case the degree of segmentation is expected to increase, relative earnings and participation in the informal sector move counter cyclically and, the real exchange rate depreciates.

2.64. The negative initial impact of trade liberalization would be accentuated if the government had to rise new taxes to offset the fall in tariffs revenues.

2.65. In the traditional view, a reduction in trade barriers is expected to enhance efficiency in the formal sector and to foster an adjustment in relative prices that leads to a reallocation of production resources towards that sector. However, the previous section indicates that in the presence of formal sector rigidities, the latter outcome may not be obtained in the short-to-medium run. Then, it is the role of policy intervention to smooth transitional negative effects.

2.66. In the formal sector, policy interventions must aim at facilitating efficiency improvements, specially for those firms that are directly affected by trade liberalization. Measures could consist of lowering the costs of borrowing physical capital by accompanying a trade liberalization with financial market liberalization and deepening. Nevertheless, firms may be induced to adopt more capital intensive technologies if regulations in the labor market remain unchanged. As we pointed out previously, reforms in the labor market may not be implemented rapidly. As a consequence, an alternative policy direction, which would complement efficiency improvements and contain substitution of labor, could be based on the implementation of specific training schemes. These training programs should provide workers with the necessary skills to catch up with expected

technological improvements. All workers should be entitled to these schemes. Obviously, the cost of large scale training schemes may prove to be prohibitive, specially in the context of a macroeconomic adjustment program that requires budgetary restrictions. Then, there may be some scope for subsidizing temporarily and decreasingly formal producers. Subsidies could be made conditional on non-decreasing employment levels within a firm. However, the government would have to ensure that financial support is terminated within a relative short period of time as to avoid the perpetuation of rents previously attached to trade barriers, which are usually hold responsible for the lack of efficiency enhancing investments.

2.67. Even though the informal sector is not directly affected by trade liberalization, labor rationing in the formal sector due to rigidities is expected to lead to lower earnings and thus to worsen the plight of the lowest income group. Providing better access (full property rights) to cheaper capital to informal producers would contain segmentation and the progression of poverty. In the very short-run financial resources should also be devoted to a direct transfer to the poorest. It may be the case that part of these transfers would be used to build up some physical capital stock. Thus temporary income support programs may have long run poverty reducing effects.

2.68. When wages are relatively flexible, we would expect the impact of trade liberalization to be less harmful than in the presence of downward rigidities. However, labor regulations that do not lead essentially to wage rigidities but that are responsible for high labor costs (i.e. firing restrictions and indemnities, social security contributions ) may induce formal firms to replace labor with capital, putting the sector on a path of job destruction, despite efficiency improvements.

#### *Exchange-Rate Based Disinflation*

2.69. A fall in the rate of devaluation is also equivalent to a negative shock to the formal sector. However, as inflation is curbed, we can expect aggregate consumption to react favorably to the disinflation program due to a positive wealth effect. The associated rise in consumption will also fall on non-traded goods and the exchange rate may appreciate as a consequence.

2.70. In that context, downward wage rigidities in the formal sector may not translate into a dramatic rise in the degree of segmentation as long as consumption reacts strongly and rapidly. Even though the formal sector is harmed by the program, workers are not necessarily rationed out in the presence of a strong rise in demand, which leads to a rise in the price of non-traded goods relative to traded goods. Indeed, the latter effect pushes earnings in the informal sector up and those workers initially rationed out may benefit from the rise in the price of non-traded goods. The labor market could then behaves as an integrated market.

2.71. Evidence of segmentation implies that either the negative shock to the formal sector is substantial and/or consumption reacts timidly and/or slowly. The Brazilian experience at the beginning of the Real Plan seems to fit the "and" scenario. There was initially a large negative shock to the formal sector. Then, consumption started to react upward and the real exchange rate started to appreciate after a period of pronounced depreciation.

2.72. Exchange-rate-based disinflation and trade liberalization have a similar impact on the economy. Both programs correspond to a negative shock to the formal sector and both attempt to generate efficiency improvements in sectors producing exported goods or in sectors which are competing directly with imported goods. However, while in the case of trade liberalization downward

wage rigidity could be considered as an exogenous feature, within a disinflation program downward rigidity can be expected to be increased (generated) by the latter. Indeed, inflation usually represents a good means for firms to contain real wages progression.

2.73. The policy orientations exposed in the foregoing analysis hold in the context of a price stabilization program. Efficiency improvements should be eased controlling for the impact on employment. Nevertheless, there is stronger scope for a re-framing of the wage bargaining process and/or for acting on wage floors in order to offset the rigidities induced by the fall in inflation rates.

2.74. Theoretically, highly centralized or decentralized structures are the most desirable in terms of employment outcomes<sup>22</sup>. Nonetheless, highly centralized structures may give more space to an authoritarian government and could then generate non-optimal labor markets outcome. Ideally, bargaining should occur at the individual level. Only in that situation, all fringe benefits and costs incurred by both parts of the bargain can be on the table<sup>23</sup>. However, information is neither perfect nor complete and unions may play an essential role in the access to legal information and thus to guarantee a fair bargain.

2.75. Another way to contain real labor costs is to erode the minimum wage if the latter influences substantially the wage distribution in the formal sector. In the case of Brazil, the impact of the minimum wage seems to be far stronger on the informal sector than the formal. This corresponds to the so-called "lighthouse effect"<sup>24</sup>, where, though not enforced by law, the minimum wage appears to be a benchmark for fair remuneration<sup>25</sup>. Then, by containing the real improvement of the minimum wage the government is likely to harm the poorest individuals concentrated in the informal sector without restraining job losses in the formal sector. In that context, the government has an additional instrument, besides direct financial support, to limit an eventual negative impact of disinflation on poverty. Note, that disinflation *per se* can be seen as a poverty reducing measure as poor individuals have usually few inflation hedges with which to protect themselves against price increases and are the ones who most suffer from the inflation tax<sup>26</sup>.

#### *Fiscal Adjustment*

2.76. Fiscal adjustment could represent a policy goal *per se*. However, in most developing countries, fiscal adjustment has been a companion to attempts of macroeconomic adjustment. Brazil is no exception as the fiscal adjustment program set in the second half of the nineties was essentially the consequence of fiscal indiscipline in the aftermath of the Real plan. Public expenditures increased despite the dramatic drop in inflation tax revenues. Fiscal alarm was sounded in large part by

<sup>22</sup> See for instance Mc Donald and Solow (1992).

<sup>23</sup> See Fugazza (2001) for a theoretical illustration.

<sup>24</sup> See Neri and al. (2000) and Amadeo and al. (2000) for a detailed identification and analysis of this effect.

<sup>25</sup> Maloney and Nuñez (2001) present some evidence of "lighthouse effect" also for Mexico, Argentina and Uruguay.

<sup>26</sup> See Agenor (1999) for a comprehensive discussion.

regional public administrations because of a lack of cooperation with and, guidance from the central administration<sup>27</sup>.

2.77. In a simplified understanding, fiscal adjustment can take the form of cuts in public expenditure<sup>28</sup> and/or a rise in tax revenues<sup>29</sup>. Both interventions are directed toward the containment and possibly the reduction of soaring fiscal deficits. However, their respective impact could differ substantially despite identical accounting properties.

2.78. Lowering government spending eventually leads to a fall in absorption and can be biased either toward the formal or toward the informal sector. However, aggregate demand could in turn be stimulated by lower interest rates due to lower government borrowing. It is also argued that in such a context productive resources would be redirected toward the private sector which is usually thought to be more productive than the public sector.

2.79. When the government decides to reduce public expenditures by lowering its consumption of non-traded goods then, a real depreciation is likely to occur and earnings in the informal sector are expected to fall relative to labor earnings in the formal sector. The degree of segmentation increases if worker migration toward the formal sector is refrained by downward wage rigidities. When spending cuts are achieved through lower public employment and wages are downward rigid in the formal sector, then again we expect the degree of segmentation to increase.

2.80. A rise in taxation, either direct (income taxation and payroll taxes) or indirect (VAT), represents a negative shock to the formal sector. The shock is likely to be stronger in the case of a rise in direct taxation and is amplified by the presence of downward rigid wages. The latter implies that even parts of the tax increase can not be passed onto wages. Whether formal wages are downward rigid or not, individual migration to the informal sector may be also motivated by tax evasion considerations<sup>30</sup>. Hence, the outcome of higher taxation may lead to a fall in the tax base and possibly to a fall in tax proceedings. The effects of a rise in indirect taxation are likely to be more diluted as part of it can fall on consumers through price adjustments. However, as indirect taxation is a regressive tax, the outcome for the poor can be worsened. In order to circumvent such a non desirable outcome it usually recommended to appropriately target the basket of goods on which to impose higher tax rates<sup>31</sup>.

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<sup>27</sup> See IMF (1998).

<sup>28</sup> Cuts in public expenditure can take either a direct or indirect form. The latter can correspond to changes in the government's hiring and wage-setting policies, and/or the imposition of constraints on the growth in (or reduction in the level of) public sector employment.

<sup>29</sup> An indirect way to rise tax revenues is to increase the relative price of public services.

<sup>30</sup> See Loyaza (1995).

<sup>31</sup> World Bank Poverty Report

2.81. Another alternative to raising tax revenues consists of an enlargement of the tax base. To do so, a government can decide either to force those who are evading to contribute and eventually penalize them, or to induce them to participate in fiscal schemes on a voluntary basis. While the former approach would not necessitate any particular measure but fiercer and more efficient tax audit agencies, the latter would be effective only if individuals find an incentive to refloat their activity. Tax evasion is usually the consequence of the perception by the evader of the existence of pure taxes. Then, voluntary contribution would be facilitated by aligning costs and benefits of fiscal participation. This is particularly true for social benefits contributions. The necessity of reforming the welfare system, essentially the pensions scheme, in Brazil and in general in Latin American countries have been underlined in the past years, the rationale being essentially a reduction of huge and unsustainable fiscal deficits. This rationale is reinforced by the possibility of attracting informal workers, specially the self-employed. In that context, efforts directed towards increasing the degree of integration as mentioned in previous sections, would contribute to an acceleration of this process. Moreover, a by-product of a reform of social benefits schemes could be a fall in employers payroll taxes and thus eventually a rise in formal employment.

2.82. Within a fiscal adjustment scheme based in part on the reform of the welfare system, there is also scope for a reform of severance payments aiming at avoiding the "pure cost" feature of existing schemes. Indeed, severance payments should not represent a firing restriction but rather a financial cushion for the dismissed worker. Financial support during unemployment spells is motivated by the existence of imperfections in the financial market that limit individuals capability to insure themselves against income drops and thus to smooth consumption. However, if severance payments are given this characteristic, then they would make unemployment benefits redundant if the latter are paid only to workers which are formerly employed. Unemployment insurance schemes, where they exist, are characterized by very low levels of coverage in developing countries including Latin American countries<sup>32</sup>. In Brazil for example, only 11.8 % of unemployed workers benefit from the scheme. This may reflect either very low replacement ratios or inefficient administrative management of the scheme or both. In other words, unemployment insurance schemes do not appear to play fully their role of financial cushion specially for the poorest individuals. Moreover, if the payment of unemployment benefits is conditional on former formal employment, then all informal workers, who include the poorest individuals, are not eligible for such a scheme. In order to make policy intervention more transparent for firms and workers, it would be preferable to guarantee financial support to the poorest through income support programs and give severance payments the role of unemployment insurance. More precisely, the worker should be able to cash in her contributions in any situation. Usually a large part of the contributions to severance payment schemes are paid by the employers. Unconditional severance payment would allow for downward pressure on wages, independently of the degree of centralization of the bargaining process. Indeed, workers (unions) internalize the future financial transfer in case of the interruption of the job relation and thus are ready to give up some present income<sup>33</sup>.

2.83. Table 2.2 summarizes previous results.

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<sup>32</sup> See De Ferranti and al. (2000).

<sup>33</sup> See for instance, Cahuc and Zilberberg (2000).

**Table 2.2 Policy Priorities During Alternative Macroeconomic Scenarios**

	Trade Liberalization	Disinflation	Fiscal Adjustment
Pro-Integration	Lower cost of borrowing physical capital Strengthening property rights	Lower cost of borrowing physical capital Strengthening property rights	Social security reform
Anti-Segmentation	Training schemes Lower cost of borrowing physical capital Temporary and conditional subsidies	Collective bargaining reform Lower cost of borrowing physical capital Temporary and conditional subsidies	Severance payments reform Payroll tax reform

## V CONCLUSION

2.84. Since nearly 60 percent of the workforce in developing countries are employed in the informal sector, an analysis of labor markets in developing countries cannot ignore the importance of the labor market composition, i.e. the relative size of the formal and informal sector. In this paper, we argue that the labor market composition is not determined only by the existence of labor market rigidities per se, but is also a function of the macroeconomic environment, which determines if labor market rigidities become binding or not. The paper argues that labor market composition and macroeconomic environment are intimately linked and need to be analyzed jointly, as:

- the macroeconomic environment itself can affect the degree of segmentation in the labor market and consequently the impact of policy interventions
- the expected outcome of macroeconomic policies such as stabilization and adjustment policies varies whether the labor market behaves like an integrated or a segmented market

2.85. We empirically test the hypotheses of segmentation and integration using recursive cointegration techniques and rolling Okun coefficients. Within the first approach, evidence of integration or segmentation is nested within the hypothesis of a positive or negative co-movement of relative formal/informal real wages and participation rates. Regarding the latter approach, the hypothesis of segmentation is accepted if quantities react stronger than prices to changes in output, i.e. employment Okun coefficient are more sensitive than wage Okun coefficients.

2.86. Both approaches identify alternating periods of labor market integration and segmentation during the 1990. As the 1990 decade in Brazil has been characterized by a growing informal sector, this trend is not the exclusive result of a increasing degree of segmentation in the labor market. Rather it appears to be the result of the conjunction of a series of economic events and of always threateningly binding labor legislation. In addition, a general shift of preferences in favor of the non-traded goods also contribute to the pattern of the economic activity composition.

2.87. In terms of policy implications, the analysis undertaken in the paper allows us to underline the following major points:

- When a labor market behaves like an integrated market at some points in time, then trying to increase integration rather than to decrease segmentation proves to be a better policy orientation
- In a political economy context, increasing integration may lead to lower segmentation
- Higher integration contributes to ease compliance with social security contributions and taxation among informal individuals
- Full integration can not be observed as long as pure taxes features prevail in the economy





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### Appendix 1: Recursive Cointegration Tests

Figure 2.5 Recursive Cointegration Tests Between Real GDP and Employment:

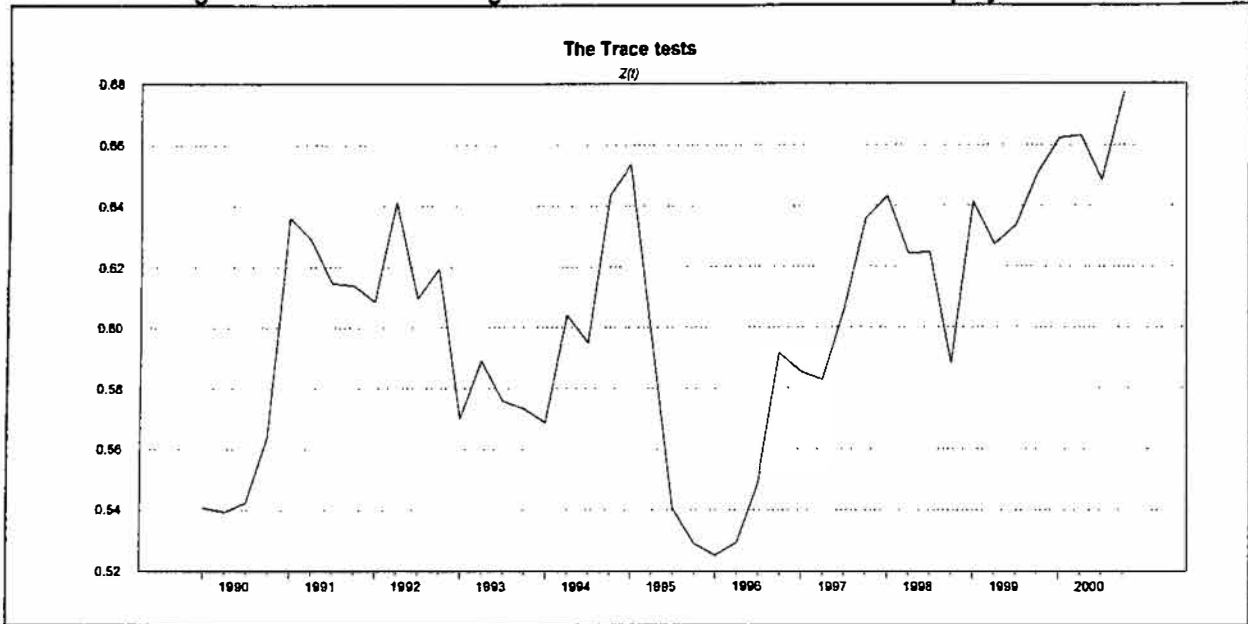
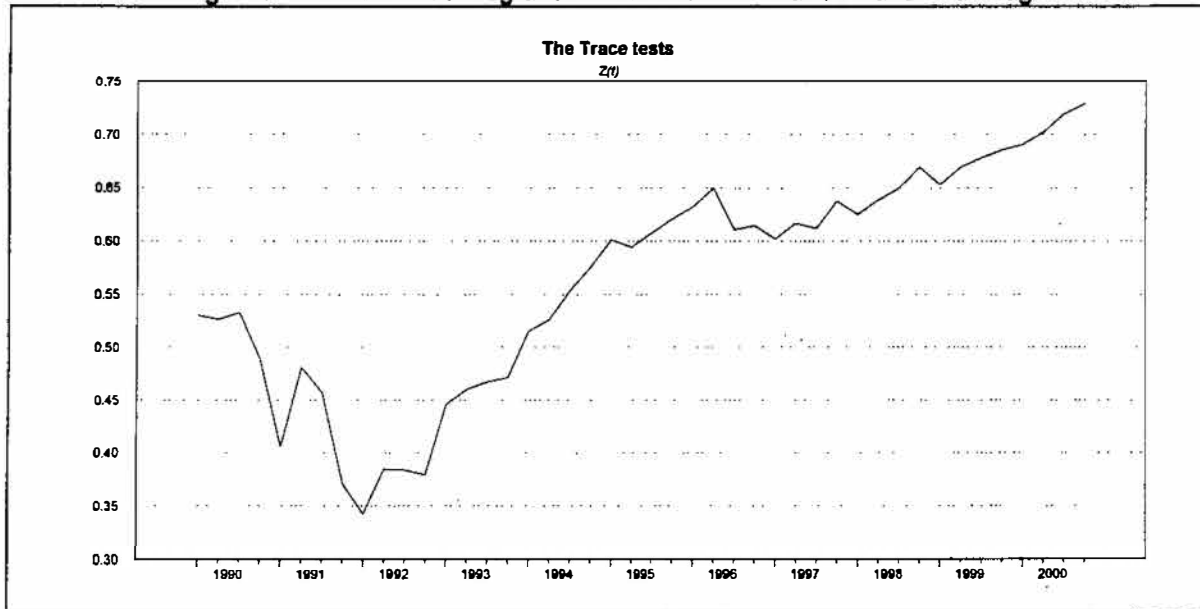


Figure 2.6 Recursive Cointegration Tests Between Real GDP and Real Wages





**Appendix 2: Cointegration tests between relative size of self-employed to informal,  $n_n/n_{if}$ , and relative wages of self-employed to informal,  $W_N/W_{IF}$  :**

The VAR model is estimated over the sample from 1990Q1 to 2000Q1 and includes a constant in the cointegration space and 4 lags for  $W_N/W_{IF}$  and  $n_n/n_{if}$  and these specification proves sufficient to produce random errors. The  $\lambda_{trace}$  tests indicate one significant cointegrating vector in model:

Null Hypothesis	Alternative Hypothesis	Lag: 4 With Constant	90% Critical Value
$\lambda_{trace}$ test			
$r = 0$	$r > 0$	19.44*	17.79
$r \leq 1$	$r > 1$	5.09	7.50

A hypothesis test of procyclical behaviour between the  $W_N/W_{IF}$  and  $n_n/n_{if}$  cannot be rejected. (The LR test,  $\chi^2(1) = 0.35$ , p-value = 0.55).

The resulting cointegrating vector,  $\beta$ , is:

	$\beta$
$n_n/n_{if}$	1.000
$W_N/W_{IF}$	-1.000
Constant	0.093

**Figure 2.7 Self-Employed versus Informal**

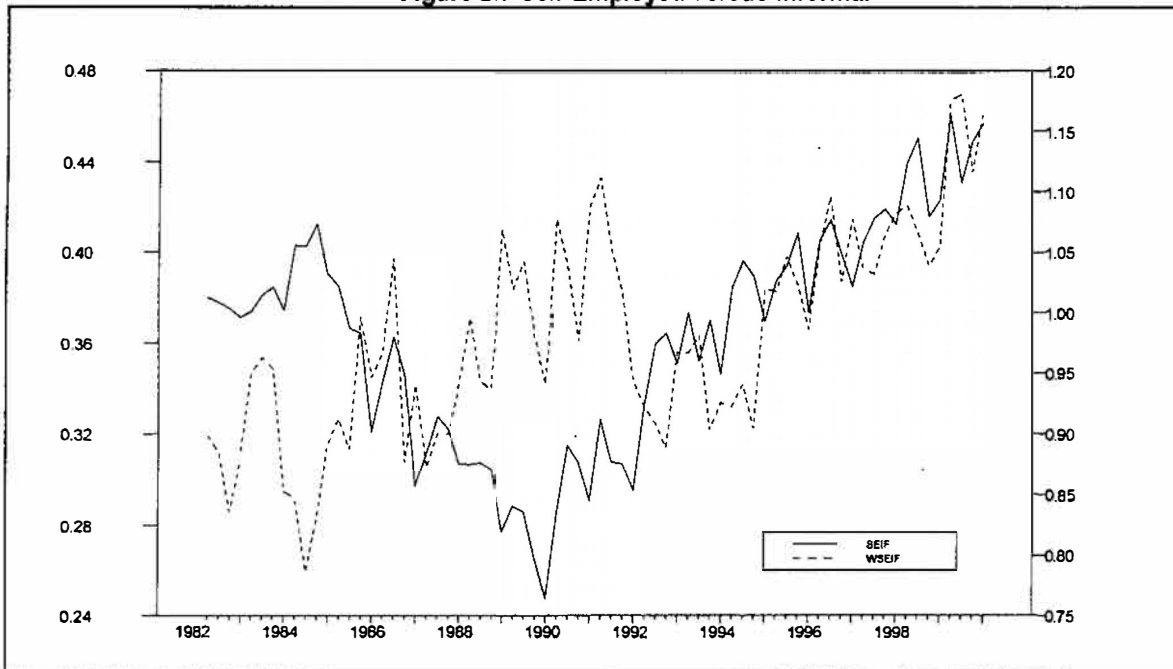


Figure 2.8 Self-Employed versus Informal

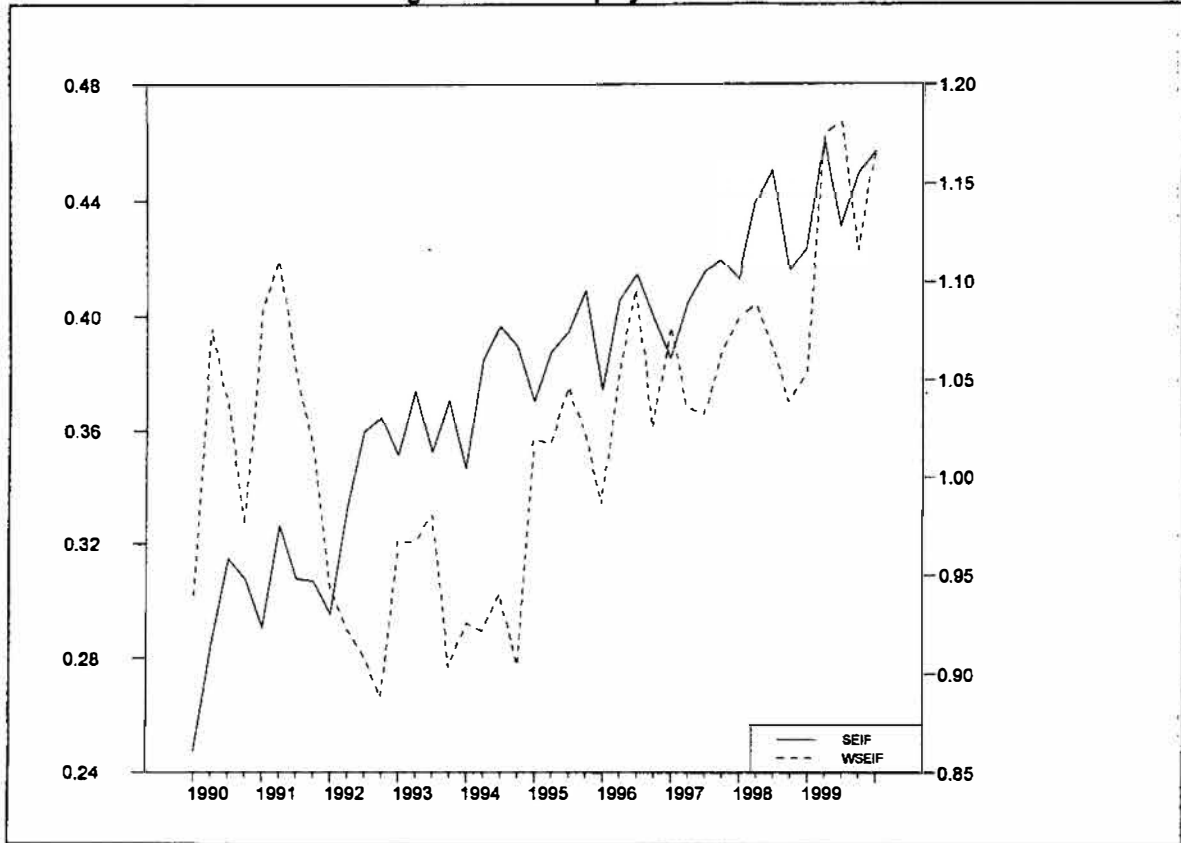




Figure 2.9 Self-Employed versus Formal

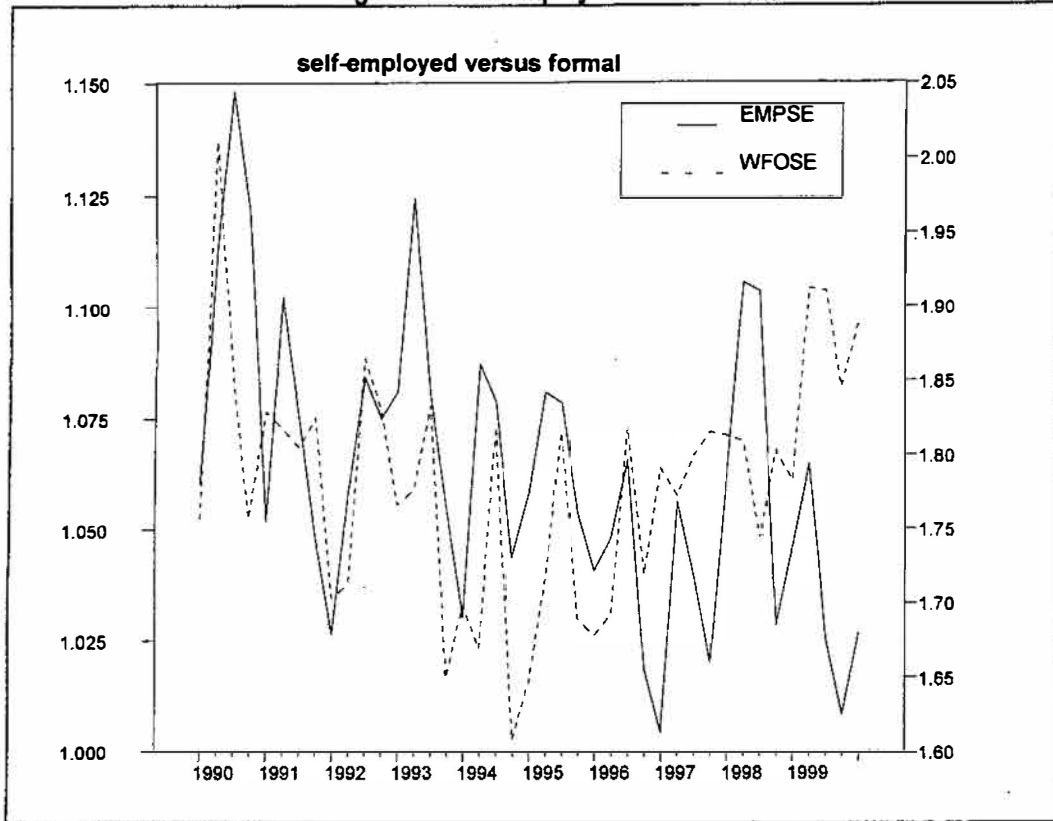
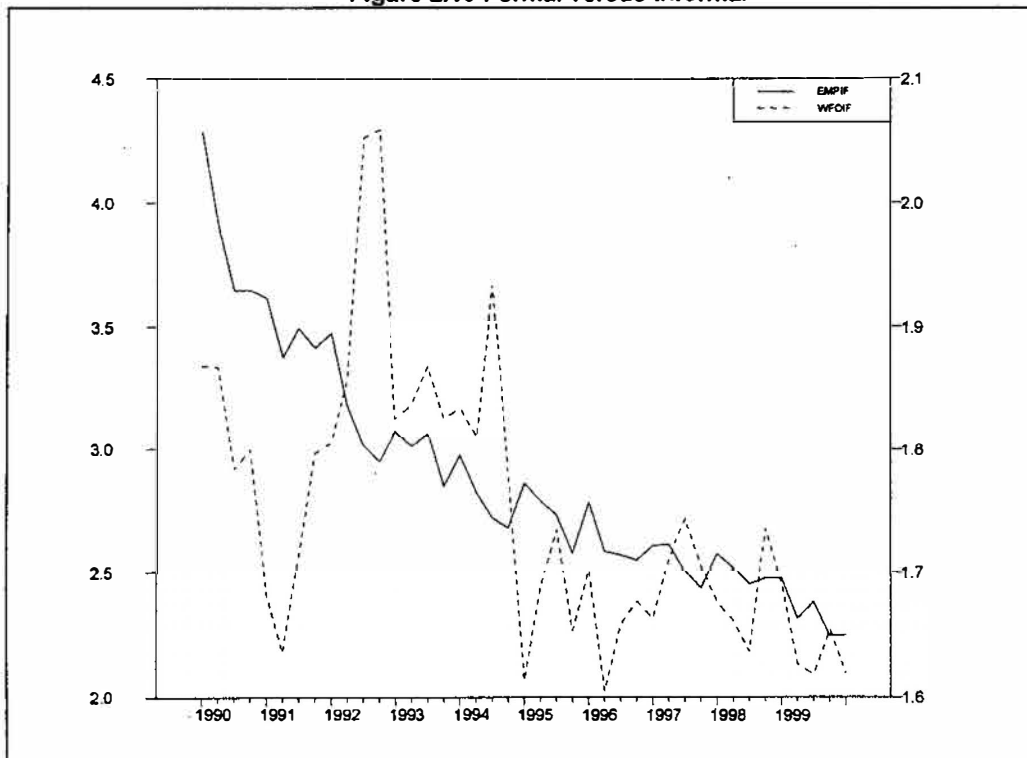


Figure 2.10 Formal versus Informal





### 3. RE-EXAMINING THE INFORMAL SECTOR

Prepared by William F. Maloney and Wendy V. Cunningham<sup>34</sup>

#### I INTRODUCTION

3.1. Three decades of research have not yielded consensus either on the definition of the informal sector or its *razon de ser*.<sup>35</sup> Broadly speaking, the small-scale, semi-legal, often low-productivity, frequently family-based, perhaps pre-capitalistic enterprises continue to employ between 30% and 70% of the urban work force in Latin America. A long tradition views informal workers as comprising the less-advantaged sector of a dualistic or segmented labor market.<sup>36</sup> Above market-clearing wages force workers to queue for preferred jobs while subsisting in the informal sector, which is characterized by an absence of benefits, irregular work conditions, high turnover and, overall, lower rates of remuneration. A recent variant on the dualism view, albeit with different emphasis, sees informalization as an effort by firms facing international competition to reduce these legislated or union induced rigidities and high labor costs, particularly through subcontracting production out to unprotected workers.<sup>37</sup>

3.2. This paper argues that such a view does not convincingly describe the Latin American case. First, despite compelling descriptions of the inflexibility, inefficiency and costliness of the labor code,<sup>38</sup> the usual sources of wage rigidity that would segment the market seem absent in various Latin American countries with large informal sectors: minimum wages have not been binding for the last decade, unions to date have primarily been concerned about preserving employment rather than raising remuneration, and wages have shown extraordinary downward flexibility during crises.<sup>39</sup> Second, the view that emerges from time series data from Latin American countries and global cross sectional data correspond more to an unregulated entrepreneurial sector that behaves like small firm sectors everywhere rather than one comprised of involuntary, disadvantaged, precarious, or underpaid workers.

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<sup>34</sup> This paper is heavily based on Maloney, William F. (2000) "Informality Revisited", unpublished manuscript.

<sup>35</sup> See Peattie (1987), Fields (1990), Turnham & Eröcal (1990), Tokman (1992), Portes and Schaufier, (1993) for excellent overviews.

<sup>36</sup> The Harris-Todaro (1970) model is perhaps the traditional statement of this view. See most recently Chandra and Khan (1992), Chandra (1994), and Loayza (1994).

<sup>37</sup> See Beneria (1989), Portes, Castells and Benton (1989), Portes and Schaufier (1989), and Roberts (1989) in the Structural Articulation school. Piore and Sabel, (1987), Gordon, Edwards and Reich (1983), more generally in the decentralization school.

<sup>38</sup> See Davila Capalleja (1997) and Marquez (1994)

<sup>39</sup> See Maloney and Ribeiro (1998) and Maloney (2000)

3.3. This paper challenges the traditional dualism theory by drawing on evidence from Latin America to better understand the structure of the informal sector, why it exists, and the quality of its jobs. It goes through a series of assumption about the informal sector and presents recent evidence and new statistics to test the validity of the assumption. Rather than supporting the dualistic view of poor jobs for unfortunate workers, the review shows that the informal sector is a dynamic sector that is an outgrowth of the entrepreneurial sector in any country in the developing or developed world. Its workers are rational people who largely select informal sector employment due to the many non-wage (and wage, in some cases) benefits derived from it. These findings suggest that policies that attempt to create a single market by eliminating labor market rigidities are perhaps misguided. Instead, the sector should be brought into the formal tax and benefit system, as in developing countries, by improving the public goods such that informal sector workers and firms choose to pay into them, and improving the institutions that the informal sector substitutes for.

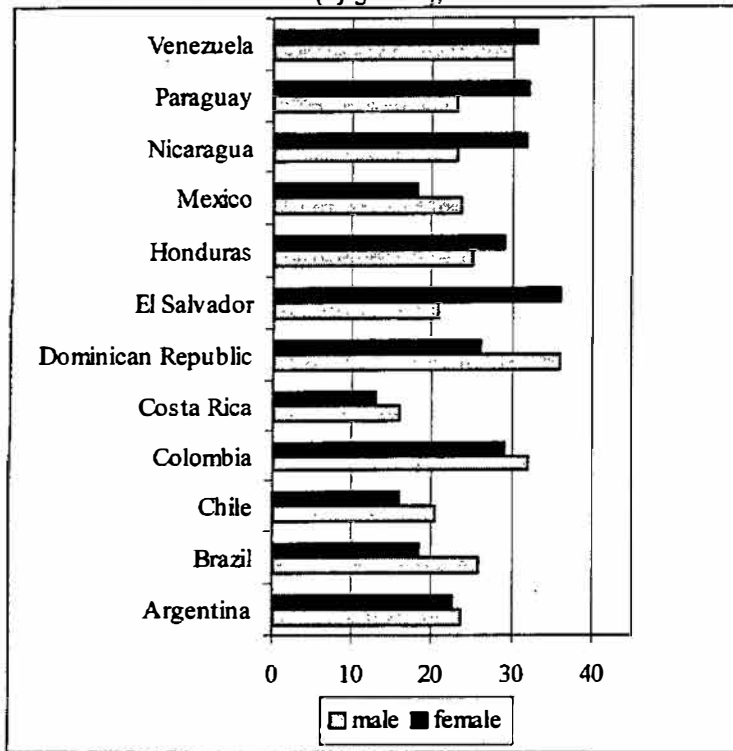
## **II THE CORE OF THE INFORMAL SECTOR: THE SELF-EMPLOYED**

3.4. The informal sector is heterogeneous, but its workers may be classified into three general groups, which should be treated separately due to the nature of the jobs and the characteristics of the workers. For the purposes of this paper, the informal sector is defined as those jobs for which the employer does not pay into the government insurance program on behalf of the employee.<sup>40</sup> First, the informal self-employed may be defined as those individuals who identify themselves as self-employed and have no more than completed secondary education. Those who have more than secondary education are likely to be professionals and thus are not the "vulnerable" informal. Self-employment constitutes the largest source of employment among men (16-35 percent) and women (13-15 percent), after formal salaried employment (40-64 and 28-57 percent, respectively) (Figure 3.1).

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<sup>40</sup> Informal sector jobs may be defined from the point of view of the worker or the firm. In this paper, the status of the worker with respect to labor taxes and benefits, defines informality. Alternatively, the status of the firm with respect to labor taxes may define an informal sector firm and therefore its employees are informal sector workers. However, it is becoming increasingly common that workers who do not have labor taxes paid in their name work in firms that pay taxes for some of their employees, so the definitions do not necessarily classify workers in the same categories.

**Figure 3.1 Self-employment in the Working Population  
(by gender), 1999**

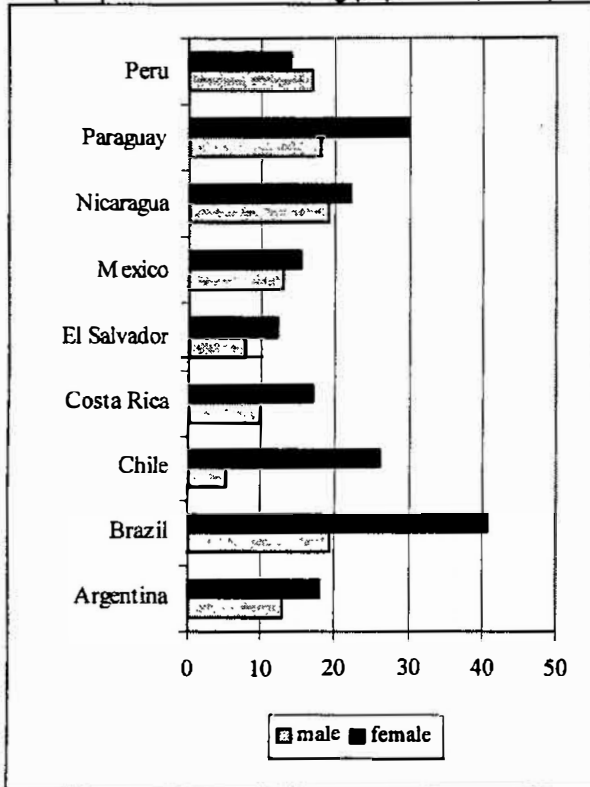


3.5. Second, informal salaried workers are employees who receive a wage but do not receive benefits. They are perhaps the most "vulnerable" since their employer does not pay for, and thus they are not eligible for, government benefits, but more importantly, since the government does not recognize the employer-employee relationship, they are not governed by labor laws. These workers constitute 5-19 percent of the male labor force and 12-40 percent of the female labor force in a nine country sample for Latin America (Figure 3.2).

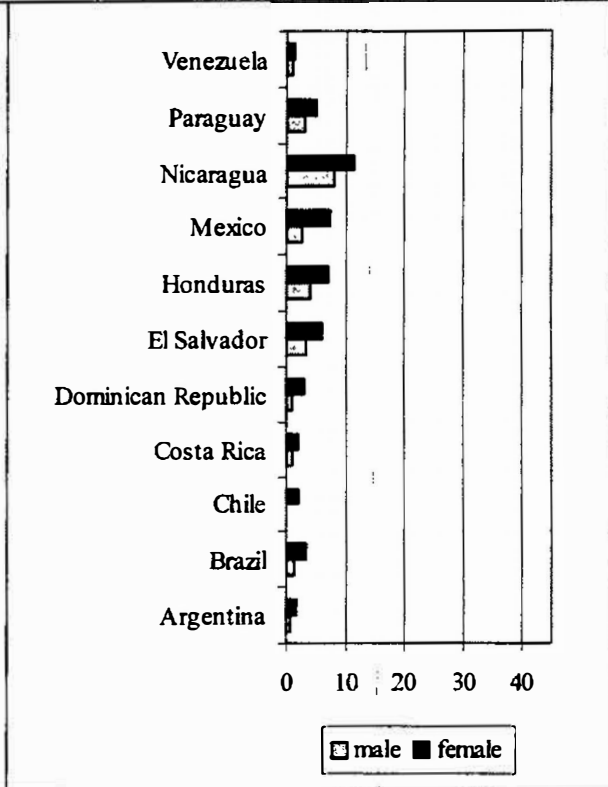
3.6. Finally, unpaid workers are those individuals who work but do not receive a wage. A large portion of these workers is employees in

family firms (particularly women and children) so they do share in the benefits of the firm owner's profits. Thus, unpaid workers are actually paid in-kind. They make up a small part of the labor force with 1-8 percent of males and 2-11 percent of females in the nine country sample (Figure 3.3).

**Figure 3.2 Informal Salaried by Gender**  
(Proportion of the working population, 1999)



**Figure 3.3 Unpaid by Gender**  
(Proportion of the working population, 1999)



3.7. Formal sector employment is not necessarily preferred to informal sector employment. Table 3.1 shows that of Mexican male workers who started in the formal salaried sector but moved into informal self-employed sector 15 months later,<sup>41</sup> two-thirds report moving voluntarily, citing a desire for greater independence or higher pay as the principal motives. In Brazil, over 50 percent of men and 43 percent of women who were informal stated that they did not want a formal sector job, primarily because they were happy with their current job (Table 3.2). These findings are consistent with the sociologists Balán, Browning and Jelin's (1973) extensive interviews with Monterrey workers who state that being one's own boss was well-regarded and that movements into self-employment from salaried positions often represented an improvement in job status.<sup>42</sup>

3.8. This is also broadly consistent with interview data from Argentina: a small survey in the province of Jujuy revealed that 80% of the self-employed had no desire to change jobs and less than

<sup>41</sup>This is done by linking the Encuesta Nacional de Micro-Empresas (ENAMIN) with the Encuesta Nacional de Empleo Urbano (ENEU). The ENEU permits following workers over a 15 month period and hence studying their transitions among sectors.

<sup>42</sup> These results are very close to Gottshalk and Maloney's (1985) finding that roughly 70% of U.S. job changes are voluntary. Put differently, if self-employment given the common earnings differentials, are close substitutes for formal salaried work, the implied rates of involuntary entry would be normal by the standards of a flexible industrialized country market.

18% saw self-employment as a temporary activity before they found a "real" job.<sup>43</sup> In Greater Buenos Aires, another survey found that while 36% would have preferred to work more hours, only 26% were looking for other work.<sup>44</sup> In Paraguay, only 28% of those in the informal sector stated a desire to change occupations. Among those often thought to be the worst off, informal workers, the percent rose only to 32%.<sup>45</sup>

**Table 3.1 Real Hourly Wage Differential - Formal Salaried to Informal Self Employed  
(Men Only, Mexico, percentage change)**

	Share of Respondents	Mean Differential <sup>3</sup>	Median Differential
<b>National Urban Employment Survey (ENEU)<sup>1</sup></b>	100	27.3***	23.6***
<b>Micro-enterprise Survey (ENAMIN)<sup>2</sup></b>			
<b>Reason Left Previous Job</b>			
More Independence	35	21.6**	19.6*
Higher Pay	32	16.7	12.1
Involuntary	29	-14.7	-4.1
<b>Total</b>	100	12.6**	10.0**

<sup>1</sup> Adjusted for hours worked and taxes. <sup>2</sup> Adjusted for hours worked, taxes, capital costs, unpaid workers. <sup>3</sup> Mean employs Huber weights to redress non-normality. \* = significant at 10%, \*\* 5%, \*\*\* 1% level.

**Table 3.2 Rationale for not Preferring to Move to a Formal Sector Job, Brazil (%)**

	Men	Women
Earn more in current job	14.4	5.3
Household duties	0.2	22.7
Need time for other activities	4.0	6.3
Happy with current job	65.7	53.7
Do not want to fulfill requirements of a formal job	10.2	6.7
Other	5.5	5.2
Sample size	22,845	10,791

Source: PNAD, 1989

3.9. Among women, self-employment also constitutes a large part of the informal sectors, but in several countries in the sample, the informal sector is larger. Women's reasons for becoming self-employed differ from men's. As reported by the Mexican Micro-firm Survey, approximately 10% of women left their last job due involuntary circumstances (dismissed, firm closed, or the contract ended) while 21% left for more independence or higher pay, the primary reasons cited by men. For women, though, demographic characteristics are the driving factor, as almost half of the women in the sample left their last jobs due to marriage. When extracting this group from the sample, though, over 44 percent cited leaving their last job in search of higher pay and independence (Table 3.3). Evidence from Argentina, Mexico, and Brazil suggest that this sector also serves as a flexible source

<sup>43</sup> Micro-enterprise Study for Jujuy, Consultoria Nordeste, Fondo de Capital Social (FONCAP).

<sup>44</sup> SIEMPRO/FONCAP (1998) "Perfiles de la Microempresa".

<sup>45</sup> Direccion General de Estadistica, Encuestas y Censos, Rpublica de Paraguay, "Sector Informal," based on the Encuesta Integrada de Hogares 1997/1998.

of employment for women who are also saddled with home responsibilities. Women with young children are more likely to become self-employed rather than formal sector employees, and interview data from Geldstein (2000) for Argentina suggests that women may more easily balance their productive (market) and reproductive (homecare) roles if they work for themselves than if they are employees. Furthermore, Table 3.2 showed that 22.7 percent of Brazilian women in the informal sector prefer these jobs because they allow them to perform their household roles as well, as opposed to 0.2 percent of Brazilian men.

**Table 3.3 Motivations for becoming self-employed (in %)**

	Women		Men	
	All	Worked before	All	Worked before
<b>Reasons for leaving the last job</b>				
Never worked before	37.3%	---	13.8%	---
Fired	2.1	3.35	7.7	8.93
Firm closed	3.98	6.35	5.9	6.84
Contract ended	0.1	1.76	4.0	4.63
Low pay	6.85	10.93	18.7	21.68
To be independent	6.41	10.23	31.8	36.89
Retired	0.33	0.53	2.0	2.31
Moved	3.2	5.11	3.5	4.05
Married	28.84	46.03	0.3	0.35
Illness	4.42	7.05	3.7	4.29
Other	4.42	7.05	8.6	9.98
N	905	567	6871	5923

Source: National Survey of Micro-enterprises in Mexico, 1992.

3.10. Panel data from Mexico's National Urban Employment Survey (NEU) show that, as in industrialized countries, self-employment is not an entry occupation from school and there is little evidence that the sector serves as a holding pattern for young workers. Transitions into self-employment from the other paid sectors occur 4 to 6 years later than transitions into formal or informal salaried work, leaving the mean age 8 years higher than the next closest sector.<sup>46</sup> This is supportive of the findings of Balán et. al., and increasingly elsewhere, for a "life cycle" model where workers enter into salaried work, accumulate knowledge, capital, and contacts, and then quit to open their own informal businesses.<sup>47</sup>

3.11. The sociologist Gonzalez de la Rocha (1994) is almost certainly correct that for many older workers, the sector does provide a safety net by offering "insecure occupations (such as the services) in which their age is not a limitation after they have been squeezed out of the formal manufacturing or formal services." This dynamic may have been of particular relevance during the economic restructurings of the 1990s where older displaced workers may have found their skills obsolete and little demanded in the emerging sectors. She does also, however, suggest some degree of voluntary

<sup>46</sup> See Maloney (1999), and Aroca and Maloney (1998).

<sup>47</sup> See Lopez-Castaño (1990) in Colombia, Fields (1990), and Peattie (1982) who find a tendency for employees of large firms to leave and open their own. This is likely to be due to the same kind of credit constraints found binding in industrialized countries. See Evans and Jovanovic (1989).



movement when she says that "Older men may also find the pace of industrial (formal) work too arduous and leave such jobs."<sup>48</sup> This more voluntary take is stressed by her anthropologist colleagues Selby, Murphy and Lorenzen (1991) who note the "surprising desirability of informal sector employment as the basis for a household earning strategy, particularly for poorer, older household with lower educational qualifications."<sup>49</sup>

3.12. Anthropological evidence also suggests that for poor women, the self-employment sector does serve a sort of safety net, but in a different way than is typically understood. Geldstein (2000) suggests that women simultaneously own a number of small firms at all times. The firm owners recognized these income generating "activities" (rather than "jobs") as extensions of household duties that provide women with pocket money when the household has sufficient income. However, when the household experiences negative income shocks, such as caused by the prolonged 1999-2001 recession in Argentina, these small firms expand to be the primary sources of income for the household, even to the extent of employing male household members. Thus, they are not a safety net in the sense that the worker cannot find employment elsewhere, necessarily, but instead are stretched to protect the household as the household's income needs change.

3.13. On balance, sociological and anthropological studies are consistent with the findings of labor market surveys that most self-employed choose to be so, as well as the view that workers may enter formal sector employment initially partly as a means to accumulate human and physical capital. This leads to an intriguing inversion of the traditional dualist view. If firms must pay "efficiency" or above market clearing wages to dissuade their workers from opening their own firms, this creates a segmented market. It may be the attractiveness of informal self-employment that causes dualism rather than a segmented market causing informality.<sup>50</sup>

### III BUT DON'T INFORMAL WORKERS EARN LESS?

3.14. Wage comparisons between sectors are fundamentally meaningless so they should probably not be used as measures of segmentation and job quality. In some countries, especially among men, the median earnings of self-employed workers are higher than the median wages of formal sector employees while in other countries the reverse is true.<sup>51</sup> Figure 3.4 shows that in Argentina (men), Chile, and Nicaragua (men), self-employment earnings surpass formal sector wages. The gender differential is perhaps not surprising given that men express a greater expectation than women do that self-employment would offer higher wages. Data from Mexico show that workers who

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<sup>48</sup> See Maloney (1999) Labor Markets Regional Study. The anthropology literature also weighs in on this point as well when Selby, Murphy and Lorenzen (1991) argue "On average, opportunity costs to these worker in terms of foregone earnings in, say, registered blue-collar employment may be quite low (p. 147).

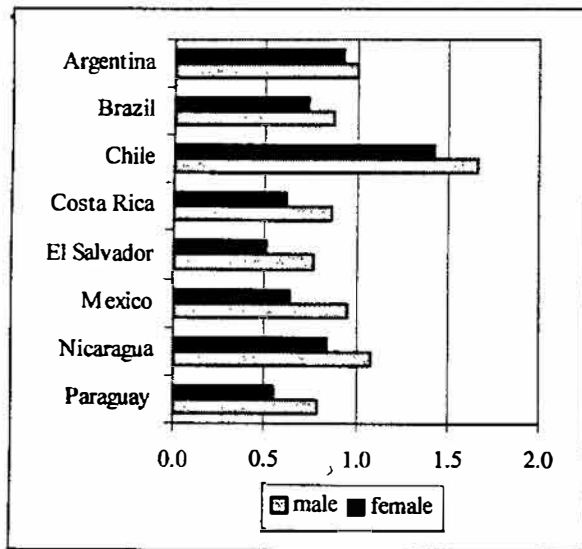
<sup>49</sup> Selby, Murphy, Lorenzen (1991), p. 144

<sup>50</sup> See Maloney (forthcoming) and Krebs and Maloney (1999) for an elaboration of this view.

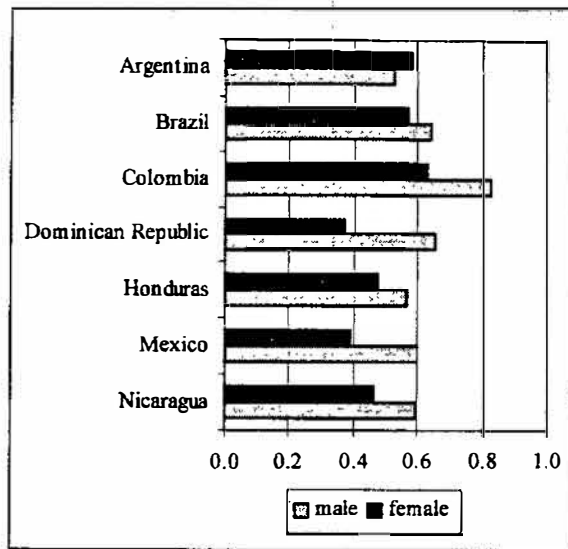
<sup>51</sup> Using mean income or wages rather than the median income or wages shows that self-employment earnings surpass formal sector wages in even more countries. This is due to the higher variance in self-employment earnings, where earnings may be derived from everything from washing car windows at stoplights to a sophisticated electronics repair shop.

voluntarily entered self-employment *gained* roughly 25% in their income upon leaving salaried formal employment (Table 3.1). However, a simple comparison of wages does not accurately reflect the welfare benefits to one sector over another since, when selecting a sector, workers not only take into account wages (or earnings) but also all other characteristics and benefits associated with each possible job.

**Figure 3.4 Ratio of Self-employment Earnings to Formal Sector Wages, late 1990s**



**Figure 3.5 Ratio of Informal to Formal Sector Wages, late 1990s**



3.15. Several examples may make this clearer. First, if the formal sector pays benefits – pensions, health insurance, housing subsidies, day care – which the informal sector does not, then in a market with no distortions, the wage in the unprotected sector would need to be above the formal sector wage to compensate for the lost benefits. This higher wage would not imply a superior job but only suggest that more of the total remuneration was paid in cash instead of benefits. On the other hand, income taxes support public goods from which tax-avoiding informal workers cannot be excluded (national defense for example), and therefore dictate that formal sector workers need to be paid more to compensate for the taxes they cannot avoid. Further, formal work-places may be cleaner and the jobs may be more secure, but, as in the industrialized world and as Table 3.1 and Table 3.3 suggest, being ones' own boss and having flexibility is also very valuable and is worth taking a wage cut for. Finally, starting a business is risky anywhere so higher incomes should be found among the self-employed to compensate them for this risk.

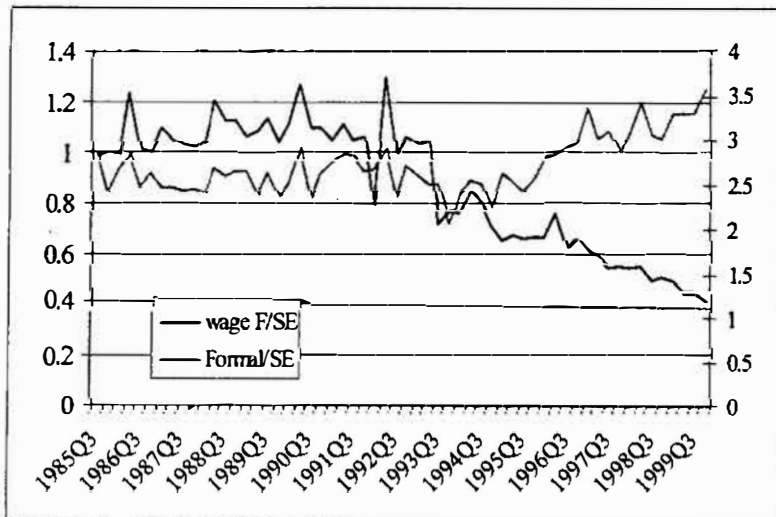
3.16. In most countries in the Region, informal salaried employees earn approximately half of their formal sector counterparts, with a larger difference among women than for men (Figure 3.5). Although informal salaried workers always earn consistently less, this may be due to the fact that they are often related to the owners of the enterprises where they work and thus may receive unobserved payments in kind (food, lodging). Further, to the degree that the sector appears to play a job training role for young workers, some fraction of the salary may be deducted to cover implicit training costs.

3.17. To summarize, in a market with no distortions and hence no segmentation, workers would equate utility, or the total “package” of benefits, not just wages. To establish segmentation and show that formal sector workers were better off, the value of all of the factors discussed above should be added up, which is an impossible task since many of them are unmeasurable. This implies that comparisons of wages cannot be tests for segmentation. It also shows that the fact that informal salaried workers may earn less than formal salaried workers does not mean that they are “poorer” when measured in terms of total welfare.

#### IV ISN'T THE INFORMAL SECTOR THE SAFETY NET FOR DISPLACED FORMAL SECTOR WORKERS?

3.18. The informal sector may act as a safety net, but this is not necessarily the rule. The traditional “dualistic” view argues that as the economy enters a recession, workers are forced into the informal sector, thereby driving down these wages relative to those in the formal sector. This does seem to be the case in Colombia after 1995, a period of deep recession due to a financial crisis combined with a very ill-advised but dramatic rise in the minimum wage that accentuated the segmentation in the economy. Figure 3.6 shows that the size of the formal sector relative to the informal self-employed sector fell while its relative wage rose – exactly the pattern predicted by the dualistic view.

Figure 3.6 Colombia, Relative Sector Size and Earnings (men only)



3.19. However, Figure 3.7 suggests that the opposite occurred in Mexico during the 1987-93 period. Here the share of the workforce in self-employment grew at the same time that the self-employed went from earning roughly the same amount as formal salaried workers to earning 30% more than formal sector workers.

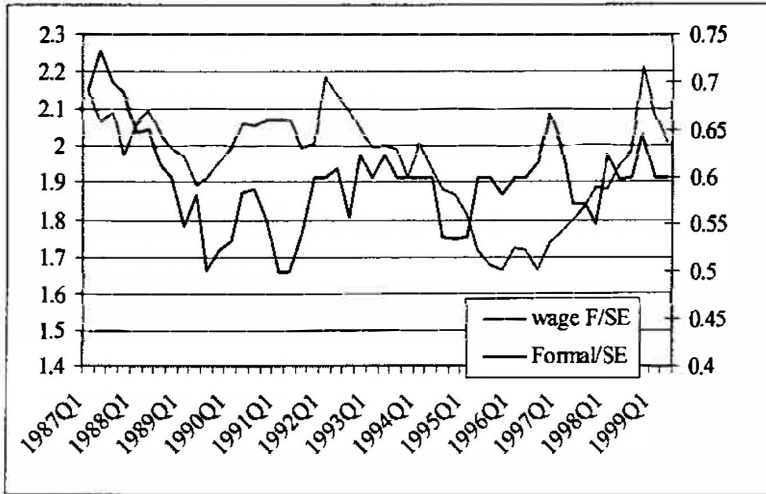
3.20. The boom in construction and other non-tradables offered many good jobs to informal skilled

workmen, and this is when they choose to open their businesses.<sup>52</sup> This pattern reverses somewhat going into the crisis of 1995 where there is an increase in the size of the self-employed sector at the same time that relative self-employed earnings are falling. The point here is not to show that the

<sup>52</sup> See Maloney (1998)

informal sector *never* serves as a safety net but instead that most of the time the vast majority of Mexican entrepreneurs want to be in the sector so it should not be treated as inherently inferior.

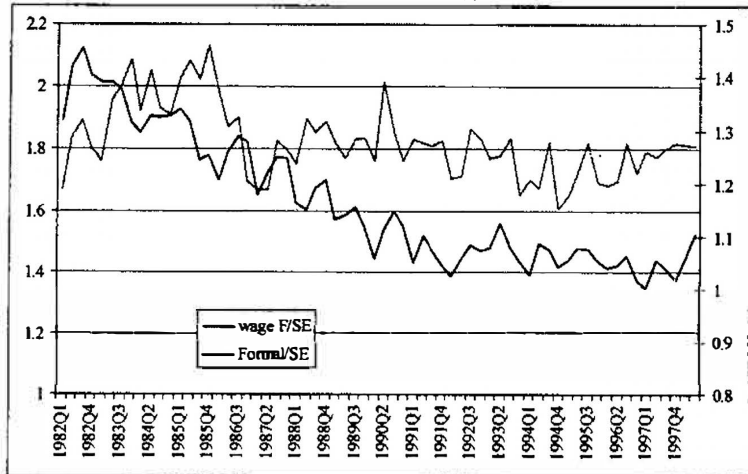
**Figure 3.7 Mexico, Relative Sector Size and Earnings (men only)**



3.21. Perhaps Figure 3.8 is the most provocative. It suggests that in Brazil, informal self-employment rises at the same time that its relative earnings are roughly stable or rising. As some observers have argued, during the periods of high inflation, self-employment is preferred since formal wages are indexed intermittently and hence lose purchasing power while the self-employed can index daily. With stabilization in 1994,

however, a long period of decline in relative formal/informal incomes is accompanied by a decline in formality. Without question, as the ILO and the Economic Commission on Latin America and the Caribbean (ECLAC) have noticed, informality is rising across the period. But the critical question is – was it voluntary?

**Figure 3.8 Brazil, Relative Sector Size and Earnings (Men only)**



**Table 3.4 Sector of Origin of the Unemployed**

Sector of Origin	Argentina <sup>1</sup>		Mexico	
	All	Paid	All	Paid
Informal Self-Employed	18	38	9	40
Salaried Informal	12	26	7	35
Formal Salaried	17	36	5	25
Previously Unemployed	34		19	
Previously Out of Labor Force	6		44	
School Graduates	13		16	
Total	100%	100%	100%	100%

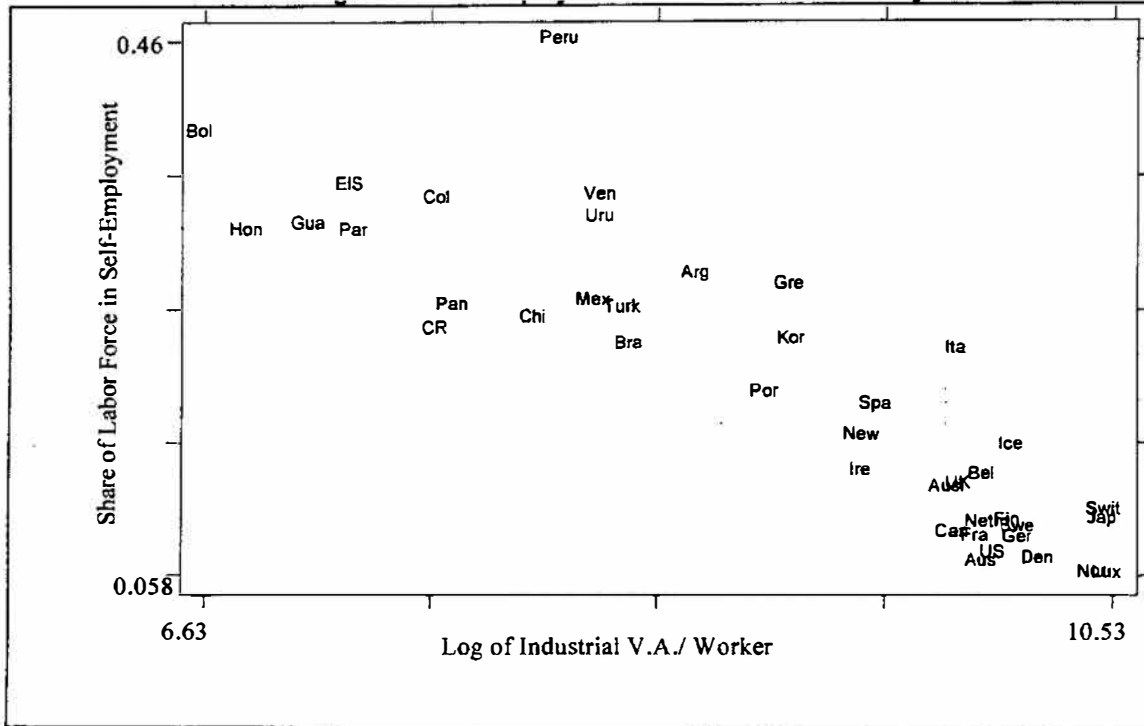
3.22. Women with children do appear to use the informal sector as a form of insurance when the likelihood of a negative income shock threatens the household, but the formal sector is their employer of last resort in Mexico and Argentina. When the unemployment rate increases, women in Mexico show a strong tendency to increase entry to the self-employment sector (Cunningham 2001). The same trend is weakly suggested in Argentina (World Bank 2001). However, it is women with children, i.e. wives and single mothers, who follow this trend, but not women without spouses or children. This again points to the question of whether this sector offers income earnings opportunities to women whose work has a high value in the household, while women without such competing demands prefer the formal sector.

3.23. Another counterintuitive finding appears in Table 3.4. Here panel data from Mexico and Argentina are used to ask the unemployed from what sector they entered unemployment. Surprisingly, 75% of the unemployed in Mexico and 64% in Argentina were informal sector workers before becoming unemployed. Although their unemployment spells are 30% lower than those of formal sector workers, it is not the case that they instantly find new informal jobs. Thus, the sector is not simply or even primarily absorbing the unemployed from the formal sector.

**V DOESN'T THE LARGE SIZE OF THE INFORMAL SECTOR IMPLY LARGE LABOR MARKET DISTORTIONS ?**

3.24. The argument that informal employment can be desirable is most compelling where micro-firms offer remuneration comparable to that earned in the formal sector, namely among low education workers who unlikely to accumulate much firm specific capital. Observing Mexican informal workers, the anthropologists Selby, Murphy and Lorenzen (1990) confirm that, "On average, the opportunity costs to these workers in terms of foregone earnings in, say, registered blue-collar employment may be quite low."(p. 147) This view is supported statistically by logit analysis of Argentine and Mexican worker movements between sectors that finds that they become less likely to leave formal employment for self-employment, or any other informal sector, as their education level increases. At a global level, Figure 3.9 suggests that as formal sector productivity increases with development, the share of the workforce in self-employment falls. When controlling for productivity (or GDP) and other relevant demographic variables, Latin America does not have an unusually large share of its workforce in informal self-employment: Mexico and Brazil are below average, perhaps suggesting more flexible than average labor markets. Argentina is above average suggesting the reverse.

Figure 3.9 Self-Employment vs. Industrial Productivity



3.25. Another way to approach the question is to assume the informal sector exists because of distortions and ask how much remuneration in the formal sector would need to fall to eliminate the informal sector. Given that own wage labor demand elasticities in manufacturing tend to range from -0.2 to -0.5,<sup>53</sup> a 10 percent increase in the size of the formal sector would require a 20-50 percent decrease in formal sector remuneration. If, as is often the case, the informal sector is half of the workforce, the necessary fall in formal sector wages implied is vast and far above any measured differentials in the two sectors.

## VI ISN'T INFORMAL WORK PRECARIOUS?

3.26. Many of the characteristics associated with informality are natural by-products of the fact that the informal small firm owner or *patrón* is fundamentally the owner of a small firm. The industrialized country literature on firm behavior offers two important findings about such firms. First, there is a wide range of sizes among longstanding firms determined by factors such as how efficient or hardworking an entrepreneur is, how well-placed his/her firm is, what the logic of the production process is, etc. This means that the existence of many small firms does not necessarily imply failure of either labor or credit markets. It may be that the reason that 80 percent of micro-firms have only

<sup>53</sup> Fajnzylber and Maloney (2000) estimate own wage labor demand elasticities for blue collar manufacturing workers to be -0.29 for Chile, -0.49 for Colombia, and -0.18 for Mexico.

one or two employees and tend to be family based reflects a logic that has roots in the tradition of the family farm, or reflects the sustainable reach of informal contracting relations. This could explain, for instance the finding that only 10 percent of urban Mexican micro-firms report plans for expansion and only 9 percent report that lack of credit is a major business problem.<sup>54</sup>

3.27. A second finding about small firms everywhere is their extraordinarily high rates of failure. Seeking to explain the US case, the economic theorist Jovanovic (1982) argues that this is due to the fact that entrepreneurs cannot know how good their location is or how good an entrepreneur they are until they actually start the business. Very soon after starting, many find that they are not viable and fail. The sociology literature provides striking confirmation of this insight when Balan, Browning and Jelin (1973) argue that although self-employment is a goal for many Mexican workers:

3.28. Becoming self-employed involves a large risk, especially for those men who had stable and secure jobs. Income is uncertain, in particular during the first perilous years of the business. Often the men lack the financial and administrative skills needed for successful operation of the enterprise. Most men are aware of the fact that many small shops and stores close soon after opening. Some men therefore proceed with much care when they decide to become self-employed. (p 216-217).

3.29. That said, rough calculations from the Mexican micro-enterprise survey suggest that these firms, show high failure rates, but not particularly higher than those in the US.

3.30. If a new view of "formality" is added to this picture, most of the characteristics of the sector can be generated without implying any inferiority or undesired precariousness. Levenson and Maloney (1996) treat "formality" as participation in the numerous formal institutions: federal and local treasuries, governmental programs such as social security (including pensions and health care), the legal system, the banking system, health inspection, firm censuses, trade organizations, civic organizations, etc. These, of course, have costs in terms of compliance with legal norms which very small firms can choose to avoid in many lesser developed countries. Small firms are anchored in social networks of family and immediate neighborhood that allow them to enforce implicit contracts and insure against risks. Furthermore, participation in formal institutions is needlessly expensive. However, as firms grow they increasingly need to secure property rights or permit formal contracting mechanisms, pool risk, gain access to credit - all things that become increasingly important as firms grow. De Soto (1989) offers a striking example where informal street vendors in Peru tried to *pay* their taxes since this would guarantee them some property rights over their pitch and hence offer some security to investments they wanted to make. Statistically, the data from the Mexican micro-enterprise survey suggests that firms do become more formal with age and size.<sup>55</sup>

3.31. Combining the two characteristics of micro-firms and the notion of formality implies that small firms will have higher costs, are likely to be informal, and will have very high failure rates. Though this corresponds exactly to the standard picture of the stagnant, precarious, unprotected informal worker familiar in the literature, it is, in fact, the opposite. It emerges naturally from the workers trying

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<sup>54</sup> See Cunningham and Maloney, forthcoming.

<sup>55</sup> Levenson and Maloney (1999)

their luck at entrepreneurship (risk taking), often failing, and not engaging in the formal institutions until they grow. In sum, there may be nothing pathological about the informal sector firm and its existence may be largely unrelated to questions of labor market dualism or even credit market distortions.

3.32. This also may explain the high rates of entry into unemployment found in Table 3.4. If small firms have high mortality rates, both owners and the workers are more likely to find themselves without employment and searching for a new job.

3.33. Gonzalez de la Rocha (1994) provides a compelling explanation of the life cycle pattern discussed earlier based on the household's capacity to manage these risks. Her interviews show that the heads of young families are more likely to be found in manufacturing while heads of "consolidated" households can move into less onerous but more risky informal service jobs precisely because their mature children provide a hedge against the risk. Further, Balán, Browning and Jelin (1973) argue that it is common for workers contemplating opening a firm to maintain their formal sector job until the micro-enterprise is safely established, perhaps staffed by the wife or mature children, thereby effectively maintaining a diversified portfolio of income streams.<sup>56</sup> In sum, for workers desiring to become self-employed, there are informal strategies for managing risk.

## VII DOESN'T THE INFORMAL SECTOR SHOW LOWER OVERALL PRODUCTIVITY GROWTH?

3.34. Lower productivity growth in the informal sector is very likely to be the case, but not because of informality per se. Traditionally, the big gains in productivity occur in the tradables sectors and often (although not exclusively) in manufacturing. This differential in productivity growth underlies Balassa's (1964) theory of why the real exchange rate appreciates as countries develop.<sup>57</sup> Informal businesses tend to be concentrated in services, transport and commerce, where productivity gains are hard to achieve: a haircut takes about 20 minutes, whether in New York or in Bogotá. However, this does not mean that wages of informal barbers won't rise over time. As productivity rises in the formal tradables sector, workers are slowly pulled from the informal sector, and wages must rise there to keep barbers from moving into formal manufacturing.

<sup>56</sup> "The worker in the Fundidora ....for instance, was extremely cautious when he decided to enter the ranks of the self-employed, after twenty years in the plant. His timing was almost perfect. For five years he had been in the highest position he could expect to attain, so no more mobility could be anticipated within the plant. His youngest son was three years old, and now his wife would be more free of household concerns and could help in the store. He had saved a considerable amount of money during his years in the steel plant. In any even, when he first opened a small shoe store, he did not give up his job in the factory until he was sure of the success of his business venture. He moonlighted in his store for three years, his wife tending it when he was not present. During the first year of operation the store lost money, and in the second year it broke even. At the end of the third year it turned a profit so he decided to leave the factor and devote his full time to the store." p. 216-217.

<sup>57</sup> Productivity growth rises in tradeables pushing up wages in both the tradeables (formal) and non-tradeables (informal) sectors. But since there has been no productivity growth in non-tradeables, their price must rise relative to tradeables prices and the exchange rate defined as  $P/P_n$  must appreciate. Rogoff and Obstfeld's text book (1996) does a nice job of both laying out the modern view of this as well as providing some empirical evidence



## VIII ISN'T FORMALITY LARGELY A WAY FOR LARGER FIRMS TO AVOID PROTECTING THEIR WORKERS?

3.35. Since a small portion of informal workers are found to be affiliated with larger firms,<sup>58</sup> clearly sub-contracting relations are not the dominant modality of informal firm behavior. Further, it appears that the path of earnings across time of those who worked in subcontracting relations followed very closely those who were independent. This suggests that common motivations may underlie a worker's decision to engage in sub-contracting, and that the sector may not represent inferior work. This is supported by the sociologist Bryan Roberts'(1989) interviews with Guadalaran workers that suggest that, given the very weak unions and low wages in Mexico, informalization is not primarily a strategy for reducing remuneration and worker control over production: "Market uncertainty and the large number of income opportunities in the city mean that it is useful for *both* employees and employers to have flexibility in allocating labor."(italics added, p. 48).

3.36. More generally, it is possible that sub-contracting is not so much a way of avoiding labor legislation, as avoiding the inefficiencies in it. The differentials between costs to firms and value to workers of benefits discussed previously offer a benign interpretation of informal subcontracting as a way of reducing firm costs where contract workers gain some of the value of benefits foregone. Some caveats are in order for the end of the 1990s. Here, remuneration to subcontracted workers in Mexico appears to fall relative to self-employed and to formal sector workers suggesting that the quality of employment may have fallen.

## IX DOESN'T THE LARGE NUMBER OF WOMEN IN INFORMAL SELF-EMPLOYMENT SUGGEST DISCRIMINATION IN THE FORMAL SECTOR?

3.37. A larger share of women than men are in the informal sector in all countries (Figure 3.10).<sup>59</sup> This is partly due a higher propensity for informal wage work, which includes the domestic service category. In Brazil, Chile, and Paraguay, for example, 20 percent of working women are domestic servants. On the one hand, this is a vulnerable job, where employer abuse, isolation, few chances for organization, and even less opportunities for career advancement are a reality. On the other hand, interviews with poor working class Argentine women reveal that it is not uncommon for unskilled women to leave formal sector jobs, that may be better paid, to enter (or return to) domestic service. The non-wage benefits listed by such women centered on flexibility, in terms of work hours and pay schedules, and security in terms of a source of emergency income, networks to other sources of employment, and a general feeling of connection with the employer (Geldstein 2001).

3.38. The high level of female participation in self-employment has been attributed to discrimination that regulates women to inferior jobs. Cunningham (2001) found that, while it is true

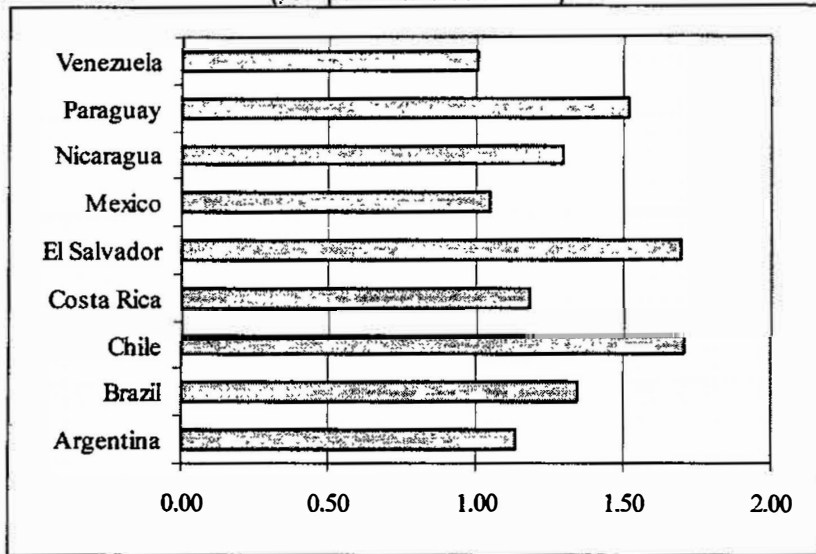
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<sup>58</sup> Approximately 20 percent of Mexican or Argentine informal sector workers (those who did not earn benefits) are affiliated with "large" firms, defined as those with more than 15 workers.

<sup>59</sup> The number of men in the informal sector is greater since a higher proportion of men are in the labor force, but a greater share of women, relative to all working women, are in the informal sector compared to a similar proportion for men.

that single mothers have high levels of participation in informal self employment and wives are over-represented in the unpaid sector, the fact that single women without children have the highest rate of participation in *formal* jobs of any group, male or female, brings into question the sex discrimination argument. This does not, of course, preclude discrimination against married women or those with children, if an employer fears that the women may be likely to be absent for work for long periods (Chant 1992), but Cunningham argues that the concentration of these two groups in self-employment may be driven by the need to balance household responsibilities. For women attempting to raise children as well as contribute to household income, the flexibility of the sector may make the sector even more desirable than for, as shown in Table 3.2.

Figure 3.10 Women's Participation in the informal sector  
(compared to that of men)



**X AREN'T THE INFORMAL SALARIED THE MOST DISADVANTAGED?**

3.39. Even if the self-employed benefit from being their own bosses, the mainstream view is that those who work for them are the very worst off of the urban workforce: salaried, yet without benefits. As discussed, their lower wages tells us nothing about whether they are truly worse off. Further, rather than being a stagnant group of disadvantaged workers, the sector appears to serve primarily as the principal, although not exclusive, port of entry for young, poorly educated workers into paid employment. The mean age of informal wage employees in Mexico, for example, is 29 years old, which is five years below that of formal sector and contract workers and 14 years below that of the self-employed; the pattern is broadly similar in Argentina. Mexican and Argentine data show a high degree of mobility between school, unpaid work and, to a lesser extent, unemployment that suggests a pool of workers not yet tracked into regular employment. One scenario is that while in school and just after leaving school, many students help out at the family business, and eventually get paid. Once becoming salaried informal, workers spend an average of two years doing this before moving

on to other paid work. The brevity of tenure is the same as that found in Brazil by Sedlacek et. al.(1995) and is similar to the U.S. where the median tenure for young workers 16 to 24 years of age is only 1.4 years and 25 to 34, 3.4 years.<sup>60</sup> Furthermore, if Hemmer and Mannel (1989) are correct that in many countries informal small enterprises train more apprentices and workers than the formal education system and the mostly government job-training schemes together, the informal sector experience may constitute continued schooling. Even if this pattern of graduation from school to unpaid to informal salaried work to other modes of work represents the queuing that the dualistic literature might predict, the wait in informal salaried work is not long.

3.40. The sector need not be precarious, for two reasons. First, Balan et. al. (1973) argue that this period of life for young workers is one of "shopping around" and trying out various possible life choices, and hence they will show short tenure. Second, the vast majority of informal salaried workers are employed by informal micro-firms which, as discussed earlier, have higher turnover rates.

## XI CONCLUSION

3.41. This paper uses empirical evidence to challenge many of the assumptions about the informal sector. The primary finding is that although the sector is heterogeneous, a substantial portion of it is a result of small firm dynamics, total job valuation by employees, and weak institutions rather than to the labor market rigidities that create an above-market clearing wage and force half the labor force into inferior jobs.

3.42. In many Latin American countries, much or most of the sector represents a healthy, voluntary small firm sector that should be treated as such. Since most of the informal sector is composed of small firm owners, they are subject to the same patterns of birth, success, and death as are small firms in any developed country in the world. The observed "precariousness" of the sector is simply the reflection of being born a small firm. This is not to say that in periods of great recession or in countries with very distortionary minimum wages and regulation that the traditional dualistic view would not be a more appropriate model, but in periods that are not extreme, the dualistic view falls short. Thus, policies to support small firms should be grounded in a solid understanding of the dynamics of these enterprises and of barriers to their growth and absorption of labor. To further bring small firms into the formal system, whether for fiscal or other purposes, the government should increase the value of the public goods enjoyed by firms, such that they are more willing to enroll in and pay into the system.

3.43. The paper also argued that those who work in the informal sector often choose to be there due to constraints that make formal sector work less desirable or due to a high valuation of the non-wage benefits of informal sector work. Wages of individuals who own or work in these firms may not be a good measure of the quality of jobs in the sector since workers have many factors to take into consideration when accepting a job, including time responsibilities outside the market, independence, pride in being one's own boss, and training opportunities, to name a few. Again, this

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<sup>60</sup> BLS News, USDL 92-386 for 1991.

should not be interpreted as claiming that all informal sector workers are voluntarily in the sector, but a large proportion are. As recommended for the small firms, policy to bring informal sector workers into the formal sector, whether for social protection or other motives, should be grounded in an understanding of the reasons that entrepreneurs choose not to be formal. Again, the quality of the benefits need be increased such that workers prefer to pay into the system than to evade.

3.44. These arguments do not imply that there is no need for reform of labor legislation, but instead, improvement in the quality of public goods and institutions, rather than an elimination of costs to employers, is the more appropriate target. The traditional emphasis on rigid wages driving segmentation is probably not correct. However, informality may arise partially as a response to inefficiencies in the provision of medical benefits or pensions, promotion systems not based on merit, education systems that do not train students for the labor market, or other distortions that make being paid in cash informally more desirable. The recent reforms in Chile, Colombia and Mexico that have sought to bring benefits in line with the implicit taxes that workers pay, for instance individual accounts for retirement pay, are important steps to reducing incentives to being informal. More fundamentally, informal employment in firms of relatively low technology and capital intensity can only be attractive if the overall level of labor productivity in the formal sector is low also. To the degree that current legislation impedes investment in physical or human capital, or prevents the efficient organization and operation of firms, it perpetuates the low levels of productivity throughout the economy.

3.45. Finally, the poverty found in among informal sector workers is likely to be a function of low levels of human capital, such that whether the worker is formal or informal is largely incidental. A worker with few skills that would be rewarded in the formal sector may prefer to be independent: S/he may prefer being the master of a lowly repair shop to endlessly repeating assembly tasks in a formal maquila. Neither job will lead to an exit from poverty, but the informal option may actually offer a measure of dignity and autonomy that the formal job does not

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## 4. UNIONS AND THE LABOR MARKET IN BRAZIL

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### I INTRODUCTION

4.1. Although labor unions are considered one of the most important institutions of modern capitalism (Freeman, 2000), the literature shows that their mode of operation and impact on the economy vary from country to country. In France and Spain, for example, although union density is low, collective bargaining processes determine wages for much of the work force. In China, on the other hand, union density is high, but their effects on wages are believed to be modest. In Nordic countries, both union density and collective bargaining coverage are very high. The impact of labor unions on the economy depends not only on the unions themselves, but also on other institutions that complement or even determine the framework within which they act; these are what explain individual union action strategies at different times and places. Labor codes and other institutions that regulate labor relations and collective bargaining, along with anti-union policies such as the reforms introduced by Margaret Thatcher in Great Britain during the 1980s, are examples of such institutions.

4.2. Although there is a wide variety of systems, institutions, and union action strategies in the different countries, an important stylized fact in the literature is that labor unions reduce wage dispersion through collective bargaining processes. This has led Metcalf et al. (2000) to refer to them as a "sword of justice." According to Freeman (2000), this phenomenon is actually more widespread than the more thoroughly researched effect of unions on wages, namely their ability to raise the relative wages of their members. The literature shows that: (i) the distribution of wages among unionized workers and/or those covered by collective bargaining is more concentrated than the wage distribution for other workers, even when demographic and productive characteristics are controlled for in the corresponding regressions; and (ii) collective bargaining diminishes the importance of merit in wage formation, thereby narrowing the wage spread between jobs (Freeman, 1980, 1992; Hirsch 1982; Card, 1992; DiNardo et al., 1995; Gosling and Machin, 1995; Blau and Kahn, 1996; DiNardo et al. 1997; Metcalf et al., 2000, among others).

4.3. Estimates of the impact of unions on the labor market in Brazil are still very preliminary. The few results available include those obtained by Arbache (1999), who investigates the wage and income-distribution effects of unions among male manufacturing workers; Arbache and Carneiro (1999), who examine the importance and effects of unions on collective bargaining; Arbache (2000), who studies the effects of trade liberalization on unions and collective bargaining; and Amorim (2000), who analyzes the relationship between unions and indirect pay. Little is known about the effect of unions on employment, productivity or labor market rigidity, and especially on wages and income distribution. Knowledge of the impact of unions on pay dispersion is particularly important for Brazil, given its highly unequal income distribution. The study of unions in the economy is therefore challenging, because collective bargaining and union operations are heavily regulated by the law, and history records far-reaching State involvement in such institutions. Research into unions in Brazil may involve issues beyond the confines of economics, pertaining to law, sociology, political science and possibly other areas as well. If the legal framework that regulates labor relations is a decisive

factor in the functioning of unions and collective bargaining processes, then knowing this could help us to understand the effects of unions on the overall economy.

4.4. This paper seeks to answer the following questions: (i) How do employment and union laws affect collective bargaining processes? (ii) Do unions affect wage formation and income distribution? (iii) Do unions increase the rigidity of the labor market? We conclude by making some suggestions for enhancing collective bargaining and unions in Brazil.

4.5. The paper is organized as follows: Section 2 describes labor laws and union legislation in Brazil. Section 3 describes the characteristics of unionized and non-union workers, union density, and the determinants of unionization. Section 4 investigates the effects of unions on wages and income distribution. Section 5 discusses the results obtained and seeks to demonstrate the effects of employment and union laws on collective bargaining processes and union behavior. Section 6 offers some recommendations for improving labor relations in Brazil.

## **II. LABOR LAWS, UNION LEGISLATION, AND COLLECTIVE BARGAINING PROCESSES**

4.6. The institutions that regulate labor relations in Brazil have a huge impact on collective bargaining, given the way they are involved in employment contracts, labor disputes and union activity, and the intensity of that involvement. This section provides a historical overview and describes the characteristics of the main institutions governing the country's labor relations. As we shall see, such institutions contribute to adversarial labor relations and curb the development of collective bargaining. We also show that the nature and functioning of those institutions have potential effects on income distribution and on macroeconomic stability.

### **Labor Laws and Labor Courts**

4.7. Relations between workers and employers in Brazil are governed by the Consolidated Labor Laws [*Consolidação das Leis do Trabalho*] (CLT). The CLT law is extremely wide ranging and detailed, regulating the most varied aspects of labor relations. The CLT was first introduced in 1943, during the administration of Getúlio Vargas, in order to consolidate the labor laws existing at that time. One of its main aims was to create a system to protect workers from exploitation by employers, and to harmonize labor relations with a view to avoiding direct disputes between the parties. Camargo (2001) points out that the CLT was premised on the existence of asymmetric power relations between capital and labor, and that the role of the law was to protect and regulate workers' interests. The all-embracing and paternalistic nature of the law created an atmosphere that was not conducive to the development of collective bargaining. The CLT also created unstable labor relations, generating disequilibrium by providing excessive protection for workers. The law requires disputes to be settled in labor tribunals rather than in the companies involved, so little space is left for direct negotiations between employers and employees; and it discourages the development of a cooperative relationship between the two parties.

4.8. As Camargo (2001) shows, an important feature of Brazil's labor legislation is the coexistence of individual and collective employment contracts. Individual contracts (i.e. contracts involving employment record cards) are entered into between the company and the worker and deal



with issues such as working conditions and wages. Collective contracts, on the other hand, are concluded between the employer and the workers' union, or between the employers' association and the union, and cover minimum working conditions and minimum wages, among other issues. Workers without an individual contract are not covered by collective contracts in their job category. Legally, the results of collective bargaining processes are extended to all workers and companies in that occupation or industry, respectively, even if the workers or companies involved are not members of the respective unions negotiating the agreement. This provision accords great importance to unions in labor relations.

4.9. In Brazil, the justice system is required to rule on disputes related to compliance with labor laws, and on those relating to individual and collective employment contracts. It is also called upon to promote conciliation and arbitration in collective bargaining processes. If negotiations between workers and employers break down, the labor tribunal is required to rule on the dispute. If the impasse is the result of a failure to comply with the legislation, the tribunal will merely apply the law in reaching its decision. But if the impasse stems from a lack of agreement on other issues, the tribunal may decide according to the judges' point of view, possibly even using political criteria in doing so (Camargo, 2001). The decision of the labor court must be complied with by the parties. Accordingly, labor tribunals have regulatory authority that affords them great power within the collective bargaining and labor relations framework in Brazil. The courts offer many incentives for free-rider behavior by workers, since employers have to disprove allegations of legal and contractual non-compliance, and it is they who have to defray most of the legal costs involved. Thus, the paternalism of the law, together with the tremendous power and involvement of the justice system in labor disputes, act as obstacles to the modernization of labor relations by inhibiting cooperation between the parties and fostering disputes between workers and employers.

### **Union Organization and Collective Bargaining**

4.10. In the legal arrangements originally established by the CLT, unions were responsible for: (i) contributing to the harmonization of relations between capital and labor; and (ii) helping to implement the Government's economic policies. Thus, the principles on which union and labor legislation and organization were founded gave labor unions powerful and close links with the State, which compromised their action in support of workers' interests.

4.11. Under the CLT, labor unions are organized by occupational category, but employers associations are organized by economic sector. Job categories and economic sectors are defined by the Ministry of Labor, on the basis of similar characteristics. Up to 1988, different occupations and economic categories were prohibited from grouping together in a single union. This restriction was lifted in the 1988 Constitution, when the formation of nationwide unions and union confederations was authorized.

4.12. In order to control the unions, the law instituted monopoly of representation and the union levy, together with mandatory extension of the results of collective bargaining processes to all workers, including non-union members. Once the union has been recognized by the Ministry of Labor, it then has a monopoly in its predefined geographic jurisdiction. The smallest regional base is the *município*, but unions can also have regional, state, or even national jurisdiction. All collective bargaining processes in a given category have to be carried out with participation from the union holding the monopoly representation in the geographic area concerned.

4.13. Although union membership is not compulsory, workers and employers are required to collect a union levy each year; 60 percent of this is passed on to the respective union by the Ministry of Labor, which is the body responsible for collecting it. The remaining funds are divided between the Ministry of Labor and the federation and confederation for the occupational or economic category concerned. By law, funds transferred to labor unions must be used exclusively for purposes such as recreation, social assistance, education, and consumer cooperatives, but never to finance political activities, collective bargaining processes, or strike funds. Only funds obtained through voluntary contributions can be used for such purposes.

4.14. Up to 1988, the Ministry of Labor could intervene in labor unions for reasons such as misuse of the union levy, or for calling unauthorized strikes or lock-outs. The law even enabled the authorities to close down a union if it were judged to have impeded the implementation of government economic policy. The Constitution of 1988 abolished this provision.

4.15. Collective bargaining is compulsory and must take place once a year, during the "base-date" period, in which the workers' union and the employer's organization or individual company negotiate wages and other employment issues. Base dates vary between occupations and categories, and this results in negotiations being spread throughout the year. It is possible, however, for different occupations to sign agreements on the same day in the same company or economic category, thereby resulting in a collective agreement covering a large proportion of the workers in a given industry. In bargaining processes between employer organizations and worker unions, the result is known as a collective contract (*convenção coletiva*); if bargaining takes place between the workers' union and a single company, the outcome is known as a collective agreement (*acordo coletivo*). Up to 1988, any contract or agreement contrary to the Government's overall economic or wages policy was susceptible to legal rescission. Since then, unions have been free to negotiate agreements without the threat of government interference.

4.16. Monopoly representation, the union levy, and the extension of collective bargaining results to all workers gave great power to union leaders, but fostered a lack of responsibility among them with respect to workers' interests and situations. There were two reasons for this: firstly, union finances are guaranteed by an assured income from the union levy, which means union leaders do not have to attract members to finance union activities. Secondly, mandatory union participation in collective bargaining processes in their area of jurisdiction, together with compulsory extension of the results to all workers, gives union leaders great power in labor relations, whether union density is high or low. Consequently, as history shows, union leaders have not always been concerned with attracting and maintaining workers affiliated to their unions, or with working on behalf of the most obvious interests in their category. In many cases, union legislation has spawned bureaucrats that have little interest in workers' situations, but who maintain close relations with the Government in order to maintain their power in the unions.

4.17. Restrictions on the use of the proceeds of the union levy, compounded by the union bureaucracy's relations with the Government, have turned unions into bodies more concerned with assistance and recreation, but with little interest in promoting and developing collective bargaining processes. Moreover, the monopolistic nature of unions has resulted in collective bargaining taking place on a fragmented basis with no inter-union coordination across the different occupations and economic categories.

4.18. When the military dictatorship took power in 1964, amendments were made to the laws governing union organization and pay-setting processes. One of the most important changes was the introduction of a hardline law on strikes, aimed at regulating the right to strike and creating new criteria for strikes to be considered legal. Highly restrictive rules inhibited the outbreak of strikes and restricted union action; in practice, the changes were intended to repress movements in support of claims of any type. These and other measures, such as prison for union leaders, caused the union movement to stagnate until the late 1970s.

4.19. In the 1960s, a law on wage adjustments was also introduced with the aim of centralizing and regulating the wage-setting process. This gave the Government power to determine the minimum rate of increase for all wages in the economy. The formula and frequency of pay raises changed several times between the mid-1960s when the law was introduced and the end of the 1980s, but it tended to set pay increases below the rate of inflation and even below productivity gains. The lag in pay raises also tended to generate wage erosion because of the accelerating inflation of that period. The law on pay increases was created as an economic policy tool, with wages in practice being used as adjustment variables in stabilization policies. Any pay increases above those stipulated by law had to be negotiated individually between the company and its workers. Given the weakness of labor unions and the centralization of pay-setting processes, the law not only operated as an instrument of wage control, but also inhibited collective bargaining from the 1960s until the mid-1990s, when it was shelved.

4.20. A key feature of the period in which the wage law was in force was that, while wages could theoretically be negotiated between workers and employers, in practice the latter would invoke "collective disagreement" during the bargaining process, which meant referring the dispute to the labor tribunal for settlement. As wages were set by law, the courts did no more than apply the corresponding legislation, overriding any attempt to negotiate increases above the correction set by the Government. Thus, although wages were supposed to be negotiable, pay raises in practice adhered to the rates of increase set by the Government, leaving little or no space for collective bargaining over pay. As a result, the tremendous sway of the Government over wage setting for more than twenty years seriously undermined the development and modernization of collective bargaining processes in the country.

4.21. Control of wages and repression of the union movement prompted major wage claims in the late 1970s, and gave rise to a new phase in the organization of the union movement. Workers sought greater autonomy, freedom of action, and changes in wage policy. The reorganization of the movement was particularly significant in the wealthiest and most industrialized areas such as the ABCD region in São Paulo, where many multinationals and large local companies are based. The perception held by workers that companies in the region were extracting monopoly rents possibly contributed to the emergence of this movement. As shown by Booth (1995) and Nickell et al. (1994), unions tend to demand pay raises where there are *quasi-rents* to be shared out. In such a context, the law on wage increases placed a straitjacket on pay in the most developed regions and most dynamic sectors of the economy, where wage increases above the law were supposedly possible; this led to demonstrations that later culminated in the "new unionism" movement (see Camargo, 2001; and Amadeo and Camargo, 1989). Following a series of violent strikes in the ABCD region during the late 1970s, the frequency of wage hikes was reduced and the rate of productivity increase to be passed on to wages was left for collective bargaining processes to calculate.

4.22. With this additional flexibility, collective bargaining became more important, and the rates of increase determined by law became the floor and no longer the ceiling for pay raises, as it was now possible to negotiate over productivity. Unions now started to bargain over wage increases above the floor set by the law, through negotiations at the company level. Success in bargaining, however, depended on industry characteristics, occupational category, and region. Unions in companies or industries with greater market power, or those that were more concentrated, had stronger bargaining power. Unions in more competitive sectors had little chance of bargaining over productivity, however, and contracts were negotiated in a more individual and less collective fashion. In practice, as pointed out by Camargo (2001), the bargaining system was hybrid: on the one hand it was partly centralized, since unions in some sectors negotiated wages collectively; on the other hand, the weakness of unions elsewhere meant that wages were bargained in a decentralized fashion, with actual pay raises tending to match the adjustments set by law. This system of labor relations and collective bargaining led to scant cooperation between unions, as bargaining power between them varied widely. Unions in companies or sectors that were more inclined to grant pay increases had little interest in the possibility of centralized negotiations.

4.23. Against this backdrop, decentralization and the fragmentation of collective bargaining led to different unions obtaining different rates of pay increase. Wage indexation through the wage-hike law, compounded by fragmentation and scant incentive to coordinate collective bargaining processes, and supported by protectionism, meant that unions had little incentive to build the employment/wage trade-off into their objective functions, thereby raising the costs of stabilization policies. Two potential consequences of this situation were: (i) an increase in wage dispersion; and (ii) problems with macroeconomic coordination.

4.24. Promulgation of the new Constitution led to the overhaul of legislation on collective bargaining, wages, strikes, and unions. Collective bargaining began to be encouraged, the concept of "illegal strike" ceased to exist, prohibition of worker organization at national level was lifted, and unionization of civil servants was allowed, along with other changes making union organization more democratic. Nonetheless, these changes were insufficient to reduce the greatest obstacles to implementing collective bargaining processes in Brazil, since the basic rules governing employment contracts, the powers of labor tribunals, and union organization remained virtually intact.

### **III CHARACTERISTICS OF UNIONIZED WORKERS AND UNION DENSITY**

4.25. Our research on unions draws on data from the National Household Sample Survey (PNAD) conducted by the Brazilian Institute of Geography and Statistics (IBGE) for 1986, 1992, 1993, and 1995 to 1999, years for which the "unionization" variable is available. Unions are analyzed by industry at the IBGE two-digit level, which covers economic activities ranging from agriculture and manufacturing industry to services and public administration.

4.26. The data were filtered for individuals of 18 to 65 years of age, economically active, and earning a positive wage. We took pay earned in the individual's main activity, and transformed this into a real hourly wage. Although PNAD data are acknowledged to be of high quality, 0.1 percent of cases were suppressed from each end of the real wage distribution as a precaution to avoid outliers arising from measurement errors. As a result of the filter, we have at least 100,000 individuals for each year, about 20 percent of whom are union members.

4.27. This section discusses some of the main socioeconomic characteristics of unionized workers and their non-union counterparts. The aim is to determine who the union members are, and where they are located, along with information on union density and whether there is a correlation between socioeconomic profile and union membership.

### **Characteristics of Unionized Workers**

4.28. Table 4.1 shows that the vast majority of unionized workers hold an employment record card (*carteira de trabalho assinada*). While almost 90 percent of unionized workers benefit from the guarantees afforded by a formal work contract, only about 54 percent of non-union workers have this card. As only formal workers are covered by collective bargaining, one might expect that all unionized workers would have a formal contract. The shortfall could arise from measurement error, or unionized workers migrating from formal to informal jobs for some reason. The figures suggest that: (i) workers holding an employment record card have a greater incentive to unionize; (ii) unions are active in guaranteeing workers' rights, thereby reducing the level of informal contracting in the industries where they are strongest; and (iii) unions tend to be concentrated in industries where there is a higher percentage of formal contracting.

4.29. These three hypotheses help to explain the higher level of formalization among unionized workers. It is reasonable to assume that formal workers have a greater incentive to join unions, because the costs of union membership for them are less than the benefits. Informal workers do not have incentives to join unions, however, as they do not benefit from the results of collective bargaining. It is also reasonable to assume that the unions' main demands include upholding workers' rights, which results in the high percentage of formalization in unionized sectors. It is well known that unions are better organized in industry and more sophisticated services, where a lack of formalization is rare.

4.30. Figure 4.1 shows a positive relation between union density and the degree of formalization in the labor force at the industry level, thereby supporting hypotheses (ii) and (iii). It remains to be seen whether there is a causal relationship between the two variables and if so in what direction: i.e. whether greater union activism produces a high level of formalization, or whether greater formalization facilitates union activism.

4.31. There seems to be a correlation between union membership and status in the family. About 62 percent of unionized workers are heads of households, compared to just 52 percent of non-unionists. These figures suggest that union membership is a characteristic of more mature workers, and that young people participate in unions less. In fact, the average age of union members is higher than that of non-unionists. The mean age of union members also rises over time proportionately more than the average age of non-union workers.

4.32. There also seems to be a correlation between union membership and race: about 61 percent of unionized workers are white, compared to 52 percent of non-union members. In addition, the proportion of men among unionized workers is higher than among non-union members. It can therefore be concluded that either: (i) minorities have fewer incentives to join unions; or (ii) unions are concentrated in sectors or regions where these groups are under-represented.

4.33. The distribution of education among unionized and non-union workers is the variable that most clearly distinguishes the two groups. While at least 60 percent of non-union workers are in the first three education brackets (ranging from no education at all to some primary education), at least 50 percent of union members are in the three highest education brackets – covering primary school completed to higher education. This result seems even more remarkable when we analyze the distribution of workers with higher education. Whereas at least 13.7 percent of unionized workers have completed a higher education course, no more than 5.4 percent of non-union workers have done so. If we group the two higher education brackets together (i.e. secondary and tertiary education both completed) we see that in 1999, for example, 47 percent of unionized workers had this level of schooling, compared to just 26.6 percent of their non-union counterparts. Thus, unlike the situation in developed countries (Freeman, 1982; Booth, 1995; Metcalf, 2000), education is a key characteristic of unionized workers in Brazil.

4.34. The distribution of education between unionized and non-union workers suggests that: (i) more educated workers have a greater incentive to join unions; and/or (ii) unions are concentrated in sectors that use more highly skilled labor.<sup>1</sup>

4.35. The distribution of workers by size of establishment (a variable not shown in Table 4.1) shows that nearly 85 percent of unionized workers are in establishments with more than 11 employees, while 58 percent of non-union members work in establishments with 11 employees or less.<sup>2</sup>

4.36. Table 4.2 shows the distribution of unionized workers by region and job category. The proportion of unionized workers in rural and urban areas is quite similar, while unionization is greater in metropolitan than in non-metropolitan areas. The regional distribution shows that the proportion of unionized workers in the southeast – where most of the country's industry and its financial center are located – is similar to that in other regions. The proportions of unionized workers in the north, north-east, and central-western regions, are in all cases less than in the other regions combined. In contrast, the level of unionization in the south is considerably higher than in the rest of the country, which suggests that the union movement in this area is relatively more active and has stronger bargaining power.

4.37. The lower panel of Table 4.2 shows the distribution of unionized workers by occupational category. Unionization is a clear characteristic of managers, skilled production workers, office workers, and, in particular, professionals. Levels of union membership are substantially above the average in each of these job categories. Among professionals, a group that encompasses all higher-level staff, at least 42 percent are union members; this is much more than the average for other occupations. One possible explanation for this is the regulation and legal control maintained over the practice of higher-level professions through Regional Councils (for example, the *Conselho Regional*

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<sup>1</sup> The rising proportion of educated workers who belong to unions may be the result of growth in the relative demand for workers with higher levels of schooling during the 1990s (Green et al., 2001).

<sup>2</sup> For this calculation, we used the PNAD variable that classifies the size of establishments in which individuals work as “up to 11 employees” and “over 11 employees”.

*de Economia, Ordem dos Advogados, Conselho Regional de Medicina, etc.*), supported by compulsory membership of such bodies as a precondition for professional practice. Often, these bodies operate in traditional areas of union activity, for example regulating fees and establishing wage floors. Nonetheless, it is not uncommon to find unions operating in the same location as these professional councils, and this facilitates and publicizes union activities, promotes union membership, and encourages integration between the two bodies, leading even to some unification of agendas.

4.38. About one-third of managers, technical staff, qualified production workers, and office staff are union members, compared to just 12 percent of unskilled production and manual workers – a group covering over half of the entire workforce. Unionization is even lower among sales staff, at around 10 percent.<sup>3</sup> This distribution of union membership by occupational group is surprising, as the literature portrays union membership as a characteristic of low-skilled and production-line workers; moreover, workers with higher qualifications presumably have incentives to demand wages related to productivity, rather than based on pre-established pay scales. The occupational distribution of unionized workers in Brazil suggests that unions have the strongest presence in industries that concentrate higher qualified workers, including executives and office staff.

4.39. Table 4.1 and Table 4.2 therefore suggest that unionization in Brazil is a characteristic of more educated workers, holding the best jobs and working in large establishments; they also tend to be white, male, and heads of households; in addition union members are likely to be in metropolitan regions and to hold an employment record card. This profile suggests that the typical union member is very different from the average Brazilian worker, whose most common characteristic is a low skill level.

4.40. Bearing in mind the different characteristics between unionized workers and their non-union counterparts, it is reasonable to assume socioeconomic variables affect the probability of union membership. To investigate this issue, we estimated models that identified the contribution of individual characteristics to the likelihood of a worker being a member of a union. Binomial logistic regressions were estimated using the union-membership indicator as the dependent variable. The model's explanatory variables were education, experience, experience squared, gender, head of household, urban/rural, metropolitan region, geographic region, and industry classification at the IBGE 1-digit level. The results, given in Table 4.3, show the following:

4.41. The likelihood of union membership rises substantially with schooling; in 1999 for example, an individual who had completed a higher education course was 672 percent more likely than an illiterate worker to be a union member;

- Experience raises the probability of union membership; in 1999 this increased by 2.6 percent with each additional year of experience;

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<sup>3</sup> Not surprisingly, the distribution of occupations between unionized and non-union workers matches the distribution of education.



- Men are more likely to be union members than women;
- Heads of households are more likely to be members of unions than other family members;
- Workers in urban areas are less likely to be unionized than those from rural areas;
- Workers in metropolitan areas are more likely to be union members;
- Workers from the south-east, north, and central-western regions are less likely to be union members than workers from the north-east; only workers from the southern region are more likely to be union members than those in the north-east;
- Economic activity seems to have a major influence on the probability of union membership, as the estimates vary substantially between sectors. Workers in manufacturing industry, other industrial activities, transport and communication services, and even agriculture show high probabilities of union membership; while workers in civil construction and services are unlikely to be unionized.

4.42. The results therefore suggest that union membership in Brazil is closely related to workers' qualifications; and being male, head of household, holder an employment record card, and resident in a metropolitan region, are characteristics that also help explain the likelihood of union membership.

### Union Density

4.43. Table 4.4 (bottom line) and Figure 4.2 show the proportion of unionized workers weighted by the share of each industry in total employment. The figures indicate that union density fell uniformly from 22.2 percent to 17.4 percent between 1986 and 1999, a 27 percent decline during the period. This decline in unionization may be associated with the changes that have taken place in the economy and in the labor market over the last two decades, and particularly in the 1990s when trade liberalization policies were introduced. Other potential explanatory factors include market deregulation, including the labor market, and the privatization of state-owned companies (a sector where unionization was traditionally active), compounded by deep recession in 1990-1992 and a consequent rise in the open unemployment rate. These changes increased competition, undermined profits, and forced companies to adopt cost-cutting measures, potentially affecting workers through a decrease in both the number of jobs and the *quasi-rents* available to be shared out. A drop in union density was an expected consequence of this situation, resulting from higher unemployment and less chance of success in wage claims. Hay (1999) shows that while trade liberalization led to an increase in productivity, the profits of Brazilian companies declined. Arbache (2000) shows that trade liberalization eroded the union wage premium, especially in sectors most affected by imports.

4.44. In order to analyze the level of unionization in Brazil, union density was compared with that of other countries for 1994.<sup>4</sup> Blau and Kahn (1999, table 2) report that average union density in a group of developed countries excluding the United States was 42 percent that year, whereas the figure in

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<sup>4</sup> As there was no PNAD for 1994, we use the average union density for 1993 and 1995 to compare with density in developed countries.



Brazil was 19.5 percent. Density in Brazil only exceeded the figures for the United States (16 percent) and France (9 percent). Differences in union density between countries may be a reflection of the institutions governing unions and collective bargaining processes. In Brazil, legal extension of the results of collective bargaining to all formal workers in the category, even non-union members, must partly explain the relatively low rate of unionization, because it encourages free-rider behavior. In fact, Nickell and Layard (1999) show that union density is relatively low in countries where the results of collective bargaining are extended to non-union workers, as in France, Spain and Holland.<sup>5</sup>

4.45. Table 4.5 shows union density at the two-digit industry level. Industries are classified into three union-density groups, using the following procedure: the average density of industry *i* in the period 1986-1999 was compared with the average density economy-wide during the same period, namely 19.2 percent. On the basis of this comparison, the union density distribution at the industry level was constructed, and this was then split into three groups as follows:

- Up to one standard deviation – average or low union density;
- Between one and two standard deviations – high union density;
- Three or more standard deviations – very high union density.

4.46. The medium or low union-density group included industries with unionization coefficients ranging from 3 percent to 33 percent; so dispersion in that group is very wide. Industries with densities less than or equal to the economy average include civil construction, commerce, agriculture and clothing, among industries traditionally characterized by low levels of technology and capital and low market concentration. Industries with union densities between 19.2 percent and 33 percent, include those with a high technology level, such as the pharmaceutical and chemical industries, together with various activities in the service sector. This interval also includes public administration, where union density is slightly above the average for the economy as a whole.

4.47. The high density category includes industries with unionization rates of between 34.5 percent and 45 percent. Industries in this group are characterized by high levels of technology, capital, and market concentration, and they operate in large establishments. The very high density group contains industries with unionization rates above 52.2 percent, including the financial sector, oil drilling and other fuel mineral extraction industries, together with oil refining. These sectors are essentially dominated by the State oil company, Petrobrás, and by large multinationals.

4.48. The distribution of employment by union-density group is highly unequal. In 1999, 93.88 percent of workers were employed in medium or low union-density industries, while 66.47 percent were in industries with densities below the economy average; 4.05 percent of workers were employed in industries in the high density group, while just 2.07 percent of the workforce were in very high

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<sup>5</sup> Machin and Gosling (1995) and Fortin and Lemieux (1997) show that the decline in union density in the United Kingdom and the United States caused a decrease in union bargaining power, and this helps to explain the observed increase in wage inequality.

union-density industries.<sup>6</sup> The very unequal distribution of workers by union-density group is likely to have significant effects on union behavior at the industry level, and hence on the distribution of the rents extracted by them.

4.49. Assuming a positive relation between union density and bargaining power (Booth, 1995), the heterogeneity of union density across industries should be reflected in the inter-industry wage distribution, since bargaining power varies widely from union to union.

4.50. Wage differentials should also be large within each industry, since collective bargaining processes in a given occupation or industry do not necessarily have national coverage. Thus, if union density and bargaining power varies between regions, there may be a wage differential within that industry.

4.51. Lastly, Figure 4.3 shows the relation between average years of schooling and union density, by industry. The two variables display a clear positive relation, suggesting that industries with a higher rate of union membership have a higher skilled workforce.

#### IV UNIONS AND WAGES

4.52. How do unions affect wages and the distribution of income in Brazil? Is union bargaining behavior influenced by the institutions that regulate labor relations? How is income distribution affected by the concentration of unions in more sophisticated industries and higher unionization rates among skilled workers? This section seeks to answer these questions.

#### Union Wage Premium<sup>7</sup>

4.53. One of the best-known effects of unions in the economy is their ability to raise wages through collective bargaining. The literature shows that unionized workers with the same characteristics as their non-union counterparts enjoy a wage premium thanks to the action of their unions in pay negotiations. Booth (1995), Abowd and Lemieux (1993), and Nickell et al. (1994) all claim that the success of union activism in raising rates of pay is directly related to the market power of the company and the degree of concentration of the industry concerned. Highly competitive companies or industries cannot pay wages over the odds, for fear of going out of business. A union wage premium will only be seen in companies or industries that generate monopoly rents.

4.54. To analyze the wage spread between unionized and non-union workers, we calculated the difference between the logarithm of the real hourly wage of the two groups. The results shown in Table 4.6 indicate an average wage differential of 58 percent.

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<sup>6</sup> The distribution of employment by union-density group in other years is quite similar.

<sup>7</sup> We use the terms "union wage premium", "union premium", "union mark-up" and "union wage differential" synonymously.

4.55. Given that union members have a very different socioeconomic profile compared to non-members, the wage differential should next be calculated controlling for individual characteristics. This was estimated by three methods, namely ordinary least squares (OLS), the Booth method, (1995, p.164), and the Oaxaca-Blinder decomposition.

4.56. The results in Table 4.7 suggest substantially lower union wage premiums than those indicated in Table 4.6, confirming that individual socioeconomic characteristics are a major factor in explaining the wage gap between unionized and non-union workers. Given that the mean wage differential shown in Table 4.6 is 58 percent, while the average premium estimated by OLS is just 17.9 percent, we can conclude that nearly 70 percent of the uncontrolled wage differential is explained by differences in worker characteristics.

4.57. Average values for the union wage premium are calculated as 17.9 percent, 15.3 percent and 17.2 percent, using ordinary least squares, the Booth method, and the Oaxaca-Blinder method, respectively. The salary differential is greater in Brazil than in several continental European countries, where the premium is around 7 percent, but quite similar to the 18 percent differential seen in the United States (Blanchflower and Freeman, 1992).<sup>8</sup> Although the figures for Brazil and the United States are similar, the determinants of the premium in the two countries are not the same, as the labor market and collective bargaining processes operate very differently in the two countries.

4.58. The high union wage premium in Brazil contrasts with generally low union density. One plausible explanation for this is that union mark-ups are very significant in industries of high and very high union density (see Table 4.5), and this raises the average union wage premium for the economy as a whole. This hypothesis is borne out by the high correlation between union density and the inter-industry wage premium (0.798, significant at the 1 percent level), and the results obtained by Arbache and Menezes-Filho (2000) showing evidence of rent sharing in industries that generate greatest value-added and highest return.

4.59. Strictly speaking, the union premium in any given industry should be zero, since by law *all* gains resulting from collective bargaining should be passed on to *all* workers. The empirical verification of union wage premiums suggests that pay raises obtained by unions are *not always* being extended to non-union workers. This would imply non-compliance with the law, suggesting that the legislation regulating collective bargaining, along with many other employment laws, are not being observed

4.60. Table 7 shows a declining trend in union wage premiums as from 1993. This result is related to the effects of trade liberalization (Arbache, 2000) and possibly other factors also, such as privatization, market deregulation, and higher unemployment.

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<sup>8</sup> Blanchflower and Freeman estimated wage models using OLS, with very similar specifications to the model estimated in this paper.

## Unions and wage dispersion

4.61. According to Freeman (2000), the most universal stylized fact in the literature on unions is that wage dispersion among unionized workers is less than that among non-union members. The reasons for this are as follows: (i) unions depart from the principle that there should be a rate of pay for the job, and wages should have little or nothing to do with performance or individual characteristics; (ii) unions defend the existence of rigid job and wage structures, with promotion criteria based on seniority and occupation, and a narrow wage spread over the job hierarchy; and (iii) unions strive to ensure their members do not earn less than the minimum wage for their category or for the overall economy, if one exists, thereby truncating the wage distribution and making it more compact. Consequently, individual characteristics that normally contribute to wage formation, especially human capital variables, have scant influence on rates of pay for unionized workers. The marginal return on schooling, experience and training, for example, will therefore be lower for unionized workers than for their non-union counterparts; and discrimination based on gender, race, age, and so forth, also tends to be less among union members.

4.62. The reasons why unions seek rigid pay scales and a narrower wage spread between occupations are as follows: (i) to define clear objectives for collective bargaining processes; (ii) to eliminate competition among worker through wage disputes; (iii) to engender a feeling of solidarity among workers in the search for equal treatment by the employer; and (iv) the power of the median voter, which tends to favor redistribution in favor of the lower paid whenever the median wage rate is below the mean. The most important consequence of union action is that there will be less wage inequality *throughout* the economy, despite union members enjoying a wage premium (Freeman, 2000; Metcalf et al. 2000).

4.63. Table 4.8 shows the dispersion of the logarithm of real hourly wages for unionized and non-union workers. The spread is always *greater* among the former. Figure 4.4 and Figure 4.5 illustrate wage dispersion in 1999, showing that the distribution for non-union workers is a good deal more leptokurtic, with strong positive asymmetry. These results are strange, since they are contrary to the stylized fact that wage dispersion is less among unionized workers than among non-union members. The most plausible explanation for this is that unions in Brazil do *not* attempt to standardize wages.

4.64. One potential effect of the high wage dispersion among unionized workers is greater wage inequality throughout the economy.<sup>9</sup> This effect will be greater the higher the wage dispersion between unionized and non-union workers, and/or the higher the level of union density. To examine the impact of unions on wage inequality, we use counterfactual analysis to simulate what would happen to inequality if the pay of non-unionists adhered to the wage policy in force for unionized workers.<sup>10</sup> If we find that wage formation for unionized workers increases wage dispersion among non-unionists, we will have evidence that unions increase inequality in the overall economy. To

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<sup>9</sup> Blau and Kahn (1996) show that one of the reasons for greater wage dispersion in the United States compared to other developed countries is the high level of wage dispersion among unionized workers, although this is no greater than dispersion among non-union members in that country.

<sup>10</sup> This could happen if, in order to avoid unionization, companies decided to follow the unionized workers wage policy.

confirm the result of the simulation, we examine what would happen with the distribution if unionized workers were to earn the same as their non-union counterparts.

4.65. The counterfactual for non-unionized workers was implemented as follows:

$$\ln y_i^{ns} = y_i^* + \hat{u}_i^{ns} \left( \frac{\sigma^s}{\sigma^{ns}} \right),$$

4.66. Where  $y_i^*$  is the simulation of the logarithm of the real hourly wage of the  $i$ th non-union worker (the simulation is performed using the  $\beta$ s estimated in the unionized workers wage model);  $\hat{u}_i^{ns}$  is the residual from the non-union wage model;  $\sigma^s$  is the standard deviation of the residual from the unionized workers wage model; and  $\sigma^{ns}$  is the standard deviation of the residuals from the non-union wage model.<sup>11</sup>

4.67. Table 4.9 summarizes the effects of unions on the standard deviation of non-union wages, calculated in two stages. Firstly, the standard deviation of the wages of non-union and unionized workers was simulated on the basis of coefficients estimated in the unionized and non-union wage models, respectively. Secondly, we calculated the ratio between the simulated standard deviation and the original standard deviation (calculated without simulation).

4.68. The results presented in line 1 show that, apart from 1995, if the unionized worker wage policy was used to set the pay of non-union members, wage inequality would increase by between 5.1 percent and 37.3 percent, depending on the year. This result is unequivocal evidence that unions increase wage inequality in the Brazilian economy, rather than reduce it. Line 2 reports the reverse exercise, using the wage policy for non-union members to set unionized workers' pay. This produces a reduction in wage dispersion of 12.7 percent to 18.7 percent, thereby corroborating the previous evidence. Thus, the effects of unions on wage dispersion in Brazil are precisely the opposite of those reported in international literature.

4.69. A very strong factor that may explain the wider dispersion of unionized wages is that merit plays a greater role in setting union members' pay. If so, the coefficients estimated for the productive variables in the unionized wage models ought to be higher than those estimated in the models for non-union members. To investigate this hypothesis, we compared the schooling and experience coefficients in the unionized and non-union wage models.

4.70. The results in Table 4.10 show that the marginal returns on human capital variables in the unionized worker models are always higher than those obtained in the non-union models, which suggests that unions magnify rather than diminish the effects of personal characteristics on wages.<sup>12</sup>

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<sup>11</sup> The equation for unionized workers is the same, with the *ns* superscripts replaced by *s* and vice versa.

<sup>12</sup> The results reported correspond to 1999; qualitative results for other years are similar.



These results are counterintuitive and contrary to the literature; they also contradict the idea that unions are sources of wage equalization and standardization.

4.71. There are at least three possible explanations for this result. The first relates to dispersion in unionized and non-union workers' characteristics. This could add to inequality insofar as wages are determined by productivity differences. The larger the variance of characteristics within a given group, the higher will be the variance of wages in that group, and vice versa. To test this hypothesis, Arbache (1999) decomposes the variance of unionized workers' wages conditional on the variance of non-union workers' characteristics. The result indicates that 37 percent of wage dispersion among unionized workers is caused by the difference in the dispersion of characteristics between union and non-union members. In fact, on the one hand, unionization is highly concentrated in certain industries that account for a small proportion of employment, and in certain occupational categories, notably those requiring higher qualifications, which are in short supply in the economy. On the other hand, unionization is substantially lower in traditional industries and among the low-skilled workers who make up the vast majority of the workforce. Thus, the dispersion of characteristics among unionized workers is likely to be large.

4.72. The second explanation relates to the median voter theorem. As more highly qualified workers are over-represented in union membership, they wield significant power in defining policies that favor returns to human capital, thereby increasing wage inequality. If unions place a higher value on merit, then more highly skilled workers will seek jobs in sectors where unions have greatest influence in pay-setting processes. Thus, the market would respond to higher wages among unionized workers by allocating the best workers to industries where unions are most active.<sup>13</sup>

4.73. The third explanation relates to the scant or non-existent coordination and centralization of collective bargaining processes.<sup>14</sup> This point is discussed below.

4.74. Dispersion of characteristics and pay among unionized workers, together with the relatively greater importance of skill in wage formation, suggest that the returns to human capital variables will differ significantly among unionized workers throughout the distribution. In other words, the marginal return on education is higher among workers further towards the right-hand tail of the distribution. To examine this hypothesis, we compared the marginal returns on schooling in the unionized and non-union wage models, estimated by quantile regression.

4.75. The results, shown in Table 4.11, reveal three phenomena. Firstly, marginal returns on education rise throughout the wage distribution. A worker in the 90th percentile obtains a greater return from a higher education course than a worker attaining the same level of schooling in any lower income percentile. Secondly, the returns to education are always higher for unionized workers. Thirdly, marginal returns among unionized workers grow proportionately more as the level of

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<sup>13</sup> This would create a potential sample selection problem. At the limit, selection would tend to reduce wage dispersion as workers would have increasingly similar characteristics.

<sup>14</sup> By "centralization" we refer to the level at which collective bargaining takes place, namely plant, company, industry or economy.

schooling rises. These results are evidence that unions contribute to greater wage inequality, by providing greater relative benefits to workers further to the right in the distribution, as well as workers with more years of schooling.

### **Unions and Collective Bargaining**

4.76. One important aspect of collective bargaining processes is their potential economic effect, which goes beyond wage distribution. In the most centralized and coordinated bargaining systems, wage determination tends to be more sensitive to the general conditions of the labor market (Layard et al., 1991) and income distribution tends to be more equal. At the other end of the scale, fragmented bargaining systems that operate at the establishment level tend to be more sensitive to the economic conditions facing the company. In both cases, union demands are tempered by disincentives arising from the effects of inconsistent demands on the workers themselves, such as unemployment, inflation, or a lack of formalization of the employment contract. Discussion on this topic initially analyzed the effects of the crises of the 1970s on the macroeconomic performance of rich countries, and showed that the institutions that regulate collective bargaining play a decisive role in macroeconomic performance (Tarantelli, 1985; Bruno and Sachs, 1985; Freeman, 1988).

4.77. Calmfors and Driffill (1988) show that collective bargaining organized at the industry level, as in Brazil, is the worst possible structure, because workers have few incentives to incorporate into their objective functions the conditions facing the economy and companies, or the external effects on themselves of potentially inconsistent demands. Moreover, the absence of coordination and synchronization among collective bargaining processes in Brazil means that unions are permanently creating pockets of instability, by holding out for wage increases that are inconsistent with macroeconomic balance.

4.78. The literature indicates that the most important consequence of coordinated and centralized collective bargaining processes is low wage dispersion. The empirical literature shows that wage differentials are narrower in countries with centralized bargaining processes than where they are more fragmented (Kahn, 1998). Blau and Khan (1996) find, for a set of developed countries, that wage dispersion is lower where collective bargaining is more centralized. Metcalf et al. (2000) discuss and show that the retreat of collective bargaining coverage in the United Kingdom since the 1980s was accompanied by greater wage inequality. Rowthorn (1992) uses the centralization criterion proposed by Calmfors and Driffill (1988) and finds a negative relation between centralization and inter-industry wage dispersion. Thus, the greater the coordination and centralization of bargaining processes, and/or the higher the proportion of workers covered by collective bargaining, the lower the wage dispersion in the economy will be.<sup>15</sup>

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<sup>15</sup> It should be borne in mind that wages agreed upon in more centralized collective bargaining systems affect the vast majority of workers, including non-union members, either because the result of the bargaining process is legally extended to everyone, or because companies take the negotiated wage rate as a benchmark for constructing their own pay scale. In either situation, wage dispersion among workers covered by the bargaining process should be less than among those who are not covered.

4.79. The structure of labor relations and union organization in Brazil is highly unfavorable to the strengthening, centralization, and coordination of collective bargaining processes. Unions from the most organized and sophisticated industries are encouraged to adopt individualistic behavior to exploit bargaining power associated with the conditions facing the company or industry. As a result, inter-industry wage differentials may be wider among unionized than among non-union workers. As the rate and composition of unemployment vary from region to region, unions from a single industry but in different localities will have different bargaining power, leading to potentially greater inequality in the wages of unionized workers.

4.80. Industry-level bargaining processes may be advantageous for unions in sectors that earn monopoly rents and are therefore more receptive to wage claims. Such is the case of unions in the most profitable and highly concentrated industries, which use the most advanced technologies. Companies in sectors with these characteristics tend to be more accommodating because stoppages, strikes, and other forms of demonstration can be very costly for them. As we saw above, these industries attract the most highly qualified workers and have the greatest union density. For these unions, coordinated bargaining processes centralized at the economywide level could constrain their wage demands. In addition, centralized bargaining makes sectoral demands more transparent, revealing possible free-rider behavior by unions. Finally, it is easier to achieve internal worker cohesion around bargaining goals when negotiations take place at the industry level rather than nationwide. On the other hand, unions in companies with little monopoly power, or industries that are not very concentrated, have less bargaining power. These would be interested in "hitching a ride" on centralized collective bargaining processes. Weak coordination and centralization of bargaining processes are therefore the result of the institutional framework that governs collective bargaining and of highly heterogeneous union bargaining power.

4.81. The effects of the structure of collective bargaining processes in Brazil are particularly important, given the country's highly unequal income distribution and the severe macroeconomic instability it has been experiencing for at least two decades. Negotiations at the industry level and by geographic area mean that unions have less incentive to internalize the effects of the trade off between wage/employment and wage/formal employment contract. Consequently, there will be: (i) high dispersion of inter-industry wages – this will rise with the heterogeneity of technology and market power between industries, and the heterogeneity of bargaining power between unions; (ii) a prolongation of and/or increase in the costs of stabilization processes and/or coordination of macroeconomic policies, with potential effects on unemployment and inflation.

4.82. To investigate the effects of the collective bargaining structure on inequality, we compared the standard deviation of the inter-industry wage differential between unionized and non-union workers. Inter-industry wage differentials relate to that part of wages not explained by human capital, demographic characteristics, regional variables, etc., but associated with the industry to which the worker is attached. Thus, the higher the industry wage premium, the higher will be the wage received by the individual in that industry *vis-à-vis* the representative worker. Insofar as industry wage premiums and profits are positively related (Arbache and Menezes-Filho, 2000), it is reasonable to expect a positive relation between union activism and the industry wage premium, because unions negotiate where there are monopoly rents to be shared out. As collective bargaining processes usually occur at the industry level, union pressure for higher pay could lead to greater inter-industry wage dispersion.



4.83. We estimated inter-industry wage premiums and calculated the respective standard deviation using the Haisken-DeNew and Schmidt (1997) procedure. Table 4.12 shows that the dispersion of industry wage premiums among unionized workers is greater than among non-union members. This confirms that union bargaining power at the industry level is quite heterogeneous, a situation that tends to be boosted by fragmentation and a lack of synchronization among collective bargaining processes, and by the way in which labor relations are structured in Brazil. Little cooperation between unions can therefore be expected on wages, and coordination in collective bargaining processes is unlikely.

## V DISCUSSION

4.84. This paper has attempted to answer the following questions: (i) How do labor and union laws affect collective bargaining processes? (ii) Do unions affect wage formation and income distribution? (iii) Do unions increase rigidity in the labor market? On reaching the end of the paper, we realize we have not found unequivocal answers to these questions. The complexity of the topic and the limitations of relying on economics alone to provide answers may help explain the shortcomings of our findings. Nonetheless, the paper offers several pieces of evidence that elucidate the issues addressed.

4.85. Possibly the most important lesson to be drawn from the study is that institutions are fundamental in explaining union actions, along with their effects on income distribution and macroeconomic stability, and on the current state of collective bargaining in Brazil. The answer to question (i) is closely linked to the institutional apparatus. As we have seen, labor and union legislation – particularly through the union levy, monopoly representation and labor tribunals – create disincentives for the development of collective bargaining and cause problems for macroeconomic coordination.

4.86. The mandatory union levy creates contract problems between the union and the worker. As the union thus has an assured income, the bureaucrat will not always need to obtain additional funds from voluntary affiliations to run the organization. This may result in the relaxation or even disappearance of the contractual relation between the two parties, in which the union member (the principal) would expect “contractual” attitudes and decisions from the union bureaucrat (the agent). Consequently, union leaders may perform their union activities with less commitment, and this may lead to a weakened relationship between the union and its workers. The assured income, which is often sizeable, gives enormous power to the union bureaucracy, and nurtures bitter disputes for leadership of the organization.

4.87. In the period prior to the 1988 Constitution, when the State was given great freedom to meddle in union affairs, the contractual relation between union leaders and workers was often tenuous, and union bureaucracy essentially strove to keep itself in power by forging ever closer relationships with Government. It was in these circumstances that the so-called “*pelego*” concept and culture was formed, which in some ways may still exist in the union movement today. More recently, the distribution of funds by Government for unions to use in training and labor intermediation programs has fostered a further strengthening of relations between union leaders and government authorities.

4.88. The contract problem created by the union levy means that union leaders do not always feel committed to the most obvious interests of the worker; this inhibits a strengthening of the relationship between worker and union, thereby impairing the development of collective bargaining.

4.89. Monopoly representation is another institution that may interfere with the actions of unions in collective bargaining processes. The monopoly guarantees union bureaucracy enormous power in its geographical jurisdiction, giving it major prerogatives such as mandatory participation in discussions on any issue relating to the interests of the category it represents. A problem of union involvement in all negotiations is that it tends to inhibit bargaining between employers and employees at the company level. In addition, excess power linked to the contract problem may also influence the behavior and actions of union leaders in bargaining processes.

4.90. The regulatory power of the labor tribunal system, together with the paternalism of labor legislation and in many cases the justice system itself, prevent workers and employers from entering into direct negotiations with one another. Employees, protected by legislation and the culture of appealing to the tribunal, are encouraged to use the justice system to resolve disagreements with employers. Employees frequently have recourse to the justice system even before proposing or presenting their allegations or claims to their employers. The latter, either as a way of delaying payments owed, exploiting the opportunity cost of the worker, or increasing the transaction cost of access to amounts supposedly owed, also has incentives to apply to the courts rather than negotiate with the worker. Direct negotiations are thus replaced by the institutionalization of indirect negotiations through the labor tribunal system. This tortuous means of settling disputes may also be susceptible to political influence in the rulings handed down – a not infrequent occurrence, especially in higher courts. Apart from this, a lack of preparation and technical support on economic issues may lead judges to make spurious decisions. Such was the case during the wage policy period, for example, in defining the productivity increase to be passed on to wages, where courts calculated productivity on the basis of dubious or unknown criteria.

4.91. The wage law – which was in force for many years – and the policies of the military dictatorship explain, in large measure, the backward state of collective bargaining in Brazil. As we saw earlier, employers had incentives during wage negotiations to invoke collective disagreement, which meant applying the wage law and ruling out any chance of negotiation. Throughout the military dictatorship, unionism was subjected to close monitoring and control, which stymied the development, improvement, and modernization of labor relations for over twenty years.

4.92. With regard to question (ii), pertaining to the effects of unions on pay setting and the wage distribution, we find a variety of econometric evidence. Unions clearly contribute to wage formation, by establishing a wage premium that enables union members to earn more than their non-union counterparts with the same individual characteristics and industrial affiliation. In principle, the existence of the wage premium is unexpected, since the law requires the results of collective bargaining processes to be extended to all workers in the occupational category concerned. Thus, any pay raise negotiated by the union must be given to all workers in that category. Possible explanations for the empirical verification of union wage premiums include the following: (i) automatic extension of gains may not have taken place, meaning non-compliance with the law; (ii) wage negotiations may predominantly be carried out at the company rather than the industry level, as we investigated in this study, which would not require extension of bargained results to other workers in the industry; (iii) unions may essentially be negotiating pay floors rather than actual wage rates,

thereby giving space for companies to negotiate wages above the floor; and (iv) there may be a wage differential between workers in a given category, but in different *municípios* or jurisdictions of unions or their federations. Unfortunately, shortcomings in union data prevent us from testing these hypotheses. Nonetheless, we would not be surprised if future calculations using company and/or municipal-level data produced lower union wage premiums.

4.93. We find evidence that unions do affect income distribution; but contrary to the view prevailing in the literature, unions in Brazil are associated with more rather than less wage inequality. Several factors appear to explain this. Firstly, higher-skilled workers and those in better jobs are proportionately more unionized than less skilled workers. This is counterintuitive, since better qualified workers would not have an incentive to be paid standardized wages. On the contrary, as they are more skilled they ought to prefer their pay to be performance-related rather than predetermined.

4.94. Our results suggest that the higher rates of unionization among more qualified workers encourage unions to adopt strategies favoring this group. This is consistent with the median voter theorem, the greater mobilization power of like-minded people, or insider power. The finding that marginal returns on human capital variables are higher among unionized workers and those to the right of the wage distribution, compared to non-union members, is remarkable. Given that the country is so lacking in skilled labor, unions would therefore seem to be exploiting labor scarcity to magnify the returns to skill, thus benefiting workers with more human capital and/or those holding better posts in the job hierarchy. This issue becomes even more important if unions are insensitive to the wage/employment and wage/informal sector trade-offs.

4.95. One possible explanation for the higher rate of unionization among better qualified workers may be the regulation of higher-level professions by regional councils, which, to some extent, behave or end up behaving in a similar way to unions. As we showed above, an example of this is the publication of fee scales and the establishment of pay floors by these institutions. On the other hand, the unions in the respective categories, which often work in conjunction with and in the same place as the regional councils, can take advantage of externalities arising from the actions of these bodies, to promote and disseminate unionization among professional people and thereby increase union membership among them.

4.96. Secondly, the dispersion of characteristics among unionized workers is greater than among their non-union counterparts, resulting in higher wage dispersion among union members.

4.97. Thirdly, the resurgence of unionism at the end of the 1970s in the industrialized and wealthy ABCD area of São Paulo, does not seem to be mere coincidence. Clearly, it is associated with the nature of the companies and industries in that region, which include multinationals and large domestic companies, mostly operating in concentrated, high technology industries. The conjunction of these two phenomena, namely the extraction of monopoly rents by companies in the region, and the strict law on pay increases, which limited wage hikes, would have encouraged workers to organize and lobby for greater flexibility to facilitate rent sharing. Thus, the reorganization of the union movement in the wealthiest part of the country and in industries using sophisticated

technologies and moderately more qualified workers seems to have molded the “new unionism” as an activity associated with workers who are more rather than less qualified.<sup>16</sup>

4.98. Fourthly, the fact that occupational categories’ base dates are spread throughout the year, compounded by the fragmentation of collective bargaining by region, reduces the chances of centralization and/or coordination of bargaining processes and encourages free-rider behavior. In this context, unions in sectors that extract monopoly rents have incentives to act in a decentralized fashion, exploiting circumstances that are favorable to them, in accordance with the characteristics of the industry and/or region in which they are located. On the other hand, the weakness of unions in more competitive sectors means they have less chance of bargaining success. As union density is higher in the more concentrated and sophisticated industries, we consequently find greater inter-industry wage inequality associated with unions.

4.99. Another major consequence of the fragmentation of bargaining processes is the difficulty this raises for macroeconomic coordination. A fragmented system of negotiations, with highly variable bargaining power between unions, encourages free riding and inconsistent wage demands, constantly generating potential pressure on prices. But the effects of fragmentation become even more acute as unions in more organized sectors show scant concern for the wage/employment and wage/informal sector trade-offs, provoking potentially negative consequences for the level and quality of employment, and harming outsiders in particular.

4.100. As for the relation between unions and market-market rigidity posed in question (iii), we find evidence that union action on wages tends to increase rigidity and segmentation in the labor market. The union wage premium, together with an over-valuation of human capital, raise labor costs, creating entry barriers for less skilled workers in certain industries and encouraging segmentation. Broadly speaking, this produces one group of industries with higher union density, higher wages, and more skilled workers; and another group of industries with lower union density, lower wages, and less skilled workers.

## VI. RECOMMENDATIONS

4.101. In the light of the above discussion, we now make some recommendations for encouraging and strengthening collective bargaining processes, ideally turning them into the key instrument of labor relations in Brazil. We believe the following measures should be adopted: (i) abolish the union monopoly; (ii) abolish the mandatory union levy; (iii) abolish the regulatory power of the labor tribunal system; (iv) organize unions by economic activity rather than occupation; (v) strengthen representation at the workplace; and (vi) change collective bargaining base dates so as to reduce fragmentation and encourage centralization and/or cooperation between unions in bargaining processes. We believe these measures would enhance unions and give them greater independence;

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<sup>16</sup> It should be noted that the concept of skill in a country with a high proportion of illiterate or functionally illiterate workers, such as Brazil, is different from that of a country with a higher average level of education. Thus, even an individual who has not completed second grade, for example, could be considered to have formal education well above the national average.

the measures would also strengthen them and elicit more committed engagement from them on issues pertaining to workers' interests. The current structure of collective bargaining in Brazil reflects and reveals scant consensus among the agents involved in improving and modernizing the country's labor relations.

4.102. Given the paucity of research on unions in Brazil, investigation of their impact on employment, productivity, profits, and working conditions, together with studies of the differences between unions in the public and private sectors, and at the company and regional level, would be particularly welcome in order to shed further light on the issues raised in this paper.



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**Table 4.1 Characteristics Of Unionized And Non-Union Workers**  
(Percentages)

	1986		1992		1993		1995		1996		1997		1998		1999	
	Union	Non-union	Union	Non-union	Union	Non-union	Union	Non-union	Union	Non-union	Union	Non-union	Union	Non-union	Union	Non-union
<b>General characteristics</b>																
Employment record card	82.3	57.5	91.3	55.2	91.0	54.1	91.4	53.5	90.4	53.8	90.4	53.4	90.5	53.3	89.7	52.4
Head of household	66.8	48.6	64.3	50.7	64.5	50.9	62.8	50.2	62.0	49.7	61.6	50.0	61.3	50.2	61.2	50.2
White	61.5	51.0	61.5	52.0	60.9	51.8	61.1	51.8	62.1	52.5	60.5	51.8	61.2	51.5	59.9	51.7
Male	75.6	63.9	70.5	62.3	69.5	62.4	68.1	61.0	66.7	61.0	66.6	61.5	65.3	61.1	65.2	60.6
Experience (absolute value)	22.9	22.1	22.4	21.8	22.3	21.9	22.6	21.9	22.5	21.7	22.5	21.7	22.6	21.7	22.9	21.7
Age (absolute value)	36.0	33.8	37.0	34.6	37.2	34.7	37.7	34.8	37.9	35.0	38.0	35.0	38.3	35.2	38.5	35.3
<b>Education</b>																
Illiterate	11.7	17.0	9.8	15.3	9.1	14.1	7.9	13.0	7.2	12.5	7.7	11.9	6.9	11.1	7.5	10.6
Some elementary education	13.7	19.8	11.5	17.3	10.9	17.0	10.3	16.5	9.2	15.0	9.1	15.4	8.5	14.8	8.4	14.3
Elementary or some primary education	26.4	32.7	26.2	33.0	25.5	33.6	25.4	33.9	23.6	32.7	22.9	32.7	22.3	32.3	21.8	32.0
Primary or some secondary education	13.2	13.1	14.0	14.1	13.7	14.4	13.9	14.7	15.3	16.3	14.8	15.7	14.7	16.3	15.0	16.5
Secondary or some higher education	21.4	13.9	25.0	16.0	25.9	16.5	26.8	17.3	28.1	18.6	28.4	19.2	29.8	20.2	29.6	21.2
Higher education	13.7	3.4	13.6	4.4	15.0	4.4	15.7	4.6	16.6	4.9	17.0	5.1	17.9	5.3	17.7	5.4
Years of schooling (absolute value)	7.2	5.2	7.7	5.7	7.9	5.8	8.1	6.0	8.4	6.2	8.4	6.3	8.7	6.4	8.6	6.6

**Table 4.2 Proportion Of Unionized Workers By Region And Occupation**  
(Percentages)

	1986	1992	1993	1995	1996	1997	1998	1999
<b>Geographic region</b>								
Urban	22.1	20.2	20.0	19.1	18.7	18.2	17.8	17.4
Rural	22.1	20.0	19.6	17.8	17.7	17.1	16.5	17.2
Metropolitan region	24.2	22.0	22.1	21.2	20.9	20.3	20.0	18.8
Non-metropolitan	20.6	18.8	18.4	17.3	16.8	16.4	15.9	16.4
South-east	22.9	19.1	18.4	17.9	18.6	17.9	17.4	16.7
Other regions	21.7	20.8	20.8	19.5	18.5	18.1	17.7	17.7
North	22.3	16.4	16.2	14.6	15.5	15.4	14.3	14.7
Other regions	22.2	20.4	20.2	19.3	18.8	18.2	17.9	17.6
North-east	19.1	20.8	20.2	18.4	16.6	16.7	16.6	17.2
Other regions	23.4	18.6	19.2	19.2	19.3	18.5	18.0	17.5
Central-western	16.9	17.8	18.7	15.7	16.6	15.2	15.1	15.0
Other regions	23.0	20.5	20.1	19.4	18.8	18.4	18.0	17.7
South	29.8	27.4	26.4	25.5	23.6	23.1	25.5	21.6
Other regions	20.7	18.5	18.5	17.5	17.4	16.9	16.6	16.5
<b>Occupation</b>								
Managers	40.2	34.5	36.0	34.7	33.4	32.2	31.4	30.2
Other occupations	21.6	19.7	19.5	18.5	18.1	17.6	17.3	17.0
Higher-level professionals	52.5	44.8	45.2	45.0	42.3	42.4	43.0	42.2
Other occupations	20.1	19.1	18.8	17.7	17.4	16.8	16.4	16.1
Technical workers	25.2	27.9	29.9	28.4	28.5	28.8	27.4	27.7
Other occupations	22.0	19.7	19.3	18.3	17.9	17.3	17.0	16.7
Office staff	30.8	31.6	32.7	31.1	29.7	29.1	28.7	27.7
Other occupations	21.3	19.2	18.9	18.0	17.7	17.2	16.8	16.6
Sales staff	12.9	8.9	10.1	9.7	10.3	10.0	10.2	9.6
Other occupations	23.8	11.3	21.8	20.8	20.2	19.6	19.2	19.0
Skilled production workers	29.3	19.5	28.3	26.8	26.0	25.3	24.9	24.8
Other occupations	20.6	18.5	18.5	17.6	17.3	16.8	16.5	16.2
Unskilled production workers	15.3	13.9	16.3	12.9	12.3	11.9	11.5	11.4
Other occupations	27.2	25.0	24.9	23.6	23.4	22.8	22.6	22.2

Table 4.3 Probability of Union Membership

Marginal effects (%)	1986	1992	1993	1995	1996	1997	1998	1999
Some elementary education	18.59	24.27	21.23	26.43	31.21	15.04	16.07	8.81
Elementary or some primary education	62.60	76.04	71.74	81.50	85.27	64.87	68.87	60.22
Primary or some secondary education	149.75	161.31	157.50	174.43	186.89	162.11	164.81	165.31
Secondary or some higher education	287.43	308.45	304.18	327.67	354.47	291.27	312.00	292.32
Higher education	835.15	624.02	680.75	721.92	760.35	633.53	691.90	671.78
Experience	1.38	1.97	1.92	2.25	2.31	2.32	2.44	2.62
Male	24.50	21.91	15.68	18.20	14.74	17.68	12.99	15.82
Head of household	89.43	47.36	51.98	41.20	41.79	39.31	37.09	34.10
Urban region	-13.86	-15.51	-12.41	-9.24	-12.99	-11.87	-9.92	-10.70
Metropolitan region	9.87	12.41	16.32	17.39	21.64	21.87	21.89	12.01
South-east	11.06	-10.12	-19.28	-19.08	<i>1.89</i>	<i>-2.94</i>	-6.76	-13.45
North	19.83	-18.75	-20.74	-27.73	-7.39	-10.23	-16.57	-20.56
Central-western	-20.55	-7.89	-9.23	-21.91	<i>-1.69</i>	-14.45	-13.77	-18.28
South	58.77	45.90	31.47	28.31	37.63	33.18	28.36	15.88
Agriculture	84.91	92.94	119.83	109.82	114.95	107.71	106.25	125.68
Manufacturing	121.24	164.18	178.35	193.99	151.76	134.72	120.43	130.49
Civil construction	-30.66	-19.09	-16.82	-14.54	-26.05	-28.75	-30.20	-33.23
Other industrial activities	187.18	343.72	369.61	442.29	355.15	304.29	310.65	317.70
Services	-48.39	-37.48	-37.16	-38.46	-33.12	-35.44	-37.32	-32.21
Other services	30.16	44.84	44.97	30.16	33.34	31.52	29.09	29.59
Transport and communication services	133.32	255.47	286.31	253.98	244.85	201.06	190.42	218.62
Social services	32.26	108.21	141.79	155.10	133.87	150.52	129.10	150.60
Public administration	-12.02	28.39	49.39	74.81	53.48	75.89	66.99	93.66
Other activities	164.23	284.65	328.61	330.09	229.34	237.05	166.07	183.97
N	99 305	104 154	106 285	114 377	111 358	118 135	117 045	120 685

Note: All coefficients are significant at the 5% level, except those shown in *italics*.

Reference categories are: illiterate, north east region, and commerce.

The models were estimated by logistic regression. The standard errors of the estimators are robust.

**Table 4.4 Union Density**  
(Percentages)

Industry	1986	1992	1993	1995	1996	1997	1998	1999	Mean
Agriculture	23.6	20.6	20.7	18.5	18.9	18.4	18.1	18.9	19.7
Mining	30.1	22.0	19.6	24.2	15.9	17.0	16.6	16.5	20.2
Oil, gas, and coal	68.3	67.1	71.8	71.7	49.3	64.8	61.1	66.7	65.1
Non-metallic products	22.1	19.0	17.5	19.5	17.2	20.1	16.2	15.1	18.3
Metallurgical products	41.0	35.5	38.8	34.9	36.4	30.3	29.7	29.2	34.5
Mechanical products	43.5	40.1	41.7	40.2	31.1	36.6	31.7	31.3	37.0
Electrical and electronic products	47.6	42.4	36.1	38.2	33.6	33.3	33.0	27.1	36.4
Vehicles and autoparts	43.3	47.2	46.5	48.9	46.8	43.2	41.8	42.5	45.0
Wood and furniture	18.2	15.0	10.2	11.2	11.0	9.1	11.2	10.0	12.0
Paper and publishing	36.1	35.1	32.9	32.9	36.0	27.1	27.4	27.2	31.8
Rubber	30.2	28.2	42.9	40.8	28.9	24.6	34.2	31.0	32.6
Chemicals	35.3	30.3	31.1	30.5	31.2	28.2	29.3	34.4	31.3
Oil refining	53.4	63.8	48.7	57.7	49.7	54.6	40.9	48.7	52.2
Perfumes and pharmaceuticals	31.8	23.9	29.0	27.2	26.7	24.0	23.9	26.4	26.6
Plastic products	32.3	28.7	28.4	27.7	31.2	29.4	24.1	27.0	28.6
Textiles	33.1	40.7	38.9	43.3	31.7	33.6	35.3	30.5	35.9
Clothing	8.9	9.4	9.4	9.5	8.2	8.0	8.4	8.7	8.8
Footwear	32.1	30.4	31.5	27.9	22.8	24.2	18.4	21.0	26.0
Foodstuff	26.2	24.1	22.9	22.6	20.9	20.3	20.0	18.1	21.9
Other manufactured products	22.6	16.9	14.6	21.6	20.1	16.2	17.3	13.5	17.9
Industrial services	50.6	66.2	63.3	65.3	60.6	56.6	55.0	54.2	59.0
Civil construction	11.9	10.2	9.5	9.2	8.2	8.0	7.6	6.9	8.9
Commerce	17.9	14.3	13.2	12.2	12.7	12.6	12.7	11.7	13.4
Transport services	34.9	37.1	36.1	32.4	33.1	30.3	29.8	29.4	32.9
Communication	43.3	45.9	52.1	52.2	45.6	41.3	38.9	38.5	44.7
Financial institutions	54.1	60.8	58.7	61.8	53.8	53.8	48.9	49.9	55.2
Social services	14.1	13.9	13.7	12.8	14.0	13.2	13.5	13.0	13.5
Business services	32.1	28.0	28.0	26.1	26.9	25.1	25.4	24.8	27.1
Public administration	24.4	21.1	25.1	19.7	18.0	22.3	20.5	20.2	21.4
Rental and leasing	23.9	26.0	27.9	29.0	28.1	29.5	28.8	29.9	27.9
Other services	4.0	2.7	2.7	2.7	2.8	2.8	2.9	2.7	2.9
Total	22.2	20.2	20.0	19.0	18.6	18.1	17.7	17.4	19.2

**Table 4.5 Union Density By Group**  
(Percentages)

Group	Mean
<b>1. Medium or low-density (up to one standard deviation)</b>	
Other services	2.9
Clothing	8.8
Civil construction	8.9
Wood and furniture	12.0
Commerce	13.4
Social services	13.5
Other manufactured products	17.9
Non-metallic products	18.3
Agriculture	19.7
Mining	20.2
Public administration	21.4
Foodstuff	21.9
Footwear	26.0
Perfumes and pharmaceuticals	26.6
Other industrial services	27.1
Rental and leasing	27.9
Plastic products	28.6
Chemicals	31.3
Paper and publishing	31.8
Rubber	32.6
Transport services	32.9
<b>2. High-density (up to two standard deviations)</b>	
Metallurgical products	34.5
Textiles	35.9
Electric and electronic products	36.4
Mechanical products	37.0
Communications	44.7
Vehicles and autoparts	45.0
<b>3. Very high-density (three or more standard deviations)</b>	
Oil refining	52.2
Financial institutions	55.2
Industrial services	59.0
Oil, gas, and coal	65.1

Notes: Standard deviation = 15%; overall mean density = 19.2%; mean values between 1986 and 1999.

**Table 4.6 Differential Of Log. Of Real Hourly Wages**  
(Percentages)

1986	55.8
1992	59.1
1993	63.0
1995	57.5
1996	57.0
1997	57.7
1998	57.8
1999	54.2

**Table 4.7 Union Wage Mark-Up**

Year	Union dummy (OLS)	Booth method*	Oaxaca-Blinder method**
1986	0.1670	0.1365	0.1281 - 0.1662
1992	0.1772	0.1381	0.1203 - 0.2057
1993	0.2008	0.1682	0.1516 - 0.2316
1995	0.1855	0.1698	0.1581 - 0.2190
1996	0.1813	0.1596	0.1469 - 0.2135
1997	0.1881	0.1702	0.1606 - 0.2134
1998	0.1774	0.1580	0.1479 - 0.2040
1999	0.1574	0.1228	0.1106 - 0.1778

Notes: The explanatory variables in the wage equation model are: education, experience, experience squared, employment record card, urban region, metropolitan region, head of household, race, gender, five geographic regions, and 31 industries.

\* Booth (1995). \*\* Results vary according to the means vector used in the calculations, of non-union and unionized workers, respectively.

**Table 4.8 Wage Dispersion Among Unionized And Non-Union Workers**

Year	Standard deviation of log. of real hourly wage		
	Unionized	Non-union	Total
1986	0.9740	0.8914	0.9397
1992	0.9412	0.9076	0.9448
1993	0.9910	0.9229	0.9702
1995	0.9631	0.8936	0.9349
1996	0.9629	0.8949	0.9352
1997	0.9667	0.8926	0.9332
1998	0.9620	0.8751	0.9181
1999	0.9485	0.8636	0.9028

**Table 4.9 Simulation Of Standard Deviation Of Unionized And Non-Union Workers' Wages**

(simulated value/original value %)

	1986	1992	1993	1995	1996	1997	1998	1999
Non-union	13.57	5.08	20.82	-4.64	14.43	11.88	15.79	37.33
Unionized	-13.45	-13.77	-17.45	-12.66	-14.05	-11.97	-14.99	-18.75

Notes: The figures shown in the table represent the ratio of the simulated standard deviation divided by the original standard deviation, expressed as a percentage. The values shown for non-union members refer to the simulated standard deviation obtained using coefficients estimated from the *unionized* workers wage model. The values for unionized workers refer to the simulated standard deviation obtained with coefficients estimated from the *non-union* workers wage model.

**Table 4.10 Returns To Human Capital Variables In Unionized And Non-Union Workers Wage equations, 1999**

Variable	Unionized	Non-union
Experience	0.0347	0.0331
Experience squared	-0.0004	-0.0005
Some elementary education	0.1573	0.1151
Elementary or some primary education	0.3678	0.2888
Primary or some secondary education	0.6414	0.5288
Secondary or some higher education	1.0850	0.9380
Higher education	1.8080	1.7260

Note: All coefficients are significant at the 1% level

**Table 4.11 Schooling Coefficients Among Unionized And Non-Union Workers, 1999**

Percentile	0.1		0.25		0.50		0.75		0.9	
	Union	Non-union	Union	Non-union	Union	Non-union	Union	Non-union	Union	Non-union
Some elementary education	0.0589	0.0394	0.0961	0.0416	0.1055	0.0465	0.1591	0.0703	0.1560	0.1017
Elementary or some primary education	0.1625	0.1211	0.2180	0.1146	0.2488	0.1175	0.2781	0.1340	0.2656	0.1709
Primary or some secondary education	0.2976	0.2060	0.3428	0.1915	0.3731	0.2244	0.4411	0.2756	0.4790	0.3498
Secondary or some higher education	0.5479	0.4123	0.6510	0.4581	0.7549	0.5674	0.8901	0.7118	0.9513	0.8657
Higher education	1.3916	1.1577	1.5364	1.3185	1.6765	1.5176	1.7903	1.6751	1.7487	1.7513

Notes: Models were estimated by quantile regression. All coefficients are significant at the 1% level. Standard errors were estimated by the bootstrap method.

The models' explanatory variables are: gender, urban region, metropolitan region, 5 geographic regions, 31 industries, head of household, employment record card, and schooling.

**Table 4.12 Standard deviation of the inter-industry wage differential**

<b>Year</b>	<b>Unionized</b>	<b>Non-union</b>	<b>Total</b>
1986	0.2491	0.1827	0.2023
1992	0.2640	0.1713	0.2061
1993	0.2741	0.1619	0.2002
1995	0.2631	0.1614	0.1934
1996	0.2456	0.1652	0.1892
1997	0.2375	0.1685	0.1898
1998	0.2310	0.1605	0.1796
1999	0.2313	0.1625	0.1818

Notes: (1) The inter-industry wage differential and standard deviation were estimated by the Haisken-DeNew and Schmidt (1997) method. (2) The models' explanatory variables are: education, gender, experience, experience squared, employment record card, head of household, urban region, metropolitan region, regions, and 31 industries (IBGE two-digit level).



Figure 4.1 Union Density vs. Formalization, 1999

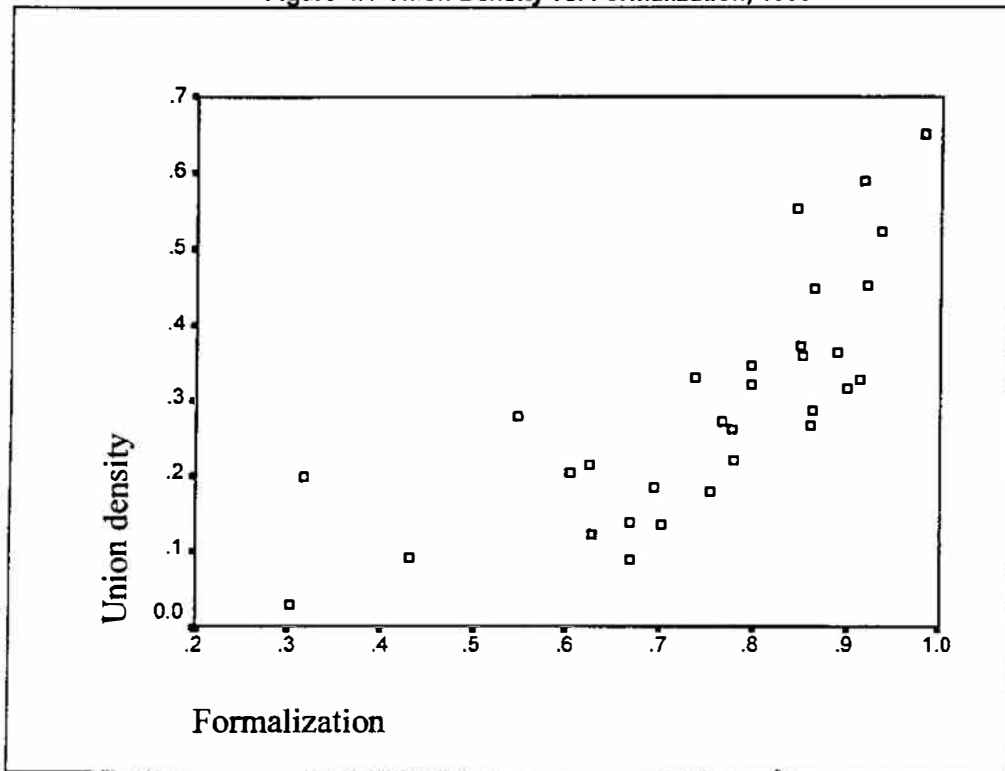


Figure 4.2 Union Density (%)

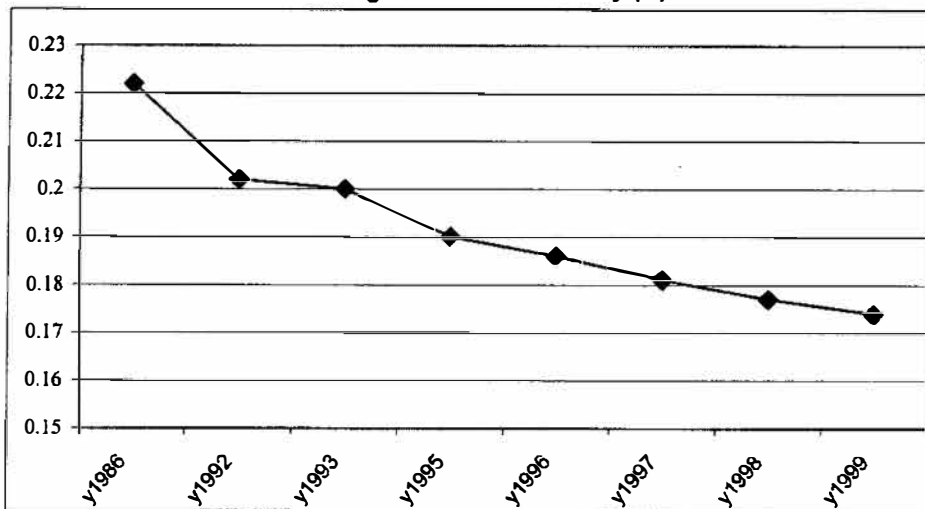


Figure 4.3 Schooling and union density - industry, 1999

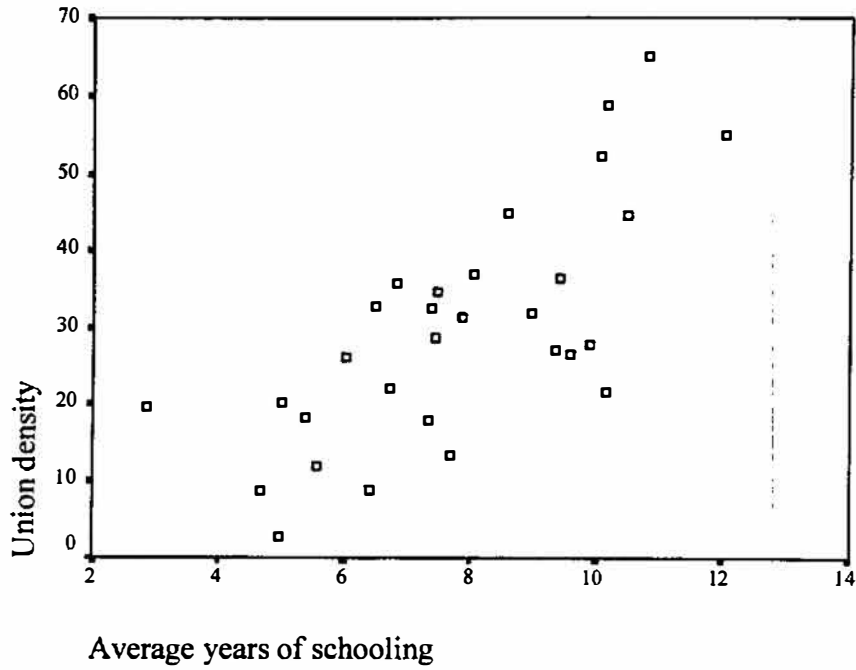


Figure 4.4 Distribution of Real Hourly Wages – Union Members, 1999

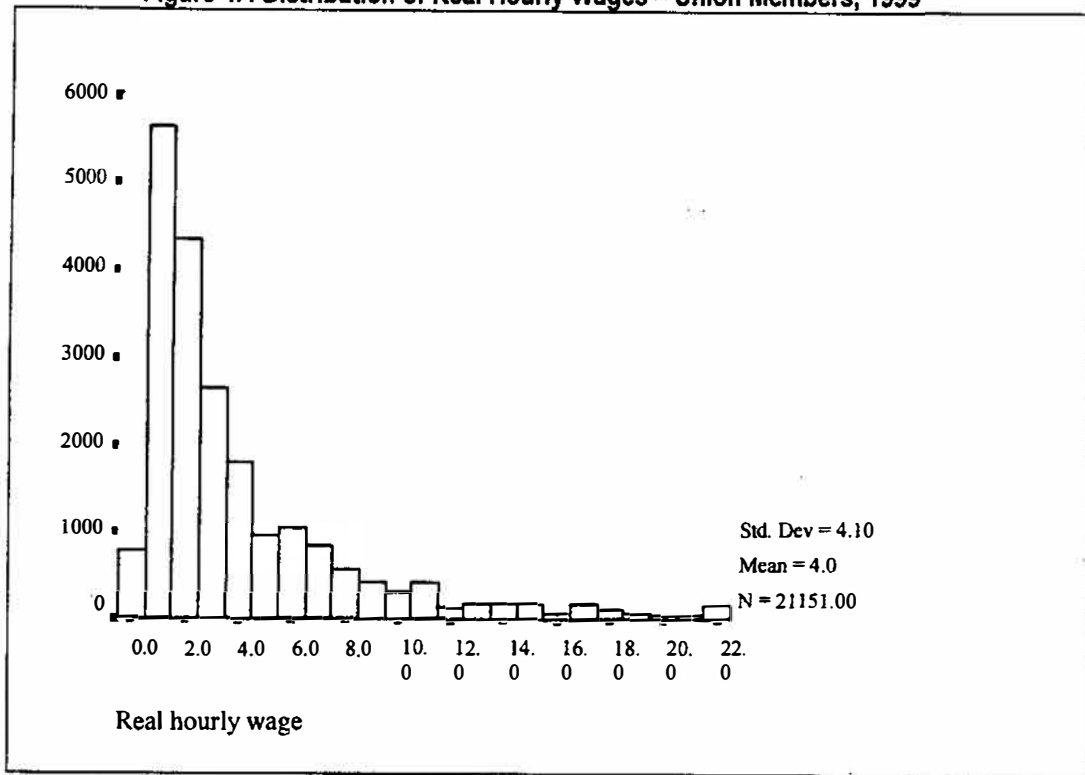
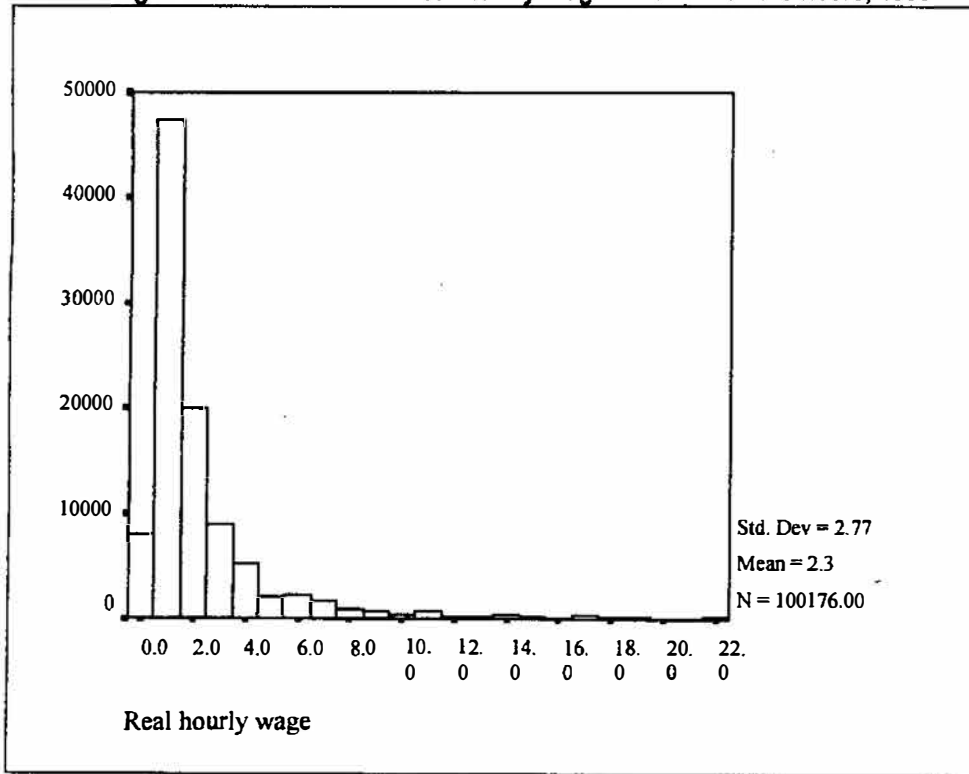


Figure 4.5 Distribution of Real Hourly Wage – Non-union Members, 1999





## 5. ECONOMIC IMPACT OF UNIONS AND COLLECTIVE BARGAINING: LESSONS FROM INTERNATIONAL EXPERIENCE

Prepared by Amit Dar

### I BACKGROUND AND SCOPE OF THE STUDY

5.1. The international debate on labor standards has focused on a set of internationally agreed upon "core labor standards" including: (1) the freedom of association (consisting of the right to unionize and the right to collective bargaining); (2) the elimination of all forms of forced labor; (3) the effective abolition of child labor; and (4) the elimination of discrimination in employment and occupation.

5.2. These core labor standards have been defined in a number of ILO conventions dating from 1930 on. However, not all countries have ratified them and even where ratification has taken place, sometimes implementation and enforcement have been problematic. In June 1998, the ILO adopted the *Declaration on Fundamental Principles and Rights at Work* in order to revive interest in adopting and ratifying these conventions and to signal a strategic shift towards more flexible implementation and a greater emphasis on technical assistance. The Declaration includes an obligation on the part of ILO members to promote and realize the four core labor standards identified above. It recognizes the obligation of the ILO to assist its member countries to attain the objectives of the Declaration. It also encourages other international organizations to support these efforts by offering technical assistance and by helping member countries to create a climate for economic and social development. The intent of the Declaration is to ensure that the trend towards globalization is accompanied by social justice. However, it acknowledges that the comparative advantage of low-wage countries should not be called into question.

5.3. Debate on core labor standards has also become more prominent in the international arena and remains controversial. For example, some (largely developed) countries have expressed the view that if these standards were linked to trade regulations through the WTO, this would represent a powerful incentive for members to improve labor conditions. By contrast, many developing and some developed member states have maintained that the introduction of labor standards in trade negotiations would amount to protectionism and would undermine the comparative advantage of lower-wage trading partners.

5.4. This paper focuses on one of these standards by shedding light on the economic facets of the freedom of association. While the human rights argument in support of freedom of association and the right to collective bargaining is compelling, the question from an economic point of view is to what extent these standards contribute to economic development and performance. Answering this question would, in principle, require a comparison between countries with and without unions. This is, however, impossible as in virtually all countries – even those which suppress labor – unions and employers' organizations play a (sometimes important) role in industrial relations.

5.5. In this paper, we consider two related questions that *indirectly* can help us disentangle the economic effects associated with freedom of association and the right to collective bargaining. These questions are: (a) what are the microeconomic effects of unions and employers' organizations (unionism); and (b) how do different institutional approaches to collective bargaining affect macroeconomic performance?

5.6. The majority of the evidence that addresses various aspects of these questions comes from OECD countries, though available evidence from developing countries will also be presented. This evidence will inform us about the economic consequences of different types of unionism as well as the interaction between unionism and the economic, political and institutional environment in which collective bargaining takes place. The aim of this review is to summarize the empirical evidence and draw some lessons of experience.

5.7. The study will be organized in the following sections: (a) presenting some data on unionism; (b) providing a brief theoretical overview of unionism and collective bargaining; (c) reviewing evidence derived from microeconomic analysis of the economic impact of unions; (d) reviewing evidence derived from econometric studies focusing on the relationship between different systems of collective bargaining and macroeconomic performance; and (e) conclusion and lessons. The evidence presented in this paper draws heavily on a recent comprehensive study of the issues *Core Labor Standards and the Freedom of Association: Economic Aspects* by Aidt and Tzannatos (2001, forthcoming).

## **II UNIONIZATION AND COLLECTIVE BARGAINING: SOME STATISTICS**

5.8. A recent development in the economics of the labor market was the appearance during the 1980s of a wide range of studies on the behavior of trade unions and their impact on the process of wage and employment determination. In the specific case of wage determination, it has been now widely suggested that wage moderation is usually associated with a more coordinated bargaining structure, or what has been termed corporatist arrangements. On the other extreme, however, explosive wage demands have been usually associated both with a lack of coordination and with synchronization in wage bargaining.

5.9. The discussion on the role of institutions and wage bargaining structures in determining wage moderation cannot be dissociated from the debate on labor market flexibility. In the competitive model of the labor market, for example, the balance of supply and demand in the whole market dictates wages. Hicks's Theory of Wages (1932) was the starting point for this argument, but even Hicks himself became skeptical about the overall applicability of the competitive model, as he made clear in the preface to Hicks (1963). There has been much debate whether wages can be considered as fixed by non-competitive pressures. A common argument often used is that in most cases, wages are determined by collective bargaining and also that other non-competitive factors might be important (e.g., efficiency wage and rent-sharing theories).

5.10. Two indicators are often used to measure the extent of unionization in a country. These are (a) union density; and (b) bargaining coverage. Union density is defined as the number of workers who are members of a union, as a percentage of all workers (unionized and non-unionized). Bargaining coverage is defined as the number of workers, unionized or not, who have their pay and employment conditions determined by a collective agreement, as a percentage of all workers, unionized and non-unionized.

5.11. Table 5.1 shows union density and bargaining coverage for some non-Latin American OECD countries in the 1970s, 1980s and 1990s and for some Latin American countries where data is available for the latter two decades. Average union density in the OECD countries declined during the 1980s (47%) to 40 percent in the 1990s. The average movement, however, hides a lot of variation. Some countries, such as the US, the UK, Japan, and the Netherlands, have experienced a significant reduction in union density. Other countries, such as Finland and Sweden, have experienced a significant increase in union density over the three decades. Also, the cross-country variation is significant. Countries such as France, the US,

and Spain have very low union density rates (less than 30 percent). On the other hand, the Scandinavian countries have very high rates (all above 50 percent, some around 80 percent).

5.12. Some of the same trends are true for Latin American countries as shown in Table 5.1— union density seems to have decreased sharply in the 1990s. While it is still high in some countries (e.g. Brazil 32%, Argentina 25%, Guyana 25%), in many countries union density is below 10%. Another interesting aspect is that union density is significantly lower, on average, in Latin America than it is in many non Latin OECD countries.

**Table 5.1 Union Density And Bargaining Coverage**

Country	Union density			Bargaining Coverage	
	1970	1980	1994	1990	1994
<i>OECD...</i>					
Australia	50	48	41	80	80
Austria	62	56	42	98	98
Canada	31	36	38	38	38
Denmark*	60	76	76	69	69
Finland	51	70	81	95	95
France	22	18	9	92	95
Germany	33	36	29	90	92
Italy	36	49	39	83	82
Japan*	35	31	24	23	21
Netherlands	38	35	26	71	81
New Zealand	n.a.	56	30	67	31
Spain	27	19	19	76	78
Sweden*	68	80	91	86	89
Switzerland	30	31	27	53	50
UK	45	50	34	47	47
US	23	22	16	18	18
<i>Latin America and Caribbean...</i>					
Argentina	n.a.	49	25	n.a.	73
Brazil	n.a.	n.a.	32	n.a.	n.a.
Chile	n.a.	12	16	n.a.	13
Colombia	n.a.	11	7	n.a.	n.a.
Costa Rica	n.a.	23	13	n.a.	n.a.
Guatemala	n.a.	8	4	n.a.	n.a.
Guyana	n.a.	n.a.	25	n.a.	27
Mexico	n.a.	54	31	n.a.	n.a.
Peru	n.a.	n.a.	8	n.a.	n.a.
Uruguay	n.a.	20	12	n.a.	22
Venezuela	n.a.	26	15	n.a.	n.a.

5.13. Bargaining coverage is on average much higher than union density in the OECD (and in the few Latin American countries for which this data is available). While high union density leads to high coverage of collective bargaining, the converse is not true. Countries such as Spain and France have very low union density, yet the coverage of collective agreements is very high. The difference between union density and coverage of collective bargaining is largely attributed to mandatory extensions of collective agreements to non-unionized sectors (OECD, 1994). Brazil's collective bargaining system can be characterized as an intermediate level of collective bargaining. Union density is over 30 percent – among the highest in Latin America (Box 5.1).

### Box 5.1 Trade Unions and Collective Bargaining in Brazil

The labor market in Brazil has developed wage setting institutions which allow its classification as an intermediate-centralized economy in terms of international comparisons.

Prior to 1964, collective wage adjustments were defined as part of a collective labor contract between workers' and employers' unions. For each professional category represented by a local union, negotiations took effect on a different day of the year, called "base date". Trade unions were defined in terms of industry affiliation and geographical location. After the 1964 military coup, collective bargaining was more or less replaced by centralized state wage indexation, and this situation prevailed until the 1980s. The State wage indexation system in operation between 1964 and 1985 provided for a state minimum wage to be annually indexed based on the average real wage of the previous 24 months (shortened to 12 months in 1975). This system represented a compulsory incomes policy, and for certain periods between 1964 and 1979 due to systematic underindexation it was moderately successful in lowering inflation.

By the end of the 1970s, inflation was growing rapidly in Brazil and this provoked the upsurge of strike activities in the most organized sectors of the economy. The consequences of the increased labor mobilization were two-fold: (i) an immediate reduction in the period between salary adjustments from 12 months, until 1979, to six months thereafter; and (ii) the return of direct negotiations between unions and employers, which opened the door for wage adjustments above the past rate of inflation.

The re-emergence of political democracy in the 1980s combined with labor dissatisfaction with the State wage policy led to the development of a new unionism. Unions have slowly increased their role in the wage determination process and have experienced an enhancement in their bargaining ability at both the regional and industrial levels. Union density is quite high - it is estimated to be over 30 percent. In terms of degree of bargaining centralization, what has emerged is an intermediate level of collective bargaining.

In the late 1980s and early 1990s, control of inflation became much more problematic in Brazil. One consequence of the generally unsuccessful counter-inflationary policy shocks was an increased defensiveness on the part of labor unions, keen to protect real wage levels in the face of deflationary shocks. This contributed to the breakdown in coordination and synchronization of wage determination, and the development of a structure for collective bargaining much more akin to that prevailing in western Europe.

5.14. Source: Carneiro (1998, 1999); Carneiro and Henley (1998)

5.15.

## III A THEORETICAL REVIEW OF UNIONISM AND COLLECTIVE BARGAINING

### What Unions Do

5.16. Unions are engaged in many different activities. There is a distinction between two different aspects of union behavior: monopoly and participatory.

5.17. Economists have traditionally argued that unions want to increase wages and "share rents" with employers while preserving employment of their membership. To the extent that rent is available for sharing, however, unions can force firms to give up some profits only if they can *monopolize* labor supply. This is because firms are willing to give up some of their profits to avoid industrial conflict. However, if nonunion workers can readily replace union workers, the union's bargaining position is substantially weakened. Hence the success of unions depends significantly on the economic environment, as measured by competitive pressure from product markets and nonunion labor markets in which they operate. If unions are successful in getting a wage mark-up, they impose a number of (external) costs on the rest of the society, known as the monopoly cost of unions (Medoff and Freeman, 1984). These could include firms trying to pass costs onto the consumer or the fact that more senior union members, who typically have a disproportional influence on the decisions of the union, may institutionalize a seniority principle in relation to



layoffs and other aspects of deployment such as promotion, recall and training. This can create insider/outsider dynamics that can lead to persistently high levels of unemployment.

5.18. However, these costs are based on the assumption that the labor market would be competitive in the absence of unionism. The reality facing policy makers is far less clear cut than this for several reasons. First, the 'removal' of unions may not expose an underlying perfectly competitive situation in the labor market: instead it may reveal market imperfections on the labor demand side in the form of monopsony.<sup>1</sup> Second, when job-specific skills are important (or turnover costs are otherwise high), individual workers have sufficient bargaining power to get a wage mark-up, even in the absence of unions. Finally, it is possible that unions and firms can bargain over wages *and* employment and enter an efficient contract. This can reduce transaction costs which would be involved in dealing with individual employees.<sup>2</sup>

5.19. Another viewpoint focuses on the economic (participatory) benefit of unions. Unions facilitate worker-participation and worker-manager cooperation at the workplace. This can have efficiency-enhancing effects to the benefit of workers and management. These benefits can arise from a number of sources: (a) unions can play an important and beneficial role in communicating the preferences of workers directly to the management, plus participating in the establishment of work rules and seniority provisions in the internal labor market; (b) unions facilitate procedural arrangements and other agency services that help reduce the likelihood of costly disputes about wage and employment conditions; and (c) unions can increase productivity by providing a channel through which labor can draw to management's attention changes in working methods or production techniques that may be beneficial to both parties.

### **Bargaining Coordination**

5.20. Some economists argue that the capacity of unions to determine ~~fix~~ wages increased over time because unemployment insurance and other labor market institutions which favor welfare-state measures led to reduced wage pressure from the unemployed. Thus, a higher rate of unemployment would be required if a noninflationary path of economic development were to be achieved. The effect of unemployment on the behavior of unions as regards wage determination generally depends on the objective function of the union, which may be strongly influenced by the size and composition of the labor force share a union represents. Two effects of the extent of representation on collective bargaining can be broadly identified: (i) with increasing comprehensiveness, unions gain market power that may be used to push up wages and working standards. At the same time, however, (ii) as organizations encompass larger groups, the negative effects of wage bargaining become endogenous, as suggested by Olson (1982)<sup>3</sup>.

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<sup>1</sup>Employer can derive monopsony power from the fact that it is costly for a worker to leave the firm (because of the firm-specific human capital they have accumulated) and move to another city to get a new similar job. Therefore, once a worker is hired, he or she would be reluctant to quit and the employer can exploit that.

<sup>2</sup> This outcome is based on the so-called "efficient bargain" model which is termed efficient by assuming that neither the union nor the firm will be made better off without making the other worse off, should a change in the agreed contract be effected; i.e., bargained levels of wages and employment will be on the contract curve and the outcome will be Pareto efficient.

<sup>3</sup> As argued by Mancur Olson (1982), special interest groups are most damaging once they have gained a certain amount of power, but little responsibility.

5.21. The economic effects of unions depend on the way collective bargaining is organized. Of particular interest is the degree of bargaining coordination. Here we outline from a theoretical perspective three aspects of bargaining coordination, namely, centralization, concentration and informal coordination.<sup>4</sup>

5.22. Centralization of collective bargaining refers to the capacity of the peak union confederation and employers organization to influence wage levels/patterns across the economy. This capacity depends on two aspects. First, at what level bargaining takes place, that is, plant, industry or national level. Second, whether or not the peak organization(s) can control the behavior of their constituent organizations.

5.23. To see the implications of this, we need to take a closer look at what is likely to happen when, say, a company union demands a higher wage. Clearly, to avoid an increase in the product wage, the firm will try to pass on the wage demand as a higher product price. This reaction has two implications. First, a higher product price reduces the real consumption wage of all workers (the externality effect) including those who hold membership of the union. Second, a higher product price leads to a reduction in the demand for goods produced by the firm and a reduction in employment among unionized workers (the competitive pressure effect). The union, of course, dislikes both of these effects. Accordingly, it moderates its wage demands to the extent that they do not pay off in terms of a higher real consumption wage for the membership or/and to the extent that they put the jobs of too many union members at stake. In other words, if a union and an individual firm bargain over wages, the trade-off between a wage increase and employment greatly depends on the price elasticity of demand for the firm's product, and in the extreme, the power of unions at the company level will be limited by competition in the product market.

5.24. On the other hand, for unions whose utility function comprises the entire labor force, as in the case of centralized national unions, all external effects of the union's action enter directly into the union's utility function and, therefore, the negative effects of its actions become endogenous to these unions. As examples of this internalization mechanism, in an entirely centralized system, if workers lose their jobs and become dependent on benefits, these benefits will be financed by members of the union; thus, excessively high wage increases directly affect the member's net wage. Similarly, if wage increases induce inflation, the real wage of the union's members will be directly affected.

5.25. Such considerations of political science arguments have led some economists to suggest that wage bargaining at the company level (decentralized) or at the national level (centralized), leads to favorable macroeconomic outcomes, such as low unemployment, low inflation and high employment rates. Economies with an intermediate-centralized level of wage bargaining, however, suffer from union power that does not internalize negative effects and are, therefore, expected to experience less favorable macroeconomic outcomes (Calmfors and Driffill, 1988).

5.26. In general, the relationship between centralization of collective bargaining and economic performance is determined by the interaction between the externality effect and the competitive pressure effect. If the externality effect is important even at the industry level and the competitive pressure effect is unimportant, then the relationship is monotonic, i.e., a more centralized bargaining system produces better economic outcomes. However, if the externality effect is unimportant at the industry level and the

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<sup>4</sup> The relevant, theoretical literature has been surveyed in great detail by Calmfors (1993), Moene and Wallerstein (1993a), Layard et al. (1991, ch. 2) and Henley and Tsakalotos (1993).

competitive pressure effect is important, the relationship may be U-shaped, i.e., national and firm level bargaining produces better outcomes than industry-based collective bargaining. In addition to openness to international trade, the relationship between bargaining centralization and economic performance also depends on competition from nonunion labor markets. The general point is that the nature of the relationship depends significantly on the context in which collective bargaining takes place.<sup>5</sup>

5.27. Union concentration refers to the number and type of unions at the relevant level of bargaining. An industrial relations system based on *multi-unionism* and *closed unions* is usually characterized by low concentration because of rivalry between unions that results in less coordinated wage bargaining. *Multi-unionism* refers to a situation in which many unions offer to organize the same workers. A *closed union* refers to the situation when workers can only join a particular union of his or her craft/profession/education/job. In contrast, *an open union* can have members with different education and from different trades. It is not, *a priori*, clear that bargaining coordination in the form of a concentrated union movement based on single-unionism and open unions leads to more desirable economic outcomes. This will depend on several factors such as whether workers in closed unions are complements or substitutes in production, individual preferences of union members etc..

5.28. Bargaining coordination needs not be embodied in the formal institutional framework of collective bargaining. It can be informal. Informal coordination, typically, takes two forms. The first form is *internal coordination* among employers and/or the employees. At the employer side this involves coordination between industry-based employers' organizations or individual firms. This plays an important role in Japan, Austria, and Switzerland (Soskice, 1990; OECD, 1994). At the employee side, internal coordination, typically, involves coordination between company- and industry-based unions. The second form of informal coordination is *pattern bargaining*. Here, a dominate industry or company enters a collective agreement that is followed by other firms and industries. This has been important in, e.g., Germany, where the metal industry, traditionally, has acted as the leader.

#### IV. EMPIRICAL EVIDENCE FROM MICRO DATA

5.29. This section reviews a large body of empirical evidence about the economic effects of unions derived from microeconomic data on individual workers and establishments. A significant portion of the evidence relates to OECD countries (mainly the U.S. and the U.K.) but there is also some evidence from some developing countries.

5.30. This section is organized as follows. First, evidence is presented on the union-nonunion wage mark-up. This aspect of union behavior is, by far, the most well researched aspect with over 200 studies in the US alone. Cross-country differences in the average wage mark-up as well as the variation in the wage mark-up across skills, gender, occupation, ethnicity as well as with respect to the underlying economic and institutional environment are examined. This is followed by a review of the effect of unions on other

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<sup>5</sup> Freeman (1988) argues for care on this issue as centralized corporatist labor markets are primarily found in small countries while decentralized markets characterize larger economies. In this context, any policy recommendation should not concentrate only on a particular set of institutions which work better but rather try to identify specific policies which can succeed in particular environments.

economic variables such as employment growth, hours worked, productivity, job mobility, implementation of new technology etc..

### Union Non-union Wage Mark-up

5.31. The union-nonunion wage mark-up (the “wage mark-up”) is defined as the difference between the average (nominal) wage of unionized and nonunionized workers with similar individual and workplace characteristics divided by the average wage of a nonunionized worker.<sup>6</sup> The estimation of the wage mark-up can be based on data related to wages of individual workers or average sector-wide or occupational wage rates (for example, average wages in different industries or broad sectors – such as manufacturing versus services or manual versus nonmanual workers). As it is generally agreed that the mark-up calculated using sector-wide data are biased upwards, we focus below on studies that have used individual cross-section data.

5.32. A major econometric problem involved in estimating the wage mark-up is to control for all other factors, besides unionization, that affect wages. These factors have typically been proxied by variables such as education, work experience, gender, family status, hours worked, firm size, industry, occupation and so on. However, some of these variables may be highly correlated with union status. For example, the fact that a unionized worker works longer hours may be the result of union negotiated overtime or, to take another example, working in a particular industry may be a critical factor for belonging to a union (such as in the mining sector). Another problem is union-status selectivity. This problem arises because the union-status selection process is not random. For example, workers with high productivity can decide not to join a union or decide to work in the nonunion sector because they hope to get a higher wage than collectively agreed. This phenomenon gives rise to selectivity bias and reduces the reliability of the estimated mark-up.<sup>7</sup> Bearing these remarks in mind, we present below a summary of country-specific studies on the wage mark-up as well as cross-country comparisons.<sup>8</sup>

5.33. In all countries where the wage mark-up has been estimated, it has been found to be non-negative. There is, however, significant cross-country variation as well as variation of estimates within countries. There is also some evidence, albeit weak, that the wage mark-up is, on average, lower in high-income countries than in low- and middle-income ones.

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<sup>6</sup> In principle, we are interested in comparing the union wage with the wage that would have prevailed in the absence of unions (this is called the “wage gain”). However, the wage gain is unobservable and the literature has typically focused on the wage mark-up.

<sup>7</sup>One way to deal with the union-status selectivity problem is to estimate the wage equation and a union-status selection equation simultaneously. Another is to use a panel data set that contains time series of cross-sections for the same set of workers. This makes it possible to control for unobserved heterogeneity. For example, if unobserved characteristics of workers stay constant over time, they can be taken into account by comparing the wage of each worker at one date with that at a later date.

<sup>8</sup>Extensive discussion on methodological issues on the estimation of the wage mark-up can be found in Lewis (1986), Booth (1995) or Pencavel (1991).

5.34. More specifically, Table 5.2 presents summary estimates of the wage mark-up for six high-income economies (the US, the UK, Japan, Canada, Australia and West Germany), six middle-income economies (South Korea, Malaysia, South Africa, Brazil and Mexico), and one low-income economy (Ghana). These estimates are based on averages of regression analysis estimates in various studies.

**Table 5.2 Union-nonunion Wage Mark-up for Selected Countries**

Country	Period/Year	Wage mark-up(%)
USA	1963-95	15
UK	1969-95	10
Japan		5
Canada	1969-86	10-20
Australia	1984-87	7-17
West Germany	1985-87	0-6
South Korea	1988	2-4
Malaysia	1988	15-20
South Africa	1993-95	10-24
Mexico	1989	10
Brazil	1992-95	7-11
Ghana	1992-94	21-28

5.35. The evidence is sparser for other OECD countries but some generalizations are possible. The wage mark-up for Australia has been estimated to vary between 7 percent and 17. Similarly, the Canadian wage mark-up has been estimated to be in the range of 10 to 20 percent, though most estimates seem to fall in the 10-15 percentage range. In Germany, where most unions are industry unions and work and pay conditions contained in collective agreements are largely extended to nonunionized workers, the wage-mark-up is found to be small, especially for male workers. Similarly, a study on Japan has found a small average wage mark-up of about 5 percent.

5.36. There is much less evidence for developing economies. The mark-up in South Africa has been estimated in three studies from anywhere between 10-24% (Mofl, 1993; Dabalén, 1998; and Rouse, 1999). Standing (1992) estimates the wage mark-up for Malaysia to be in the range between 15 and 20 percent, depending on the type of union. These effects are somewhat larger than in most industrialized countries. Standing attributes the high mark-up to the fact that Malaysia non-unionized workers can, in the absence of minimum wage legislation, be vulnerable to very low wages. He concludes that the mark-up can reasonably be in the estimated range despite the fact that the political and economic environment in Malaysia is difficult for unions.

5.37. For Ghana, estimates using three surveys of manufacturing firms in 1992, 1993 and 1994, find that the wage mark-up varies between 21-28%. Again, these estimates are significantly higher than those from the industrialized countries. For Mexico, Panagides and Patrinos (1994) find a 10 percent membership wage mark-up after having controlled for an large number of income generating characteristics in a cross-section sample of unionized and non-unionized non-agricultural workers in 1989. They attribute the relative low wage mark-up to the fact that the 1980s were a particular difficult time for unions in Mexico due to recession coupled with government austerity measures. It is, however, unclear if this can explain the result. First, recession and austerity measures should affect unionized sections and nonunionized sectors alike. Second, one could argue that unions would be in a better position than nonunionized workers to resist downwards pressure on wages, thereby increasing the wage mark-up.



5.38. Evidence for the case of Brazil is presented by Arbache and Carneiro (1999), based on household surveys for 1992 and 1995. Their results are suggestive that trade unions do have an important role in wage determination, as they found union wage mark-up that varied from 6.7% to 11.3%. Furthermore, these authors have found that a share of between 18.8% and 29.6% of the raw wage differentials between unionized and nonunionized workers were not explained by differences in observable productive endowments, occupation and other variables. This suggests that if a worker changes his/her union membership status from nonunion to union s/he is liable to perceive a wage increase in Brazil.

5.39. *Gender wage gaps.* Unions are one among many determinants of the gender wage gap. In his survey of the U.S. literature, Lewis (1986) concludes that there is very little, if any, difference between the mark-up for female and male workers. This has been further confirmed by more recent studies and the same result emerges from Australian studies (Christie, 1992; Mulvey, 1986). The evidence from other OECD and middle-income countries, however, unambiguously supports the view that the wage mark-up is greater for women. Nakamura et al. (1988), in their study of Japan, find a wage mark-up of 10% for women but fails to find any for men. Likewise, Schmidt (1995) shows that the small average wage mark-up in West German is mainly due to a wage mark-up among unionized female workers. The findings for Mexico suggest that the mark-up for women is 9.8 percentage points higher than that of men with similar characteristics. Similarly, in South Africa, the wage mark-up among black blue-collar workers in the mid 1980's was about 11 percentage points higher for women than for men. A comparison of the wage ratio of male and female workers in non-unionized and unionized firms in Malaysia suggest that the presence of a union reduces the ratio of male to female wages, leading to the conclusion that women gain more than proportionately from unionization (Standing, 1992).

5.40. *Skill wage gaps.* Collective bargaining can insert a wedge between worker productivity and wages. Though this can be desirable as part of avoiding wage inequality from a societal point of view, it can also distort the relative wage of skilled and unskilled workers or the relative rewards to different types of jobs. There is some evidence to back up this claim. In the U.S. and the U.K., evidence shows that manual workers get a larger mark-up than non-manual workers. In South Africa, the wage mark-up to workers with different skills varies between different ethnic groups. For example, the average wage mark-up for unskilled *non-white* workers is 19 percent, while the wage mark-up to skilled workers is practically zero. On the other hand, semi-skilled and skilled *white* workers got a wage mark-up of 13 percent in 1985 (Moll, 1993) implying that black unions tended to compress wages by skill level. Though Dabalén (1998) finds estimates that are somewhat smaller, his study confirms the general pattern found by Moll (1993). In Malaysia, unions reduce the intra-firm wage differential between skilled and unskilled workers. In particular, industry unions tend to reduce the differential between workers with different skills more than company unions do (Standing, 1992).

5.41. *Collective bargaining characteristics.* Some studies have also tried to estimate the wage mark-up in a cross-country context. These studies have used comparable individual data to estimate the wage differential for a set of OECD countries. These analysis, for the most part, come up with similar results to the ones stated above. Using these data, analysis which has tried to correlate the wage mark-up across countries with characteristics of collective bargaining<sup>9</sup> come up with interesting findings. This analysis

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<sup>9</sup> These characteristics are – degree of centralization/coordination of collective bargaining, union density, and bargaining coverage.

shows that there is a tendency for countries with centralized/coordinated or decentralized/uncoordinated bargaining systems to have a higher mark-up than countries with semi-coordinated systems. Union density appears to be largely uncorrelated with to the wage mark-up (correlation coefficient 0.02) while bargaining coverage is negatively correlated with the mark-up (correlation coefficient -0.58). This seems to point to the conclusion that the more workers become unionized/covered by collective agreements, the lower the mark-up they can secure.<sup>10</sup> This may be so because the labor supply in the non-covered sector decreases when more workers become covered, thereby pushing the nonunion wage up. Somewhat related, using a time-series comparison, this analysis also shows that the wage markup seems to be lower for countries where the density rates have been increasing or constant between 1970-1993 (an average mark-up of 4.5%) as compared to mark-ups in countries where the union density rates have declined over the same time period (an average mark-up of 11.8%).

### Other Union Effects

5.42. This section reviews the evidence on the impact of unions on employment growth, productivity, technology and profitability.

5.43. *Employment Growth.* Available evidence from the US, the UK, Canada, Malaysia and Jamaica suggests that employment *generally* grows more slowly in unionized firms than in nonunionized firms. Studies from the U.S., the UK and Canada typically find a *growth* differential in the range of 3-5 percentage points per year in favor of nonunionized firms.<sup>11</sup> The evidence on the employment growth differential is mixed in Malaysia. The employment growth differential is about 5 percentage points per year in firms that bargain with industrial unions but insignificant in firms that deal with a company union (Standing, 1992). Rama (1998) estimates the employment differential between sectors with high and low union membership rates for Jamaica over the period 1986-93 to be 2-5 percentage points per year. Rama (1998) provides a number of *potential* explanations for the observed employment growth differential including – (a) it takes time and effort to organize a union. As a consequence, at a given point in time, old firms are more likely to be covered by unions than young firms are. If young firms expand faster than old firms, we would expect to observe higher employment growth in the young, nonunionized firms; (b) unions are more likely to be concentrated in sectors that enjoy larger rents. If these sectors are less dynamic and their activities limited by the size of the domestic market, employment would tend to grow slower in these sectors; and (c) labor costs grow faster and productivity slower in unionized firms than in nonunionized firms.

5.44. *Voluntary turnovers, tenure and layoffs.* Evidence from the U.K., the U.S., Japan, Australia, and Malaysia unanimously shows that voluntary turnovers (measured by the quit rate) are lower and that job tenure is longer in unionized firms than in nonunionized ones. Freeman and Medoff (1984) estimate the welfare gain associated with a reduction in labor turnover to be by equivalent to a 0.2-0.3 percent increase

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<sup>10</sup> As argued by Arbache and Cameiro (1999), the case of Brazil seems to contradict the international evidence, as in the Brazilian context, the more workers become unionized the larger is the mark-up they can secure.

<sup>11</sup> Boal and Pencavel (1994), however, find, in their study of coal-mining data from West Virginia over the period 1897-1938, that the employment growth differential is approximately zero if the variation in working days is explicitly taken into account. Machin and Wadhvani (1991) find, using UK data, that employment grows faster in unionized establishments in the 1970s. Blanchflower and Burgess (1996) find a negative effect of unions in the UK, but not in Australia.

in GDP in the U.S. in the 1980s. They base their estimate on a calculation of the how much the reduction in exit is worth to firms and to workers. For unionized firms, they estimate the gain to be equivalent to a 1-2 percent reduction in costs. While voluntary turnover tends to be lower in unionized firms than elsewhere, unions *increase* the use of layoffs, in particular temporary layoffs. Unions also significantly alter the firm's choice between layoffs, wage and hours adjustment in response to the business cycle fluctuations. Unionized firms adjust through temporary layoffs rather than reductions in weekly hours (work sharing) or wages.<sup>12</sup> In particular, unionized (blue-collar) workers are 50 to 60 percent more likely to be laid off temporarily than nonunionized workers. An explanation for this relates to the fact that junior workers can be more easily laid off. Senior workers typically have more influence on the union's policy than junior workers. Faced with the choice between a reduction in their earnings or temporary layoff of junior workers, unions are likely to prefer layoffs. Another explanation, especially in OECD economies, with well-developed income support schemes for the unemployed, is that the cost of temporary layoffs can be shifted on to the unemployment benefit system. As long as there is less than 100 percent experience rating, i.e., as long as firms contribute to unemployment benefits an amount less than the costs of the unemployment they generate, those firms with above-average layoffs are subsidized at the expense of firms with below-average layoffs.

5.45. *Profitability.* It is a commonly held view that unions reduce profitability of firms because they appropriate part of the rent that would otherwise have been available to shareholders. The fact that unions are able to get a wage mark-up supports this view. It is, however unwise to deduce the effect of unions on profitability by looking at the wage mark-up alone. By increasing moral and job-satisfaction among workers and facilitate worker-employer cooperation, unions can contribute positively to profitability. Therefore, instead of trying to capture a given rent, unions may help create profits from which they can achieve wage gains. The impact of unions on profitability has been estimated in a large number of studies. Bellman (1992) surveys 14 studies from the U.S.. All studies find that unions have a negative impact on profitability. The impact tends to be larger in industries or firms that have some monopoly power in the product market. Booth (1995) surveys seven British studies. While a few studies find that unionism has no impact on profitability, the general impression is that unions have a negative, often significant, impact on profitability in manufacturing firms. The adverse impact is larger when firms have product market power. A study on Japan (Brunello, 1992) finds that unions reduce the rate of return on equity by 20-25 percent and the ratio of profits to sales by about 40 percent.

5.46. *Technology.* The available empirical evidence suggests that new technology is adopted as fast in unionized firms as in nonunionized ones and that unions have little impact either way on technological innovations in firms. Keefe (1992) surveys research on the relationship between unions and technological change in the U.S., U.K. and Canada in the 1980s. He concludes that unions have no effect on firm's use of advanced manufacturing and microelectronic technologies and that "in most cases unions welcome technological modernization. Betcherman (1991) reaches a similar conclusion in his study of the impact of unions on technological change in Canada in 1980-85 but adds the observation that unions do have an impact on the way technological change is being implemented. In particular, he finds that unionized firms were more likely to introduce technological changes that nonunionized firms for of cost-cutting or

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<sup>12</sup>Temporary layoffs refer to a situation in which a worker is laid-off for a shorter period of time (less than a month) and is recalled or rehired by the same firm.



production control reasons. Likewise, Machin and Wadhvani (1991) and Latreille (1992) find a small positive impact of unions on the introduction of new microelectronic equipment in U.K. firms in the mid-1980s. Finally, Standing (1992) in his study of industrial relations in Malaysia concludes that unions actually stimulate capital, product, and labor process innovations.

## V. EMPIRICAL EVIDENCE FROM MACRO DATA

5.47. In this section, we review studies that aim at capturing the *macroeconomic* impact of the *institutional framework of collective bargaining*. While there are differences in bargaining institutions across sectors and changes do take place in the long-term within a given economy, the institutional framework is, by and large, unchanged in the short- and medium run. To investigate the impact of collective bargaining on macroeconomic performance, it is, therefore, necessary to take a comparative approach and look at cross-country evidence. Though there is scattered evidence from developing countries, most of the reviewed studies focus on the group of OECD countries.

### Union Density and Bargaining Coverage

5.48. The relationship between union density and bargaining coverage and a variety of economic performance indicators has been examined extensively, especially for OECD countries. From a theoretical perspective, the impact of *union density* on economic performance is unclear. Union density determines the number of (unionized) workers that can be called upon to strike and thereby it is a proxy of the bargaining power of unions. In countries with high union density, unions are more likely to succeed in pushing (union) wages up, leading to less employment, more unemployment and inflation. The negative impact of unionization on economic performance may, however, be reduced to the extent that unions participate in productivity-enhancing activities (by giving voice to dissatisfied workers) at the firm level.

5.49. Table 5.3 summarizes the findings of the studies from OECD countries that have investigated the relationship between union density and economic performance. Union density *per se* (i.e., for given bargaining coverage and for given level of bargaining coordination) appears to have little or no impact on comparative labor market performance measured by the unemployment rate, inflation, the employment rate, real earnings growth, the level of compensation, labor supply, adjustment speed to wage shocks, real wage rigidity, labor and total factor productivity.<sup>13</sup>

**Table 5.3 Union Density and Economic Performance in the OECD Countries**

Study and years	Performance indicator	Result
OECD (1997) 1980-94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	Union density increases the employment rate but has no effect on the unemployment rate, inflation, and real earnings growth. Union density reduces earnings inequality.

<sup>13</sup> Blanchflower (1996), who uses country-specific microeconomic data to analyze OECD countries, find similar results.

OECD (1997) 1980-94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	Union density reduces earnings inequality in 1990 and 1994. Weak indication of a positive relationship between union density and the employment rate and a negative relationship between union density and real earnings growth in 1980 but not in other years.
Freeman (1988) 1979-85.	Unemployment rate Employment rate Compensation	Union density has no effect on the unemployment rate, the employment rate, and compensation.
Scarpetta (1996) 1983-93	Unemployment rate	Union density increases unemployment, in particular youth and long-term unemployment but no control for bargaining coverage is made.
Nickell and Layard (1997) and Nickell (1997), 1983-88, 1989-94	Unemployment Labor supply Productivity growth	Union density increases total unemployment but has no separate effect on short- and long-term unemployment. Union density has no effect on labor supply and productivity growth.
Bean et al. (1986) 1956-85	Adjustment speed Real wage rigidity	Union density has no effect on either adjustment speed (to wage shocks), or on real wage rigidity.
Layard et al. (1991) 1980-94	Real wage rigidity	Union density has no effect on real wage rigidity.
Scarpetta (1996) 1970-93	Hysteresis in unemployment	Union density increases unemployment persistence but no control for bargaining coverage is made.

5.50. There is, however, one significant exception to the general result that the association between union density and economic performance is weak: Union density compresses the wage distribution and reduces earnings inequality.<sup>14</sup> This confirms the evidence from micro data discussed earlier.

5.51. The picture looks quite different when we consider the association between union density and economic performance in developing countries. Evidence (Rama, 1995; McGuire, 1996; Fields and Wan, 1989) from developing countries in Latin America, the Caribbean, and South East Asia suggests that union density has a *negative* impact on output and employment growth. Rama (1997a) argues that the difference between the impact of union density in developing and OECD countries is caused by differences in the general economic and political environment. That is, the adverse effect of unions in developing countries may be caused not so much by what unions do but rather because of the context in which they are doing it. Hence, if unions operate in an environment of generally ill designed labor and product market regulation in which rent-seeking is a profitable business (also for unions), it is no wonder that the correlation between union density and economic performance is negative. Likewise, if unions operate in the context of an unstable political environment, the incentive to "invest" in real wage restraint in exchange for (expected) future returns is low and union militancy comes at no surprise.

5.52. While union density relates to the number of unionized workers, bargaining coverage relates to the total number of workers that have their wage and employment conditions determined by collective agreements. In Table 5.4 we review the studies that have investigated the association between bargaining coverage and macroeconomic performance.

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<sup>14</sup> Freeman (1988) also shows that wage dispersion tends to be lower in corporatist economies as opposed to economies with a decentralized labor market.

5.53. After controlling for union density and bargaining coordination, countries with high bargaining coverage (such as Austria, France and Finland), *ceteris paribus*, experience higher unemployment rates, lower employment rates, and more inflation than countries with low bargaining coverage (such as USA, Japan and Canada). Moreover, high bargaining coverage seems to increase the supply of labor but has no effect on labor and total factor productivity (Nickell and Layard, 1997). Finally, high bargaining coverage is associated with higher real earnings growth and a reduction in earnings inequality.

5.54. These findings suggest that an increase in coverage at a given level of union density has a greater impact than an increase in density at a given level of coverage (at least in OECD countries). One explanation of this result is as follows. In those parts of the economy to which bargaining results are extended, only the monopoly effect of unions is present. The economic effects of the wage mark-up is, therefore, not compensated by worker/management cooperation or other institutional factors that could lead to productivity gains. On average, bargaining coverage can, therefore, affect unemployment, employment and inflation adversely, while the impact of unionization *per se* can be less significant. However, there is little evidence available on this issue from developing countries.

**Table 5.4 Bargaining Coverage And Economic Performance: A Summary Of The Relevant Studies**

Study and years	Performance indicator	Result
Henley and Tsakalotos (1993)	Unemployment rate Inflation Real earnings growth Earnings inequality	The performance of highly centralized or "corporatist" economies, such as Sweden and Austria, have in the past been superior to those of the EC members.
Appelbaum and Schettkat (1996)	Unemployment rate inflation Employment rate	Finds evidence of a u-shaped relation between the degree of centralization of wage bargaining and labor market performance. Countries with intermediate degrees of centralization performed worse than those at the extremes.
OECD (1997) 1980-94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	Bargaining coverage increases unemployment, inflation and real earnings growth, and reduces the employment rate and earnings inequality.
OECD (1997) 1980-94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	Bargaining coverage increases unemployment only in 1994, reduces the employment rate in only 1990 and 1994 and earnings inequality in 1994. Otherwise it has no impact on economic performance.
Siebert (1997)	Unemployment rate Inflation Employment rate Real earnings growth	Shows the adverse impact on employment creation of institutional rigidities, centralized collective bargaining, high coverage rates, and generous benefits and protection.
Jackman (1993) 1983-88.	Unemployment rate	Bargaining coverage increases unemployment
Nickell and Layard (1997), Nickell (1997) 1989-94	Unemployment rate Labor supply Productivity growth	Bargaining coverage increases both short- and long-term unemployment and labor supply but has no effect on productivity growth.

## Bargaining Coordination and Comparative Economic Performance

5.55. Aidt and Tzannatos (2001) have reviewed 26 studies<sup>15</sup> that have examined the relationship between bargaining coordination and economic outcomes in a cross-country context since 1970 – again most of this evidence is from OECD countries. The empirical literature on bargaining coordination and economic performance has focused on two hypotheses: (a) Coordinated collective bargaining leads to better economic outcomes compared to semi-coordinated collective bargaining which, in turn, performs better than uncoordinated collective bargaining; and (b) The hump hypothesis - Semi-coordinated collective bargaining leads to worse economic outcomes than both coordinated and uncoordinated collective bargaining.

5.56. According to their findings: (i) countries with coordinated collective bargaining systems tend, *ceteris paribus*, to have lower unemployment rates than other countries. Studies that use composite measures of unemployment (such as Okun's index, which controls for inflation, and the open economy index, which controls for current account deficits) show the same tendency; (ii) countries with a high level of bargaining coordination tend to have a more compressed wage distribution. This seems to be the most robust result. It can be attributed to a number of causes, including egalitarian bargaining; a reflection of the fact that centralized bargaining reduces the scope for firm- and/or industry-specific factors to enter the wage bargaining; or a reflection of a concern for social insurance.

5.57. The hump hypothesis has been tested, explicitly, in a number of studies - accounting for nearly half of the sub-studies. The evidence in favor of the hump hypothesis is weak. Overall, only 21 out of the reviewed sub-studies (around 20%) statistically "confirm" the hump hypothesis. To test whether this may just be an artifact of the differences in the underlying econometric methodology and test procedure, Aidt and Tzannatos have tested whether the estimation approach used affects the results. Though there are some differences, the main conclusions remain: irrespective of the test used, most sub-studies do not provide statistical evidence of the hump hypothesis.

5.58. *Bargaining Coordination and Labor Market Flexibility.* Studies have also attempted to examine the relationship of bargaining coordination with labor market flexibility (e.g. real wage rigidity, adjustment to wage shocks etc.). Most of the evidence in this regard comes from OECD countries (Aidt and Tzannatos, 2001) and seems to support the relationship that the higher the level of bargaining coordination, the less flexible are the real wages.

5.59. Hysteresis (or persistence) in unemployment, arises when high unemployment in the current period tends to cause high unemployment in the future. Persistence can arise because of union membership (insider-induced hysteresis)<sup>16</sup> or due to loss of skills or because capital depreciated during recession takes a long time to recover (outsider-induced hysteresis). Layard *et. al* (1991) find that higher level of worker coordination increases persistence while higher level of employer coordination reduced persistence.

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<sup>15</sup> These 26 studies have been broken up into 125 sub-studies which define a relationship between a specific indicator of bargaining coordination *vis-à-vis* a specific economic indicator.

<sup>16</sup> Only the group of insiders (e.g. union members and employed workers) counts in the wage bargaining. When the insiders are reduced in number (e.g., after layoffs in a recession), they can push for higher wages in the next bargaining round and cause unemployment to remain persistently high (insider-induced hysteresis).

Further research has also shown that the employer effect is greater. In addition, evidence tends to show that countries with a high or low level of coordination are associated with low persistence, while those with semi-coordinated systems have higher persistence.

5.60. Carneiro (1999) characterizes the Brazilian bargaining structure as semi-coordinated (intermediate-centralized). Carneiro's analysis of wage determination in Brazil between 1985-1993, conforms with the insider-outsider hypothesis in that high levels of current employment lead to subsequent wage moderation – evidence of insider induced hysteresis. His results seem to show that unions may be more interested in protecting the incumbent workforce rather than defending the interests of the unemployed and favorable demand shocks are likely to be converted into wage gains rather than employment gains. Furthermore his results show a positive “catch-up” effect – suggesting that strong trade unions have the capacity to use their bargaining power to appropriate rents.

## VI CONCLUSIONS

5.61. This paper has attempted to layout the evidence on the economic aspects of freedom of association by reviewing the international evidence derived from the microeconomic analysis of the economic impact of unions as well as evidence focusing on the relationship between different systems of collective bargaining and macroeconomic and overall labor market performance. Most of the evidence presented is from OECD countries, though there is some analysis of these issues for developing countries too.

5.62. The microeconomic impact of unionism consistently points towards the existence of wage mark-ups. This evidence also points towards the existence of wage compression – the male-female wage gap is usually lower when unions are present – implying less discrimination, but at the same time, the wage gap between unskilled and skilled workers is lower – implying a distortion in relative wages. While employment growth and profitability is usually lower in unionized firms, they are also associated with more rapid adoption of technological innovations. Based on the evidence, it is clear that the impacts are context-specific and no general conclusions about the *net* costs of unionism can be reached. Depending on the economic, institutional and political environment in which unions and employers interact, unionism can contribute negatively or positively to economic performance.

5.63. Similarly, the macroeconomic impact of collective bargaining is hard to disentangle. In OECD countries, evidence points to union density having little or no impact on indicators of comparative labor market performance – other than wage distribution. Increased bargaining coverage, on the other hand, seem to affect unemployment and employment adversely. However in developing countries, evidence suggests a negative relationship between union density and employment growth – it is possible that these results could be more due to the environment that unions operate within rather than what unions do.

5.64. With respect to bargaining coordination – most evidence from OECD countries seems to show that countries with a high or low level of coordination are associated with low persistence in unemployment, while those with semi-coordinated systems have higher persistence (hysteresis). Evidence presented from Brazil on this issue give evidence of insider-induced hysteresis (e.g. due to union membership). These results seem to show that unions may be more interested in protecting the incumbent workforce rather than supporting interests of the unemployed. Similar to the micro argument, the macro argument shows that the impact of collective bargaining on various aspects of economic performance depends on the economic and political environment in which collective bargaining takes place.



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## Appendix

### An Analytical Framework

Assuming a closed economy, Figure 5.1 summarizes the labor market outcomes for different labor market structures, conditioned on the government's macroeconomic constraints regarding output and price stabilization targets. There are three possible situations on each axis. Along the horizontal axis, the government "loss function" (see Carneiro et. al., 1999 for details) – assumed to represent the government's macroeconomic constraints – is typified. This affects labor market outcomes in different ways, depending on whether the economy is undergoing a stabilization process, fiscal adjustment, or has reached a path of sustained growth. The impact of government actions on labor market outcomes will depend also on the structure of the labor market, especially how wages are set and employment determined. These are broadly classified as: decentralized, intermediate-centralized, or centralized. Finally, the extent to which the economy is closed or open to international flows of goods and capital will interact with the labor market structure in influencing labor market outcomes.

Decentralized bargaining is undertaken at the firm level, with no unions (or many small unions) so that employment and wage levels are at their equilibrium levels. With bargaining power depending on worker productivity and wages on offer, labor markets function as in the textbook case of perfect competition. Earnings dispersion tends to be moderate; sector affiliation may be an important factor affecting the earnings of workers.

Centralized bargaining is at the other extreme, in terms of labor market structure though not, as the table illustrates, in terms of labor market *outcomes*. Wage and employment determination in the formal sector occurs at the national level, with a few central unions representing all formal sector workers (unionized and non-unionized), bargaining with a few employer federations, under the mediation of the government. As agents are powerful in this case, the macroeconomic consequences of their demands will be promptly visible and there is a tendency towards the market solution. Nevertheless, as wage restraint tends to be agreed on, there is also scope for some social fairness and wage and employment levels can be higher than in the decentralized case, with redistribution of rewards from capital to labor. Earnings dispersion tends to be lower basically because of this sense of social fairness that tends to arise in the centralized bargaining. Political scientists usually name this scenario as the corporatist solution.

The intermediate-centralized bargaining structure emerges as the worst scenario. In this case, bargaining takes place at the industry level with deleterious consequences in terms of macroeconomic performance. The explanation for the poorer performance relative to the two polar cases is usually the existence of poorly coordinated monopolistic power in the labor market that constrains the successful operation of either competitive market forces or corporatist coordination. In this context, trade unions' bargaining power may be quite strong if high hiring and firing costs restrict rapid labor turnover. Insider bargaining power is also high meaning that workers perceive that by pressing for higher wages the firm's product price may increase without however affecting the aggregate price level and therefore their real take-home pay. As bargaining is at the industry level, an individual firm will not achieve a competitive advantage over the others and, assuming that industry demand is relatively inelastic, all the firms believe that the overall employment consequences will be insignificant. Overall, therefore, the situation of intermediate collective bargaining with strong trade unions may be quite conducive to poor employment and inflation performance, with rent-sharing being a pervasive characteristic. Earnings inequality is usually high in this scenario.

In line with **Error! Reference source not found.**, the changes in labor market indicators in any country undergoing macroeconomic adjustment *without labor reforms* – as appears to have been the case with Brazil and Argentina in the 1990s – is illustrated by moving across columns for any given row. In general it appears that regardless of labor market structure, stabilizing and adjusting countries will experience improvements in the labor indicators under consideration.

**Decentralized Wage Bargaining:** During stabilization, average earnings, inequality, employment, and unemployment rates tend to be at moderate levels. As the undergoes fiscal adjustment, these indicators reach their worst levels due to the contraction in aggregate demand. Once the sustained growth path is achieved, economic indicators reach optimal levels, with the exception of earnings inequality due to a possible sector affiliation factor (viz., intersectoral wage differentials).

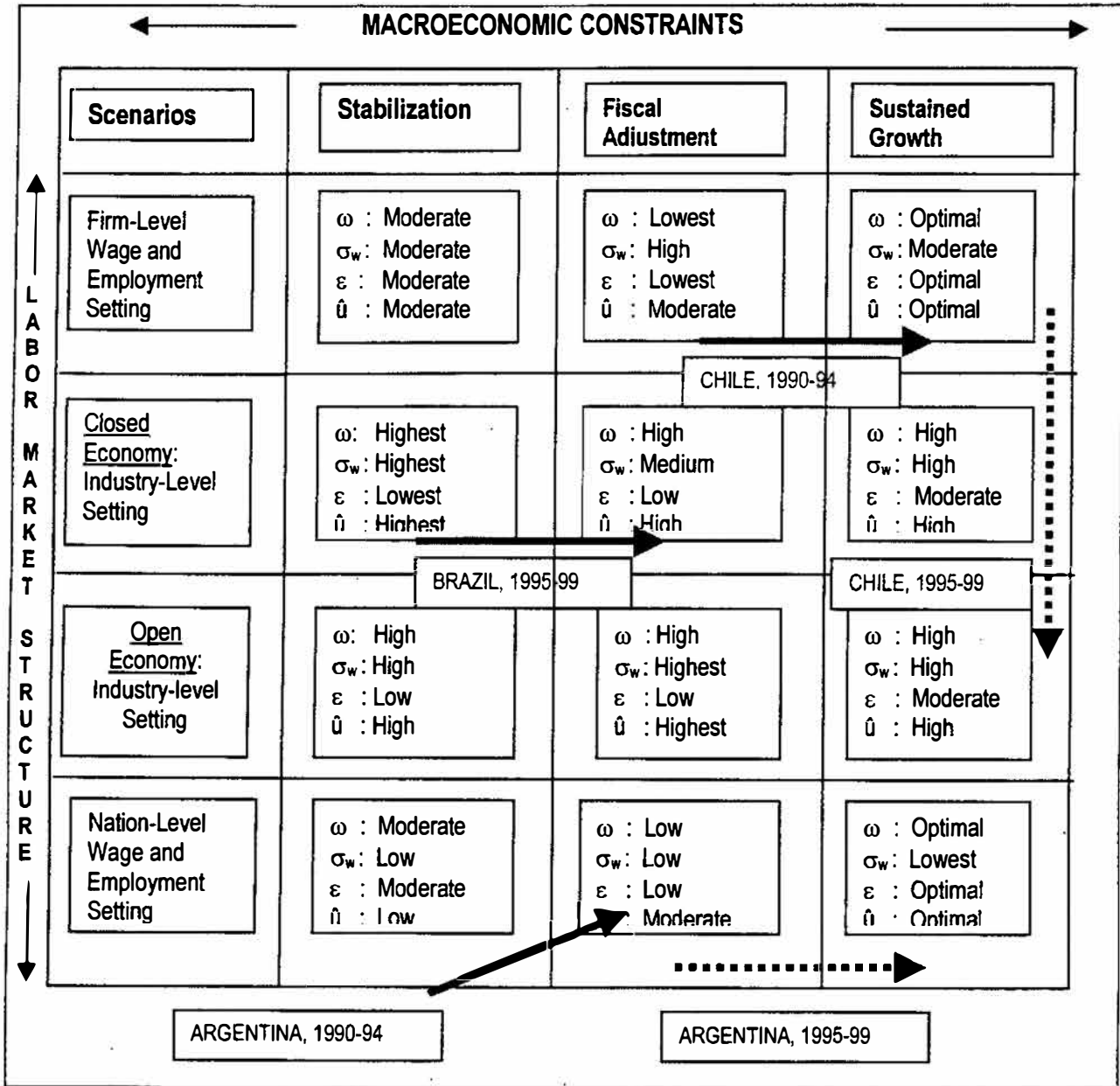
**Intermediate-Centralized Bargaining:** Under this scenario, a move from stabilization towards sustained growth will yield modest results at best. The most obvious consequence will be the persistence of earnings inequality as the consequence of pervasive rent-sharing in the economy. Moving from stabilization to fiscal adjustment will still mean high average wages, high unemployment and low employment growth. Earnings inequality remains significant, but due to the reduction in the surplus of rents in the economy it will not be very high. Once the path of sustained growth is reached, rent-sharing practices return, provoking increasing earnings inequality.

**Centralized Bargaining:** In the corporatist solution, optimal economic indicators are reached in the case of sustained growth. The difference with regard to the decentralized case is in the profile of earnings inequality, which tends to be lowest under centralized collective bargaining.

Movements down rows. In line with the framework we have proposed, desirable moves would be those all the way down from decentralized to centralized collective bargaining, since it tends to generate optimal solutions with social fairness. A second best solution would be the reverse move all the way up from centralized to decentralized collective bargaining; this usually happens because of declining public funds directed to social welfare. And the worst scenario would be a move towards the intermediate-centralized collective bargaining structure.

In the case of an open economy under the same circumstances, foreign competition will affect labor market outcomes mostly in the intermediate-centralized collective bargaining situation. The main consequence is that industry demand will become relatively more elastic, reducing insider bargaining power and the capacity of firms to pass on to prices any wage increases that are allowed to unions. Nonetheless, there will still prevail a situation in which unions have relatively more bargaining power than in the two polar cases of centralization or decentralization. Insider workers will continue to be able to manipulate turnover costs and obtain wage increases in excess of the equilibrium wages. The overall consequence is low employment growth and high unemployment, with the degree of earnings inequality remaining quite high. The worst scenario, therefore, will be during fiscal adjustment under intermediate-centralized collective bargaining, in the open economy framework.

Figure 5.1 Macro-economic Constraints and Labor Market Structure

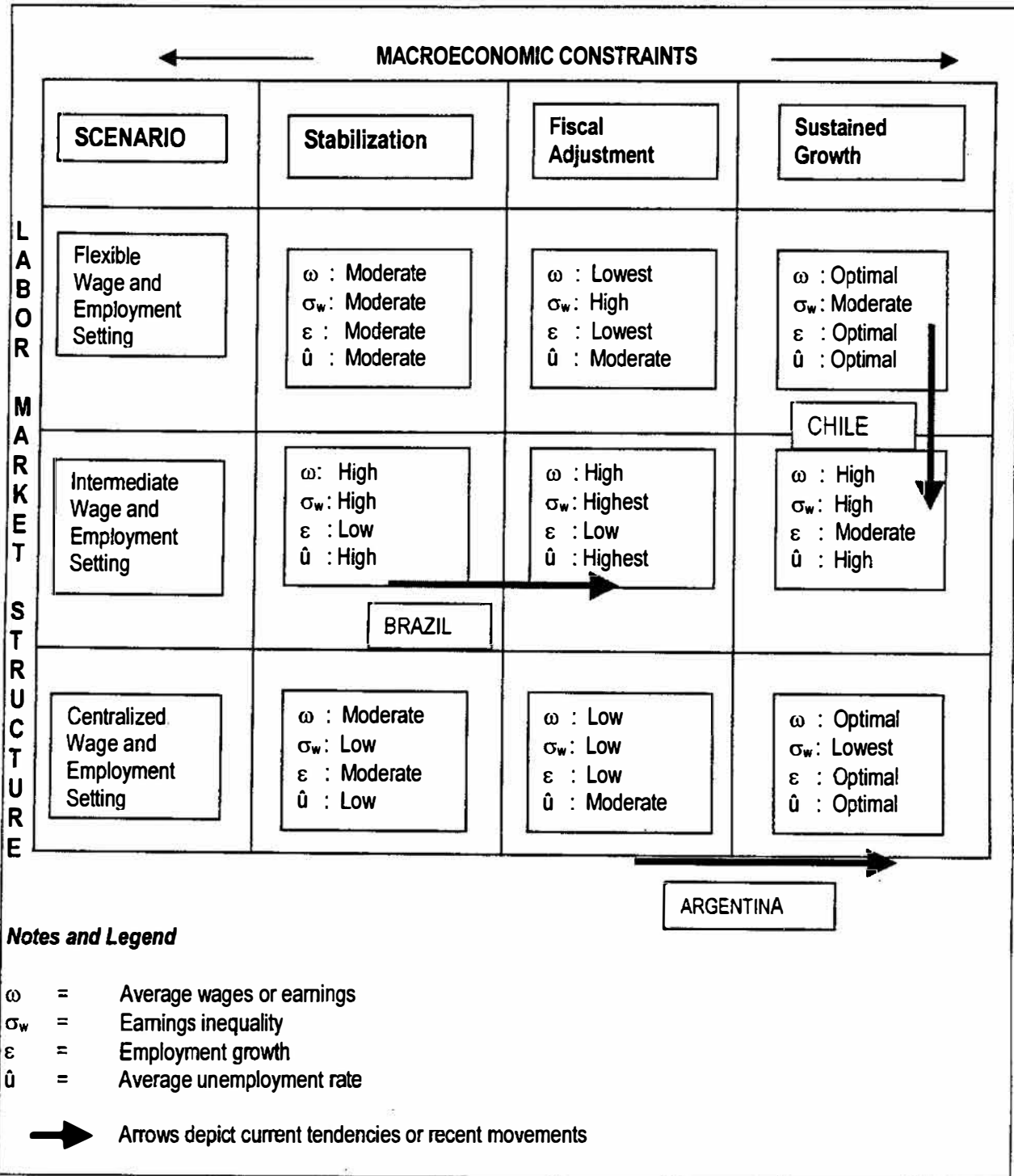


Note that in competitive (firm-level bargaining) and centralized (national level bargaining) settings, labor market outcomes do not differ across closed and open economies.

$\omega$  = Average wages or earnings,  
 $\sigma_w$  = Earnings inequality  
 $\varepsilon$  = Employment growth  
 $\hat{u}$  = Average unemployment rate

---▶ Dashed arrows depict current tendencies  
 ▶ Bold arrows depict recent movements

Figure 5.2 Outcomes in an Open Economy, by Stage of Adjustment and Market Structure



## 6. FAKE CONTRACTS: JUSTICE AND LABOR CONTRACTS IN BRAZIL

Prepared by José Márcio Camargo

### I INTRODUCTION

6.1. The role of the labor justice in Brazil has been the subject of intense debate among those who study the Brazilian labor market performance. Opinions differ on the impact of this institution on the performance of the labor market, but in general, analysis suggests that it has an important role in protecting the less organized workers. However, few analysts have verified the effect of the institution's role on the labor market as a whole and how it affects workers in general, especially the less qualified and organized workers in the long run.

6.2. In this article I propose an alternative approach, already presented in other papers<sup>1</sup>, to understand how the functioning of the labor justice can interfere on worker's well being. The basic idea is that the functioning of the labor justice generates big distortions in the labor market by sending the wrong incentives to workers and employers, which tends to develop a low quality work relationship and makes productivity gains and real wage gains almost impossible, especially for the unskilled workers.

6.3. In this article, we illustrate some of these points by presenting findings based on a sample of labor justice cases in Minas Gerais. Once the main points are explained, a proposal on how to address this issue is presented. Our proposal indirectly affects the functioning of the labor justice by proposing that the institution concentrates its efforts on its core functions within the judiciary branch.

6.4. These functions are mentioned in the next section. After that we report how the Brazilian labor justice operates (section 3) and how this operation creates incentives that tend to guide the behavior of workers and firms (section 4). Section 5 presents and details the proposal above, while conclusions are drawn in section 6.

### II ORIGINAL FUNCTIONS AND PRINCIPLES OF THE BRAZILIAN LABOR JUSTICE SYSTEM

6.5. The labor justice has three important functions in the Brazilian labor relations system. First, all disputes regarding law enforcement must be resolved through the Labor Courts. Second, the Labor Courts are responsible for the solution of all disputes regarding individual and collective labor contracts fulfillment. Third, the Labor Courts are also responsible for individual and collective conciliation, arbitration and judgment. These three extremely important roles make the Labor Courts a key element in the Brazilian labor relations system.

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<sup>1</sup> See Camargo 1996 and Camargo 1997, among others.

6.6. At the individual level, all settlements between employees and employers regarding disputes on individual and/or law contracts fulfillment are only valid if done through the Labor Justice. This implies that a dismissal must be done in the presence of a judicial authority, if the employer wants to ensure that the employee will not claim rights that were not received during the period of work.

6.7. Since 1988, the employee has a period of five years to place a claim in the Labor Justice. If this happens, it is the employer's duty to prove that the contract and/or law was abided. If it can't be done, justice promotes a "conciliation" between the parties and in case of no consensus, the judge is free to decide if the claim is legitimate. If the judge rules in favor of the employee, the employer will have to pay the employee's demands. Note that only monetary demands are accepted and that the employee can not demand for his/her job back.

6.8. On collective bargaining the main role of the Courts is to promote conciliation and give judgment in disputes within its jurisdiction and, moreover, to verify that signed collective contracts are complied with. In collective bargaining, when there is an impasse, either parties can unilaterally call for a "*Dissídio*" or arbitration. The dispute is then sent to the Labor Justice for the area where the negotiation is taking place and this becomes the new locus of the negotiation. In case there is an impasse here, it is up to the judge to decide the terms to the contract.

6.9. For disputes regarding collective contracts fulfillment, not only the Labor Courts are involved but also the labor union and employer. In this case it is also the employer's duty to prove that the law and the collective contracts established have been followed.

6.10. Arbitration doesn't follow pre-defined rules or principles. When the dispute is about the non-fulfillment of the law, arbitration is based on the law. However legislation on collective contracts is not as detailed as legislation on individual contracts. Because of this, many times the Brazilian Labor Justice adopts norms that are the equivalent of laws. This prerogative is known as the normative power of the labor justice, i.e., in contrast with every other branch of the Brazilian justice system, the Labor Courts can create a law, instead of being limited to applying an existing law.

6.11. In this case it can be said that previous decisions may be used as a guide but many times the trial is based on political factors. This means that the labor justice may interfere in private contracts between employers and employees, having them modified through its rulings.

### III THE LOGISTICS OF OPERATIONS

6.12. The objective of this section is to discuss in more detail the functioning of the labor courts. A brief explanation on how the institution is structured will be presented. Following that, the functioning will be analyzed, emphasizing negotiations, as explained above. At the end, costs of accessing labor justice for all parties will be analyzed.

#### The Structure of the Courts

6.13. The Brazilian Labor Courts system has three hierarchical levels, organized as follows:

- Conciliation and Judgment Board;



- Regional Labor Courts;
- Superior Labor Court.

6.14. Until recently, the Conciliation and Judgment Board was composed by a labor lawyer, one representative from employees, and one representative from employers, also known as class representatives. These last two members were nominated by the president of the Superior Labor Court where the Board is to function. In 1999, the class representatives were abolished.

6.15. The Regional Labor Court was composed largely by labor lawyers and by a minority of representatives of employees and employers with an equal number on each side. The representatives for employees and employers were chosen by the President of Brazil. At this level, the practice of having representatives for employees and employers was abolished in 1999. The Regional Labor Courts rule on demands made by employees and employers and pronounce judgment. Employees and employers may appeal these sentences to the Superior Labor Court

6.16. The members from the Superior Labor Court are nominated by the President but must be approved by the Federal Senate. Its composition was as follows: three representatives of workers, and three representatives of employers, and eleven labor lawyers who have lifelong tenure. The class representatives were abolished in 1999. The decisions from the Superior Labor Court are final, except if the dispute is related to a constitutional Principle, in which case an appeal to the Federal Supreme Court can be made.

### **The functioning of the labor justice and negotiations practices**

6.17. All individual disputes start with an employee or his/her labor union filing a claim at the Conciliation and Judgment Board. The employer is notified and is asked to provide documents proving he/she is not guilty. At this level the process is completely bureaucratic. At the hearing the judge asks if the employer would like to make a counter-proposal to the employee. If one is made, the judge asks the employee if the counteroffer is satisfactory. If so the dispute is over. If not, the judge tries to make the parties reach an agreement. If the employer does not make a counteroffer or if the conciliation has no results, the hearing is closed. The demand is then analyzed by the judge who is in charge of issuing a sentence.

6.18. It is worth emphasizing one implicit but extremely relevant point above. There are always negotiations! Therefore, clauses in an individual contract protected by law are included. In reality, most of the demands and, therefore, of the rights negotiated, refer to individual rights enrolled in the CLT and/or the Constitution.

Table 6.1 below demonstrates this, based on a sample of processes from Minas Gerais' labor courts.

**Table 6.1 Rights Contested in Labor Courts 1995**

<b>Rights</b>	<b>Percent</b>
FGTS payment	30
Payment of 40% fine to FGTS for dismissal	35
Over time payment	65
Commission	5
Payment of 13 <sup>th</sup> salary	65
Vacation	60
Unpaid or late salaries	25
Non fulfillment of clauses in collective contracts	20
Payment for notification before dismissal	62
Night shift additional payment	12
Family pension payment	10
Employees demanding a written contract	10
Gratuities	22
Other rights	10

Source: Study of 200 cases in the labor justice system of Minas Gerais state.

Note: In the same process the employee can demand for more than one right and usually does it.

6.19. The most important aspect of the argument above is that only 20 percent of the processes demand the fulfillment of any clause of a collective contract; the other 80 percent are related to the non-fulfillment of a individual employee right foreseen in the law.

6.20. The most frequently contested rights were payment of overtime wages, thirteenth salary payment and paid vacation, followed by claims of non-payment of FGTS and the 40 percent fine of FGTS balances in case of dismissal without just cause.<sup>2</sup>

6.21. What the data show is that there is a large fraction (80 percent or so) of disputes that is taken to labor courts for clauses already foreseen in the law. As mentioned before, the regular procedure is to come up with an agreement between parties. In other words, this procedure means that the possibility of negotiation of individual clauses foreseen by law is made available to employees and employers.

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<sup>2</sup> It is worth mentioning that In the same process the employee can demand for more than one claim and usually does so.

Table 6.2 below confirms that many of these clauses are in fact negotiated, since more than half of the disputes taken to court are resolved through settlements at the Judgment and Conciliation Board.<sup>3</sup>

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<sup>3</sup> The Ministry of Labor has tried to expand the capacity of these councils

**Table 6.2 Percentage of Resolved Disputes in each Hierarchical Level**

Year	First Instance:	Second Instance:	Settlements (%)
	Local judge (%)	Regional - Regional Labor Court (%)	
1991	28.7	6.6	56
1992	29.2	11.7	56
1993	29.8	14.9	56
1994	32.5	9.1	55

Source: Study of 200 cases in the labor justice system of Minas Gerais state.

6.22. The table also shows that nearly 30 percent of the disputes are settled at the first local instance. In general, less than 10 percent of the cases reach the second instance (the Regional Labor Court) and a similar percentage reach the Superior Labor Court. Finally, one must note that in the same sample of court data, as a rule, the settlements signed at the conciliation and judgement boards, paid 40% of the amounts demanded by employees. In other words, if the amount of the workers' demands correspond to what is actually owed to them, taking in account the legislation, employers would seem to be paying less than half of what the law determines.<sup>4</sup>

6.23. In the case of collective contracts, the negotiation is done through the labor unions and the companies, or between the labor unions and the employer federations. The clauses in the collective contracts must be more favorable to the workers than the individual rights accorded in the legislation. However, no individual contract can stipulate less rights than those stipulated in collective contracts signed by the union where the work is being done. At any given time along the negotiation of a collective contract between a group of workers and one company or a group of companies, any of the parties may unilaterally summon a "*dissídio*" or agreement, having the negotiation transferred to the court room, giving it the power to arbitrate the dispute.

6.24. Other relevant information about the functioning of justice is the existence or the non-existence of a *viés pró* one of the parties involved.

6.25. Table 6.3 presents the distribution of judgments according to the "winning" party. The data shows that more than 60 percent of the disputes that are not decided at the conciliation stage, are decided in part in favor of the workers and in part in favor of the company. A lower and apparently declining percentage is resolved entirely in favor of the worker (between 10 and 20 percent of the cases), while the percentage of cases entirely resolved in favor of the employers is between 14 and 32 percent.

6.26. Since there is no formal rule to be followed by the judge to pronounce the sentences, the results above can have at least two interpretations: first, it might suggest that the judge tends to make a division considered "fair" by him of the demands, in a way that both agents, employers and employees, receive a

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4. It cannot be precisely determined whether the value of the workers' demands effectively corresponds to what is stipulated by law. In reality, since the workers know that a negotiation will take place at the labor court, the incentive is for them to demand the maximum possible because they know that most likely the judge will attempt a conciliation by splitting the difference, viz., use an intermediate value.

share of the result; a second interpretation would be that workers tend to demand more than they deserve and that the judge is simply applying the law. With the available data it is impossible to decide which interpretation is correct. But it seems that the data do not support the idea that is common among employers that everything demanded in labor courts by workers is accepted by judges.

**Table 6.3 Acceptance of Claims by the Labor Justice  
(local level in Minas Gerais)**

Year/Region	Claims completely accepted (%)	Claims partially accepted (%)	Claims Not accepted (%)	
1991	Capital – Belo Horizonte	16.7	69.0	14.4
	Province	19.7	63.8	16.5
	Total	20.3	64.2	15.5
1992	Capital – Belo Horizonte	15.2	67.2	12.4
	Province	16.6	64.2	19.3
	Total	15.8	65.2	18.6
1993	Capital – Belo Horizonte	12.0	67.7	20.3
	Province	15.1	63.4	21.5
	Total	13.8	64.7	21.6
1994	Capital – Belo Horizonte	10.6	68.1	21.3
	Province	12.1	55.8	32.0
	Total	14.5	65.3	20.2

Source: Labor Justice annual report, Third Region, Minas Gerais

### The cost of accessing the labor justice

6.27. Finally, it is worth describing the costs incurred by the parties which are involved in disputes in the labor justice. Costs may be divided into two components: monetary expenses and the time costs of waiting for the final sentence. In relation to the monetary expenses, if found guilty, the employer pays a 2% fine on the final value agreed<sup>5</sup> in the process. For employers this cost tends to be very low. From the collected data in the research and from discussions with specialists, it is obvious that the employee never pays anything.

6.28. Regarding the waiting time, there is usually a 20 days wait between the initial date of the process and the day of the first hearing. If the process is not decided by conciliation, the period between the first audience and the sentence of judge from the conciliation and judgment board is usually 700 days. In other words, if the negotiation intermediated by the judge from the conciliation and judgment board is not effective, which means that either the employer doesn't make a counterproposal to the employee or that the employee doesn't accept any of the proposals made by the employer in the first instance, the worker will have to usually wait for two years for the first sentence from the labor justice.

<sup>5</sup> Since the usual value of the agreements is R\$1,000.00, it represents a cost of R\$20.00 per process, if resolved during the conciliation stage, R\$26.00 per process resolved in the local justice, and R\$46.00 for those resolved at the Regional Labor Court.

6.29. In case the employer (or the worker) decides to appeal to the sentence of the judge from the conciliation and judgment board to the Regional Labor Court, the usual time for the dispute to be resolved is around four years.

#### **IV HOW LABOR RELATIONS ARE AFFECTED BY THE FUNCTIONING OF THE COURTS**

6.30. The description above shows that the functioning of the labor courts in Brazil tends to affect the relation between employer and worker. On the one hand, employers have no incentive to comply with the law and pay workers' rights. If they do not do it, they can negotiate the amount of the benefits at the Labor Justice and—in the worst case—they will have to pay the same amount they would have paid along the working relation.

6.31. Therefore, if the objective is to minimize costs, the right strategy for the firm is not to pay and wait until the worker files a complaint when fired. Since it is known that the time until the sentence is very long<sup>6</sup>, the business man hopes that the workers tend to accept the counter-proposal even if the worker believes these to be less than the entitled amount.

6.32. This strategy tends to be more effective when the work contracts are informal since that with a formal contract it is easier to solve the dispute favoring the worker. This way, one of the main problems of the functioning of the Brazilian labor justice is to induce informal work contracts.

6.33. On the other hand, the worker knows that a liability exists and that it has been accumulated by the employer and that some of this liability will be taken by him/her when demanded in court. This means that as the working relation grows, the incentive for the worker to go to court increases too. If it is done while he/she is working, he/she is dismissed with difficulty. This way, instead of going to court while working, the worker starts to force a dismissal, becoming increasingly uncooperative in the working relation. Therefore, many times, the demand occurs when the working relation has already been disrupted.

6.34. One additional aspect is that, since the cost for the worker to take the employer to court is zero, except the costs for the hearings<sup>7</sup>, there is a permanent incentive for the employee to go to court even if the employer has fulfilled all his contractual obligations. Having nothing to lose, he/she can win the process.<sup>8</sup> This way, from the workers' point of view, justice provides good protection against illegal practices but creates incentives for him/her to have a free-rider attitude towards the employer.

6.35. Since the employer knows that as the working relation grows, the incentive for the employee to have a free-rider attitude, shirk and become less cooperative increases, the employer has no incentive to

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<sup>6</sup> In Minas Gerais, it usually takes a worker 100 days to go to court after being dismissed. Note that here is no impediment for the worker to go before he/she is dismissed but in real life it doesn't happen.

<sup>7</sup> In general, labor lawyers determine their fees as a proportion of the value of the process, if the sentence is favorable to the worker.

<sup>8</sup> Besides this, knowing that his/her demands will tend to be negotiated, the worker may try to exaggerate his/her rights.

invest in training since there is a growing possibility of losing the investment when it is time to dismiss him/her, resulting in low levels of productivity and therefore real wages.

6.36. For workers with a low bargain power there is a tendency to use the labor justice as tool for compensation. Given the reduced probability of having a demand accepted by the employer, which in many instances is aggravated by an absence of trade unions, it is left for these workers to take their demands to court. Table 6.4 reveals that, in fact, the profile of workers who mostly go to court is in accordance with the profile of the worker with low bargaining power.

**Table 6.4 Workers Going to Labor Courts by Wage Level**

Wage interval (minimum wage)	Workers at Labor Justice (%)	All workers in Southeast Region (%) 1993
1 to 2	70	47.0
2 to 5	26	26.9
5 to 10	2.5	9.7
More than 10	1.5	6.4
Average	2.1 minimum wage	3.7 minimum wage

Source: Research done with 200 processes at Labor Courts in Minas Gerais and in the PNAD survey, 1993

6.37. Something similar happens with collective contracts. There is an incentive for the weaker party to summon an agreement and to have the negotiation transferred to the labor justice, transforming the result of any collective dispute between employers and the workers union in a matter of justice and not the result of a dispute settled by the bargaining power between the parties. The main consequence is the atrophying of the collective negotiation process and a reduced scope for trade unions leading to the latter playing a weak role in the wage-negotiation process.

## V A PROPOSAL FOR REFORM

6.38. From the analysis of the previous sections, it is clear that the functioning of labor justice generates perverted incentives with relevant implications in the performance of the labor market. In order to minimize these incentives, it is fundamental that legislators keep in mind the behavior of the economic agents involved, that is, workers and employers. This way, two aspects must be kept in mind in proposals for reform:

- Despite the large volume of regulations and restrictions, the system of working relations in Brazil is extremely "negotiable" and negotiated. However, the locus of the negotiation is the Labor Court (not the workplace), when the worker is dismissed (not while the worker is still employed by the company).
- Negotiation may indeed reduce the effective cost of work in relation to what is stipulated by law.

6.39. The main consequences are a congested Labor Justice system and adversarial employer/employee relation, non-cooperative behavior and many times ruled by informal contracts.

6.40. The first point is to have negotiations removed from the labor court and let it happen within the companies, along the working relation. In other words, the guiding principle for reform would be to make



negotiations more attractive at company level than at court, for both the workers and employers. This can be reached by:

- Increased flexibility of the legislation regarding the prohibition to negotiate many clauses in individual contracts outside the labor justice, and/or,
- raising costs of accessing the labor justice system.

6.41. In reference to the first point, the best way to implement it would be to allow the negotiation of individual rights through collective contracts at firm level with the participation of the union. From the point of view of the employer this enhances the attractiveness of a formal contract as it avoids the uncertainty of decisions in the labor justice. The imposition that the unions participate in the negotiation and that it cannot be done individually by the worker is to avoid situations where the low bargaining power of workers may result in them signing contracts which are excessively unfavorable to them.

6.42. Note that what is being proposed is not that the rights be negotiated since these rights are indeed negotiated at the Labor courts when the worker is dismissed. What is being proposed is that the negotiation takes place within the firm through the union while the employee is working.

6.43. But it also implies that the recognition that negotiations between employers and workers are a very good way to resolve the conflict between the parties. In this context the Labor Courts must have a much less dominant role to play. In other words, another system much less based on the idea of "justice" and based more on the idea of "dispute" would have to be outlined, where the existence of conflict and negotiation at the firm level would prevail.

6.44. In relation to the second point, the suggestion is that all firms involved in processes at the labor justice have its duties to the state (social security, other taxes, etc) verified.<sup>9</sup> This would create an incentive for businesses avoid the labor courts, being induced to pay the benefits negotiated between parties. On the other hand, it would create an incentive to reduce informality by penalizing at least one side of this relation, in this case the employer. This way it would raise the bargain power of the worker when claiming his/her rights.

6.45. This proposal reduces the role of the labor justice as negotiators of clauses in individual work contracts and it raises its functions as the inspection agency and effective implementation of these contracts. In respect to the collective contract, the proposal is that conflicts be effectively resolved by dispute between workers and firms and that the result depends on the bargain power between parties, therefore not being a matter of justice.

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<sup>9</sup> Traditionally the labor justice does not interfere on the additional contributions, which are not demanded in the process (which are generally appropriated by the worker). Recently the social security service has been following the processes in the labor justice in order to locate workers that are not contributing to the social security.

## VI CONCLUSION

6.46. This article analyses how the role of the Brazilian labor justice affects the performance of the labor market in the country. The argument developed in this article suggests that the main problem originating from this institutional arrangement is that it allows a renegotiation of work contracts *a posteriori*, i.e., after the contract has expired. As a result, none of the parties have any incentive to honor the signed contract or even to sign a work contract.

6.47. In other words, the work contracts in Brazil have little value since they are not signed to be respected but to be renegotiated after they have ended. Consequently a free-rider attitude is developed by the workers, and a tendency to illegality by employers, generating working relations with increasing tension, which is reflected in a large number of processes that reach the labor justice every year (in 2001, nearly 3 million), less cooperation and little commitment to work. From an economic point of view, this result generates little investment in the working relation from both parties, little investment in qualification and training, and consequently low productivity and low real salaries.

6.48. Since work relations are one of the main determinants of productivity and competitiveness in a given economy, a reform of this institutional arrangement is vital for the country to increase productivity and competitiveness, making viable a higher rate of sustainable growth in the future.

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## 7. AN OVERVIEW OF THE EFFECTS OF THE MINIMUM WAGE ON THE BRAZILIAN LABOR MARKET

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### I INTRODUCTION

7.1. The debate concerning the impact on employment, wages, and poverty of the introduction of a minimum wage, or even changes in the minimum wage, into an economy is the subject of a separate chapter in the literature on labor markets. In the case of Brazil, this debate dates back to the 1970s, when a controversy arose as to whether or not changes in the minimum wage could affect all wages in the economy [e.g., Souza and Baltar (1979)]. Now this debate has been revived, in terms not only of the possible impact of the minimum wage on other wages, but also of its effects on the levels of employment, informal labor, and poverty in this country. The debate becomes more relevant when discussions are held regarding possible future trends in the minimum wage policy in Brazil as a result of its impact on government accounts, and the feasibility of adopting a system that combines regional minimum wages with a national wage floor.

7.2. The theoretical debate suggests that the effects of the minimum wage on the labor market depend on the structure of that market. In competitive markets with a homogenous labor force, the minimum wage tends to create unemployment if it is set above the equilibrium wage as determined by the market. Under imperfect competition, in the presence of monopsonies, the introduction of a minimum wage may help raise workers' wages without having deleterious effects on employment. In segmented labor markets, the minimum wage tends to generate informality and a certain amount of unemployment.

7.3. In general, there are two clearly dichotomic views as to the normative impact of a minimum wage policy for developing countries. On the one hand, there are those who argue that the minimum wage fosters a better distribution of resources in the economy, so as to improve the population's general welfare by helping reduce poverty, increase productivity, and stimulate economic growth. On the other hand, we hear holders of the distortionist view argue that the minimum wage produces an inefficient allocation of labor and encourages rent-seeking behaviors, thus negatively affecting investments and contributing to a reduction in the rate of economic growth [Freeman (1996)].

7.4. In this article, we review the literature on the impact of the minimum wage on the Brazilian labor market. First, we will examine the key results pertaining to the employment-effect of the minimum wage in Brazil, and contrast the results that were based on data at the family level and at the individual level. Similarly, we will analyze the principal results with respect to the impact on other wages and on poverty levels. Since in Brazil there is a direct connection between the minimum wage and the benefits paid by the social security system, we will also present an analysis of the impact of changes in the minimum wage on the government accounts. Lastly, we will attempt a critical analysis of some options for minimum wage policy in Brazil.

7.5. The article is structured in the following manner: after this Introduction, we will discuss briefly the history of minimum wage policy in Brazil (Section 2), current minimum wage policy (Section 3), and the profile of the workers who earn minimum wage (Section 4). Then, in Section 5, we present the review of the results relative to the impact of the minimum wage on employment and wages. The results relative to the

effects on poverty are reviewed in Section 6. Section 7 analyzes the effect on the government accounts, in particular the impact of the minimum wage on payrolls at all three levels of government (federal, state, and local). Section 8 discusses policy alternatives for the future of the minimum wage in Brazil. Lastly, Section 9 summarizes the results and conclusions of the article.

## II HISTORICAL BACKGROUND OF THE MINIMUM WAGE

7.6. Until the 1930s, there was no specific legislation on labor relations in Brazil. Unions were not recognized by the Government, and wage negotiations depended on each social group's bargaining power. The main demands in that era were higher wages and a reduction in the number of hours worked. It was not until 1930 that the Brazilian Government began to institutionalize these demands. The Ministry of Labor, Industry and Commerce was established in 1931, and both employee and employer organizations were recognized at that time.

7.7. The first official minimum wage began to take shape in 1936, when Law 185 (of January 14, 1936) was passed. Article 1 of that law provided that "every worker shall have the right, in payment for the service rendered, to a minimum wage capable of meeting, in a given region of the country and in a given time period, his normal needs for food, housing, clothing, and transportation." Initially, the legislation ordered that the value of the minimum wage, to be set by a Wage Commission, should be sufficient to provide remuneration to an adult worker for a normal working day. (Not until 1946 was the law changed to recognize that the minimum wage should be high enough to satisfy the needs of both the worker and his family).

7.8. Although the law that established the lowest wage to be paid to an active worker was enacted in 1936, the first such wage was not established until 1940, when it was initially set at Cr\$ 0.24 (in nominal terms), to remain in effect for three years (until 1943). In 1943, a nominal increase of 25 percent occurred in July, followed by another 26 percent in December. After that, the minimum wage remained frozen until 1952. As a result, there was a substantial decline in its value. In 1962, an attempt was made to reconcile its value with the objectives set forth in the Constitution, when President Goulart created the "family wage," a kind of bonus equivalent to 5 percent of the minimum wage for every child age 14 or under.

7.9. A period of successive changes in wage policy legislation began in 1979. Between 1979 and 1985, the Government modified wage policy seven times, sparking a series of debates about the impact of the wage increases on the inflation rate. The changes adopted altered the percentage of inflation that could be passed along to wages, and the frequency of the readjustments (which were now occurring every six months). Therefore, a formula has been developed to calculate the wage increases that could be applied to all the policies in effect during the 1979-85 period:

$$W_{i(t)} = \{1 + (A_i + B_i / \theta_i)R_s\} \theta_i S_{(0)} \tag{1}$$

where:

- $\theta_i = W_{i(0)}/S_{(0)}$
- $W_{i(0)}$  = nominal wage of the  $i^{\text{th}}$  wage bracket at the beginning of the six-month period;
- $R_s$  = change in prices during the six-month period, measured by the INPC [Consumer Price Index];
- $S_{(0)}$  = the highest minimum wage in effect during the month of the adjustment;
- $A_i$  and  $B_i$  = correction coefficient per wage bracket, furnished by the wage policy.

7.10. As we can see, this formula shows that the minimum wage played a key role in the determination of the size of the wage readjustments. It should also be noted that any real increase in the minimum wage would have repercussions for the entire structure of wages that are governed by the wage policy, since it would change the composition of the wage brackets and hence the magnitude of inflation that each wage would receive in the form of an adjustment.

7.11. With respect to the minimum wage in particular, the most significant change occurred in 1984, when its value was standardized nationwide. The minimum wage for all regions was raised to the level in effect in southern and southeastern Brazil. Prior to that change, there was a wide variety of regional minimum wages. When the minimum wage was originally created, there were 14 different regional minimum wages, but by 1963, there were 39 of these. There were at least two in effect immediately prior to the unification.

7.12. In 1987, the role of the minimum wage as a benchmark for the determination of other wages in the labor market was officially revoked in order to permit minimum wage policy to be implemented more flexibly without generating multiplier effects on the other wages in the economy. As a replacement for the role of the minimum wage as a benchmark for other wages and benefits, the Government created the National Wage Floor, the real value of which was eroded considerably in subsequent months due to the prevailing inflationary environment and the absence of policies for restoring its value.

### III CURRENT MINIMUM WAGE POLICY

7.13. Current minimum wage policy was defined by the new Constitution of 1988, which stipulated that the minimum wage should be the same nationwide and sufficient to meet the basic needs of a worker, as well as those of his family, in terms of housing, education, health, recreation, clothing, hygiene, transportation, and social security. The wage is to be adjusted periodically to preserve its purchasing power, and there is an explicit prohibition against its use as an indexing tool.

7.14. Several aspects related to the treatment of the minimum wage in the new Constitution are worth mentioning:

- (i) the new Constitution lengthened the list of needs to be met by the minimum wage, by adding health, recreation, and social security to the existing needs;
- (ii) the nationwide standardization of the minimum wage was introduced into the body of the Constitution;
- (iii) periodic adjustments of its value were made mandatory, in order to preserve its purchasing power;
- (iv) the 1988 Constitution ratified the prohibition against using the minimum wage as an indexing tool in the economy;
- (v) the normal work week was cut from 48 to 44 hours, which meant an increase of about 10 percent in the hourly value of the minimum wage.

7.15. The most important change introduced by the 1988 Constitution was the determination that social security benefits could not be lower than the equivalent of one minimum wage. As Foguel, Ramos, and Carneiro (2000) point out, this rule ultimately proved to be the main stumbling block for policies that sought

to raise the real value of the minimum wage, since those benefits have a heavy and significant impact on the government accounts.

#### **IV PROFILE OF WORKERS WHO EARN MINIMUM WAGE**

7.16. The profile of the workers who earn minimum wage was examined in Foguel, Ramos, and Carneiro (2001) using data from the 1998 National Household Sample Survey (PNAD). Knowledge of the characteristics of the labor force that is directly affected by the minimum wage is important in determining the scope and effectiveness of a minimum wage policy. The data presented pertain to the economically-active population (EAP), equivalent to 40.2 million workers. Of this total, about 22.5 million workers, 55 percent of total EAP, are in the formal sector. The number of workers receiving up to one minimum wage is 2.4 million, equivalent to 6 percent of EAP.

7.17. The characteristics of the workers who earn minimum wage are summarized in . About 42 percent of such workers are female, 52 percent are 10-29 years of age, and 40.6 percent are heads of households. Comparing those figures with the composition of the total EAP, we see that those who earn only one minimum wage have less education than average and are young, female, and predominately non-white. Also with respect to total EAP, workers between the ages of 30 and 49 and heads of households are under-represented.

7.18. Table 7.2 enables us to study the profile of minimum wage earners in terms of the kind of jobs they hold. In regional terms, there is a clear distinction between the state of São Paulo and the Northeast. For example, while São Paulo is home to about 30 percent of total EAP and the formal sector, only 8.2 percent of those who earn minimum wage are found in that state. In the Northeast, on the other hand, the local work force does not represent even 20 percent of the EAP, but about 40 percent of the workers who earn minimum wage are found in this region.

7.19. Similarly, the São Paulo labor market is much more formalized than the labor market in the Northeast, which may indicate that the imposition of an official minimum wage is becoming less restrictive in more dynamic labor markets. Thus the adoption of a national minimum wage may have different effects in each region, to the extent that the nature and composition of their labor markets are not homogenous. In principle, therefore, one could argue that the adoption of regional minimum wages could be part of a more effective strategy, since it may potentially permit a better "marriage" between the level of the minimum wage and the characteristics of each labor market.

#### **V IMPACT ON THE LABOR MARKET**

7.20. Government intervention in the labor market via minimum wage policy has been the subject of intense debate in many countries [OECD (1988)]. Many recent studies have been devoted to investigating the impact of the minimum wage on the labor market in different countries. For the United Kingdom, for example, Bell and Wright (1996) analyzed the impact of the so-called Wage Boards and Councils and found that the minimum wage had not raised the wages of workers in the formal sector above the level of the wages paid in the informal sector. Thus their work suggested that there existed only minor effects on the levels of wages and employment in the economy. Machin and Manning (1994) concluded that the decline in the level of the minimum wage relative to the average wage in the economy contributed significantly to broadening wage dispersion during the 1980s in the United Kingdom. Furthermore, Machin



and Manning (1996) emphasized the fact that abolition of the Wage Boards and Councils in the United Kingdom resulted in a reduction in new jobs and did not generate any gains in terms of wages (p. 672).

7.21. Studies also exist that associate increases in the minimum wage with the number of small business bankruptcies. Waltman *et al.* (1998) and Fischer (1997), for example, examined whether increases in the minimum wage were responsible for the departure of small companies from the market.<sup>1</sup> The conclusion reached in these studies was that in the case of the United States, increases in the minimum wage did not cause small businesses to go bankrupt at a higher rate than observed in periods when the minimum wage was not rising.

7.22. In the case of developing countries, there are conflicting results regarding the impact of the minimum wage on the labor market. Bell (1997), for example, found significant negative effects on employment in the case of Colombia, and insignificant effects on the labor market in Mexico. Maloney (2000) presents a summary of the literature on minimum wage in Latin America that indicates that while the minimum wage has a positive effect on other wages in Latin American economies, the effect on employment and poverty is unclear. In other words, while it has been observed that increases in the minimum wage tend to contribute to a reduction in poverty, negative effects on employment have also been noted. Furthermore, Maloney (2000) states that the minimum wage is also an important determinant of employment and wages in the informal sector in most Latin American economies.

7.23. In the case of Brazil, Carneiro and Faria (1997) and Carneiro and Henley (1998) concluded that the minimum wage was an important determinant of the average level of other wages during the 1980s, but that this importance gradually declined during the 1990s. Lemos (1997) showed that the minimum wage has a positive effect on other wages in the economy for a period of five quarters, after an initial shock. Emphasizing the bicausality, the author also shows that the average wage positively affects the minimum wage for a period of three trimesters after the shock. Soares (1998), furthermore, concluded that the minimum wage was affected by the labor market during the 1990s. Finally, Lemos (2000) estimates that increases in the minimum wage tend to compress the distribution of wages and have moderately adverse effects on the level of employment.

7.24. The classic textbook description indicates that under perfect competition, setting a minimum wage above the equilibrium level of the market will reduce the demand for labor and cause unemployment. More commonly, however, the negative effects of the minimum wage will depend on a series of factors, among which are the level at which it is fixed (its absolute value relative to worker productivity), the elasticity of the demand for labor (the more elastic the demand, the greater the negative effect), the elasticity of the supply of labor (the more inelastic, the greater the negative effect), and the responses in terms of investments by firms and individuals (the smaller the investment, the greater the negative effect). The greater the elasticity of the substitution between skilled and less-skilled workers, the greater the negative effect tends to be for the less-skilled. The size and indication of the effect of the minimum wage on employment may therefore differ among firms, individuals, and geographical areas, and depending on its value.

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<sup>1</sup> The argument underlying this point is that since small companies presumably employ their resources at the point of maximum efficiency, increases in labor costs must somehow be absorbed. Since demand may be inelastic for certain industries and the replacement of labor with capital may require expensive investments, some firms might indeed be forced out of the market.

7.25. However, some alternative models suggest that the introduction of a minimum wage in an economy will not significantly affect the level of employment, and may even have a slightly positive impact on the demand for labor [Card and Krueger (1995)]. The simplest model that reached this conclusion is the one that examined the labor market under the assumption of a monopsonistic employer. In this model, workers have little or no bargaining power since they cannot easily find jobs with other employers. This enables an employer to set the wage level below the marginal product of the labor. In general, imposing a minimum wage above the level that would be determined by an employer in a monopsonistic market may, therefore, raise the level of employment.

7.26. Other models that predict that the minimum wage will have a positive effect on the level of employment are the models associated with the theory of the efficiency wage, the theory of human capital, and the theoretical framework of job search. In efficiency wage models, it is assumed that employers will set the wages of their employees above the market equilibrium level in order to increase their productivity, reduce production softness, and cut the costs associated with labor turnover. In that context, the minimum wage can result in an increase in employment. The evidence presented by Rebitzer and Taylor (1995), however, shows that in a context of efficiency wages, the positive effect of the minimum wage on employment may dissipate over the long term, depending on the position of the firms along their profit curves and on subsequent changes in the price of the products and the number of firms operating in the market.

7.27. Models based on the theory of endogenous growth and elements of the theory of human capital also generate forecasts that the minimum wage will have a positive effect on employment. The principal hypothesis here is that the minimum wage creates incentives for workers whose productivity is low to invest in more training or education in order to boost their productivity and, therefore, their paychecks. The resulting increment in human capital will have a positive impact on economic growth and, consequently, on employment. In this respect, Cahuc and Michel (1996) show that a reduction in the minimum wage may bring about a reduction in economic growth. Cubit and Hargreaves-Heap (1996) argue that the net loss of employment expected with the introduction of the minimum wage may be zero for a given interval of minimum wage values, since its introduction will raise the investment in physical capital by firms and in human capital by the workers. Similarly, Acemoglu and Pischke (1998) also argue that the minimum wage may increase the amount of training that firms offer their less-skilled workers.

7.28. Considering the framework of the job search theory, the indication of the effect of the minimum wage on employment will depend on the level of the minimum wage and its impact on the intensity of job search, the level of the acceptance wage, and the probability of an offer of a new job. In this regard, Swinnerton (1996) presents an equilibrium search model under which the firms have a negatively-sloped labor demand curve, labor productivity varies from firm to firm, and the unemployed have imperfect information and seek employment in a random, sequential manner. Under these assumptions, the author demonstrates that, because of an increase in the average productivity of labor, positive effects on well-being can be obtained by the introduction of a minimum wage, even in the presence of a negative impact on the level of employment.

### **Estimates of the Employment-Effect of the Minimum Wage**

7.29. There is little empirical evidence available in literature regarding the impact of changes in the value of the minimum wage on the level of employment in the case of Brazil. Some contributions on this point are found in Foguel (1997, 1998), Corseuil and Morgado (2000), Foguel, Ramos, and Carneiro (2000, 2001),

Lemos (2000), Carneiro (2000), and Carneiro and Corseuil (2001). All these articles will be reviewed later in this paper, and we will attempt to present a summary of the principal results concerning the impact of changes in the minimum wage on the level of employment in Brazil.

7.30. Before moving on to the specific case of Brazil, let us review the information available for the other countries in Latin America. Maloney and Nuñez (2001) attempted to evaluate the impact of the minimum wage on the labor market for a group of Latin American countries. The authors provide estimates of the employment-effect of the minimum wage based on analyses of kernel functions and panel data indicating that changes in the minimum wage tend to generate reductions in the levels of employment in Latin American countries. In the case of Puerto Rico, for example, when the minimum wage was raised to a level equivalent to 63 percent of the average wage in manufacturing, the employment-elasticity of the minimum wage became 0.91 and there were significant reductions in the number of jobs in that country.

7.31. The same general picture is reported by Bell (1997) in a study on the impact of the minimum wage in Mexico and Colombia. For Mexico, the effects on the level of employment were almost non-existent, but for Colombia, the employment-elasticity of the minimum wage for workers whose incomes were close to the minimum wage ranged from 0.55 to 1.22. Bell (1997) concluded that during the period 1981-87, an increase of 10 percent in the minimum wage had reduced employment among the less skilled workers by about 2 to 12 percent, in Colombia.

7.32. Maloney *et al.* (2001) pursued the analysis of the Colombian case more deeply, using a method suggested by Neumark (2000) that consisted of using a rotating panel of data to analyze the impact of an increase in the minimum wage on wages and on the probability that a worker would become unemployed. This estimated model uses a limited dependent variable that assumes the value of "1" if the individual keeps his job after the minimum wage increase and the value of "0" if the individual becomes unemployed. The explanatory variables of the model, interpreted as the factors that would affect the likelihood that the individual would keep (or lose) his job, are past values of the minimum wage, individual characteristics (such as sex, race, education), and position in the wage distribution (whether close to or distant from the minimum wage).

7.33. The results indicate that an increase in the minimum wage has a statistically significant impact on the probability that an individual will become unemployed. However, that probability is reduced for the higher positions in the wage distribution; i.e., the negative impact of the minimum wage tends to affect more severely those whose income is close to the minimum. The employment-elasticity of the minimum wage estimated by Maloney *et al.* (2001), according to the Neumark (2000) methodology, was 0.15, indicating that an increase of 10 percent in the minimum wage would have the effect of reducing employment by about 1.5 percent in Colombia.

7.34. Foguel (1998) used data from the Brazilian Institute of Geography and Statistics (IBGE) Monthly Employment Survey (PME) to conduct a natural experiment considering the period of convergence of minimum wage values in Brazil and its impact on the labor market. The idea of a natural experiment is borrowed from such fields as the biological, physical, chemical, and medical sciences and consists of testing the effectiveness of a certain medication in fighting a specific disease. Randomly selected patients are therefore divided, also randomly, into two groups: (a) the treatment group, which is given the medicine; and (b) the control group, which does not get the medicine. Since both groups are selected randomly, there is no reason to believe that, were they not to be given the medicine, the average behavior of the people in the treatment group would be different from the average behavior of the control group. The effects of the

medicine can therefore be evaluated when the evolution of the state of health of the two groups is compared. The control group ends up serving as a counterfactual for the treatment group, which makes it possible to assess the nature and extent of the effect of the medication.<sup>2</sup>

7.35. Therefore, in order to apply the natural experiment methodology for purposes of analysis of the impact of the unification of the minimum wage on the labor market, it was necessary to select one date associated with the period of convergence of the values of the minimum wage and a second date corresponding to the post-convergence period. Since the regional values of the minimum wage were unified in May 1984, Foguel (1998) selected a pre-convergence period prior to this date, and a post-convergence period after 1984. The pre-convergence period corresponded to the 24 months preceding the unification of the minimum (May 1982 to April 1984). The post-convergence period covered the 24 months between May 1985 and April 1987. Note that the period between May 1984 and April 1985 was excluded from the study in order to allow for an interval of market adjustment to the convergence of the minimum before evaluating the effect of the unified minimum wage.

7.36. The author also selected two groups of metropolitan regions for which the values of the minimum wage were convergent during the pre-convergence period: (a) Recife and Salvador, and (b) Belo Horizonte, Rio de Janeiro, São Paulo, and Porto Alegre. The results of the exercise in comparison between the pre- and post-convergence periods permitted analysis of the impact of the unification of the minimum wage for a set of labor market indicators that included the activity rate and the percentage of employed and unemployed, the unemployment rate, the degree of informality, and the sectoral structure of employment. Since the author worked with the level of those indicators and the logarithm of the minimum wage, the estimates obtained should be interpreted as semi-elasticities of the minimum wage with respect to those indicators.

7.37. The results estimated by Foguel (1998) indicate that convergence of the regional values of the minimum wage led to a decline in the percentage of employed. It also led to increases in the proportion of both the unemployed and the inactive, a higher rate of open unemployment, an increase in the presence of workers whose jobs are registered on their employment record cards among the total employed, and a decline in the percentage of employed persons in industry and commerce, with a corresponding increase in their participation in the services sector and other activities. With regard to the unemployment rate in particular, Foguel (1998) suggests that an increase of about 10 percent in the minimum wage could raise the open unemployment rate by 0.5 percentage points.

7.38. The analysis by Foguel (1998) made an important methodological contribution to the discussion of the question of the impact of the minimum wage on the Brazilian labor market. The idea of treating the process of unification of minimum wage values as a natural experiment was a creative alternative adopted to attempt to explain how, in fact, the minimum wage impacts key labor market indicators. The responses generated, however, were limited to a specific period when the concern for achieving economic stabilization and cutting the inflation rate was still quite intense. We can speculate whether the results found might not have been contaminated by the high inflation rates observed in the Brazilian economy during the period

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<sup>2</sup> See Foguel (1988) for further details concerning this explanation.

considered. We would therefore need to evaluate the extent to which those results hold up in a different economic environment, even if later studies use different methodologies.

7.39. Lemos (2000) also used figures from the Monthly Employment Survey to evaluate the impact of the minimum wage on levels of employment in Brazil. Using monthly data for the period 1982-98, the author estimated wage equations by following the traditional time-series analysis methodology. Four different specifications were tested: group against group; first differences of the ordinary least squares (OLS); the twelfth differences; and the first difference of the twelfth difference (to obtain the rate of variation of the annual variation in the value of the minimum wage).

7.40. In all the specifications, lags of the dependent variable were introduced into the model, since changes in the minimum wage may not have immediate contemporaneous effects on employment, but rather future effects [Brown (1982); Neumark and Washer (1992)]. Other explanatory variables included were lags of the inflation rate, dummy variables for different periods, as well as the percentages of workers who are young, female, students, retired persons, civil servants, people whose jobs are not registered on their employment record card, and those employed in the construction sector and in manufacturing.

7.41. Lemos (2000) makes no mention at all of the statistical properties of her variables, thus failing to address an extremely important source of problems for time-series models, i.e., problems related to the possibility that the statistical series used in her estimates are not stationary. Despite this potential source of problems, which could lead to spurious regressions devoid of economic significance, we shall proceed to analyze, with the appropriate caution, the elasticities presented by the author. According to the estimated coefficients, the elasticities of employment with respect to changes in the minimum wage ranged between  $-0.006$  and  $0.005$ , but in many cases were not statistically different from zero.

7.42. The author also used alternative methodologies to analyze in greater depth the impact of changes in the minimum wage on employment. One of these alternatives was to use instrumental variables to verify whether the results obtained were being affected by problems of endogeneity of the explanatory variables. The instrumental variables were values that lagged by 12 months, a proxy for the election cycle, and a proxy variable for capacity for political intervention. On this point, the author attempts to capture the importance of the election cycle in the process of determination of employment, together with the impact of changes in the minimum wage, by introducing into the model a variable that incorporates the percentage of politicians considered as being "leftist," the political cycle, and the minimum wage multiplicatively. The justification for this is that the incentives for politicians on the left to seek increases in the minimum wage are greater not only during election years, but also when the value of the minimum wage is low.

7.43. The estimation procedure was the least squares method, in three stages. The elasticities obtained this time ranged from  $-0.020$  to  $0.035$ . The results obtained earlier suggested that a 10 percent increase in the minimum wage would tend to curb employment by about 0.06 percent, while the estimates obtained by the instrumental variables method could generate a decline in employment of about 0.20 percent. Once again, we must be careful in reading these results, which may be spurious owing to the possible existence of unit roots in the time series used for the study.

7.44. Furthermore, the introduction of variables such as the percentage of "leftist" politicians, the election cycle, and the capacity for political intervention really needs additional detail and justification; absence of this casts doubt as to their actual explanatory capacity. In general, however, Lemos (2000) presents a

creative way of analyzing the impact of the minimum wage on the labor market and presents additional evidence that this impact can be adverse in aggregate terms.

7.45. Other estimates of the employment-effect of the minimum wage that took into consideration the problem arising from the possibility that the variables in the estimated model are not stationary were presented by Carneiro (2000), Foguel, Ramos, and Carneiro (2000), Foguel, Ramos, and Carneiro (2001), and Carneiro and Corseuil (2001). In general, the empirical modeling strategy present in those articles adopts the more general idea with respect to the existence of a relationship of long-term equilibrium between the level of employment, the product, and the minimum wage. Therefore, using as our basis the methodology known as co-integration analysis of time series, it is possible to separate the long-term structure among those variables from their short-term dynamics. This means we can identify the speed of adjustment with which potential deviations from the common trajectory of equilibrium among the variables are corrected, as well as the long- and short-term elasticities of employment with respect to the minimum wage and the product.

7.46. The estimated econometric model is based on employment equations that are commonly found in time-series literature, and takes the following form:

$$E = f(m, Y, t) \quad (2)$$

where  $E$  is employment,  $m$  is the minimum wage,  $Y$  the aggregate product, and  $t$  represents a deterministic tendency. This formula also enables us to test the exogeneity of the minimum wage variable in order to check whether the equation (i) is correctly specified (weak exogeneity), (ii) can be used for forecasts (strong exogeneity), and (iii) appears structurally stable and survives the Lucas Criticism (super-exogeneity).

7.47. Another general characteristic of those articles is that they usually cover approximately two decades for which time series on employment are available. Since they were based on data from the IBGE Monthly Employment Survey, the sample period started in 1982 and covers the first years of the new millennium.

7.48. The long-term elasticities of employment with regard to changes in the minimum wage found in those studies are situated in the interval between  $-0.001$  and  $-0.020$  for workers in the formal sector, and between  $0.0004$  and  $0.003$  for workers in the informal sector. Although these elasticities are low in absolute values, they suggest important long-term trends in the adjustment process of employment for both sectors of the labor market. In the formal sector, changes in the minimum wage tend to affect employment negatively, while in the informal sector such changes tend to affect employment positively. One explanation for this might be that the informal sector ends up serving as a temporary refuge for workers who lose their jobs in the formal sector.

7.49. Another interesting result of those studies pertains to the way in which the level of employment in both sectors behaves throughout the economic cycle. In the formal sector, employment tends to react procyclically to changes in economic activity, while employment in the informal sector reacts anti-cyclically to fluctuations in the product. The perception underlying this process is simple, and suggests that economic growth tends to create more jobs, to stimulate the emergence of formal occupations and, therefore, to discourage informality.

7.50. With regard to short-term dynamics, the more general pattern encountered for the long term remains the same. Changes in the minimum wage tend to have a negative effect on formal employment and a positive effect on informal employment. Similarly, note the pro-cyclical behavior of formal employment in the short term, and observe that the opposite occurs in the informal sector. Meanwhile, the adjustment speed of the models stood at 5 percent to 9 percent per month, suggesting that deviations from the long-term trajectory of equilibrium among employment, product, and minimum wage are fully corrected within a period of approximately one year. This seems to be consistent with a slow adjustment by employment.

7.51. One limitation of these studies is that, although they allow us to separate the long-term and short-term effects of the minimum wage on the level of employment, they cannot tell us precisely who loses and who wins when the minimum wage changes. The analysis was done with aggregate data and furnishes only an indication of the net effect on the labor market caused by a change in the value of the minimum wage. In general, time-series studies assume that the impact of the minimum wage on the labor market tend to be concentrated among young, inexperienced workers whose income is close to the minimum. The only fact that one can glean from those studies, however, is that the minimum wage does tend to generate a certain amount of unemployment.

7.52. Hoping to fill this gap and try to answer the question as to which workers end up losing their jobs when the minimum wage is raised, Corseuil and Morgado (2001) and Carneiro and Corseuil (2001) used an alternative methodology based on the idea of natural experiments and the differences-in-differences method [Angrist and Krueger (1999)]. The treatment group consisted of workers whose employment was affected by the minimum wage, and the control group was comprised of workers whose employment was not affected by the minimum wage, but by other factors that had also affected the employment of the first group. The difference in the change in employment of the treatment group in relation to the change in employment of the control group can be seen as an estimate of the change in employment of the treatment group that would occur had this group been affected solely by a change in the minimum wage.

7.53. In order to identify the treatment and control groups, the authors used as a tool the results of an analysis of the impact of changes in the minimum wage on wage distribution that will be discussed later in this article. Since changes in the minimum wage tend to have a more obvious effect on the incomes closest to the minimum wage, i.e., the wages that are on the left tail of the wage distribution, the treatment group chosen was composed of workers who were earning the equivalent of one minimum wage between April and May. The control group chosen consisted of workers who had incomes equivalent to a value that lay between one minimum wage at the April level and twice the minimum wage at the May level, on the assumption that the characteristics of those workers are the same as those in the treatment group, but that their jobs were affected primarily by factors other than the change in minimum wage.

7.54. After the treatment and control groups were defined, implementation of the differences-in-differences method requires the use of the following equation:

$$Y = (\Delta E^t / E^t) - (\Delta E^c / E^c) \quad (3)$$

where  $E^t$  and  $E^c$  denote the levels of employment of the treatment and control groups, respectively, and  $\Delta$  denotes the change in each variable before (April) and after (May) the increase in minimum wage.

7.55. The results obtained using this methodology showed that increases in the minimum wage cause reductions in the level of employment. The elasticities reported in Carneiro and Corseuil (2001) indicate



that a 10 percent increase in the minimum wage had contributed to a 3 percent decline in employment among the treatment group in 1995 and a drop of about 13 percent in 1999. Then in the case of the informal sector, the elasticities indicate that a 10 percent increase in the minimum wage had been responsible for a 2.2 percent growth in informal employment in 1995, and about 15 percent in 1999.

7.56. The authors offer no explanation for the difference in the magnitude of the impact of changes in the minimum wage between 1995 and 1999, but we can speculate that the greater sensitivity observed in 1999 is associated with an economic context of lower inflation rates and greater competitiveness in the market for products. Therefore, the effects of any variations in cost would be much more marked in 1999 than in 1995. When relative prices are aligned, it is much more difficult to pass along cost increases than it is in situations of high inflation, where the price system loses much of its signaling ability.

7.57. Fajnzylber (2001), using as a basis the relative information on the effect of the minimum on wage distribution, also found that the minimum wage has a negative impact on employment in the formal sector. His estimates were lower for the formal sector (elasticity of  $-0.10$ ) than for the informal sector (elasticities between  $-0.25$  and  $-0.35$ ). According to the author, those results are consistent with a movement of informal workers into the formal sector after a rise in the minimum wage, or even their departure from the labor market because of (i) low prospects for employment or (ii) increases in family income brought about by rises in income experienced by other members of the family.

7.58. Note, therefore, that the results obtained using different methodologies, for different periods and contexts, appear to converge toward a more traditional view of the impact of the minimum wage on the labor market. Consequently, after the minimum wage is raised, one can expect some reduction in aggregate employment, with a greater impact on workers who earn income at levels close to the minimum wage, as well as growth in informal occupations. While the aggregate results suggest that the net effect is small, the disaggregated analysis seems to suggest that the people most affected by job loss, after an increase in the minimum wage, are the lower-income workers.

### **The Impact of the Minimum Wage on Other Wages**

7.59. The debate as to whether the minimum wage impacts other wages in Brazil began in the 1970s. Macedo and Garcia (1978) were the first to argue that changes in the value of the minimum wage had only a limited impact on the current wage rate. Their argument was based on estimates of an elasticity less than unity between the minimum wage and the wage rate during the period 1964-74. Souza and Baltar (1979), on the other hand, considered a longer sampling period and offered a rather different interpretation of the data. Those authors argued that minimum wage policy was an important determinant of other wages in Brazil. Their argument was based on the fact that changes in the real value of the minimum wage were followed closely by the real wages of workers in the state of São Paulo between 1961 and 1976, which they concluded was consistent with unitary elasticity. This finding gave rise to the term "beacon effect," inasmuch as it suggested that changes in the minimum wage would induce increases in all wages, even among less-skilled workers in the informal sector.

7.60. The debate as to whether or not the beacon effect is valid persisted throughout the 1980s. Countless studies were done on the question of whether wage policy in Brazil was effective. Since wage policy expressed all wages as multiples of the minimum wage for purposes of indexation, the way to test its effectiveness was to make a comparison between an institutional wage index constructed by strictly applying wage policy principles, and an average market wage. If the institutional wage were to remain



below the market wage for a long time, the conclusion would be that wage policy was ineffective and, consequently, the theory of the beacon effect would lose some credibility. Carneiro (1995) researched this question.

7.61. Velloso (1990) considered an additional explanatory variable and introduced the business cycle as a new explanatory variable in the wages equation. He estimated the impact of changes in the real value of the minimum wage and changes in the business cycle (measured by the rate of open unemployment) on the real value of the wages in the formal and informal sectors throughout the 1976-86 period. For workers in the formal sector, a 10 percent increase in the real value of the minimum wage would mean increases of between 3.6 percent and 6.3 percent in real wages of workers who hold an employment record card. For workers in the informal sector, a 10 percent increase in the minimum wage would raise their earnings by 4.3 percent to 6 percent. The proximity between the elasticities found would suggest that wages and earnings by both formal and informal workers responded in a fairly similar manner to changes in the minimum wage. The effect of changes in the business cycle, however, was more pronounced for the informal workers. A 10 percent increase in open unemployment is thought to have caused a negative impact of about 0.4 percent on wages in the formal sector, while it negatively impacted earnings in the informal sector by approximately 0.8 percent.

7.62. However, all the literature of the 1980s was later considered to have been contaminated by the problem of spurious regression, since the time series used in the estimated regressions invariably possessed a unit root and did not receive appropriate statistical treatment. So once again, an avenue opens for testing the robustness of the earlier results as to the validity or invalidity of the beacon effect and the effectiveness of the minimum wage as an important determinant of the other wages in the economy.

7.63. A methodology of analysis different from those used prior to the early 1990s was implemented by Carneiro and Faria (1997), Lemos (1997), and Soares (1998). Instead of calculating elasticities, these authors investigated the temporal precedence between the minimum wage and the other wages in the economy. Using aggregate monthly data on the trend in the average industrial wage, considered as a proxy for the market wage, and data on the minimum wage for the period 1980-93, Carneiro and Faria (1997) identified the temporal precedence of changes in the official minimum wage over changes in the average market wage between 1980 and 1985. For the subsequent period, 1986-93, however, the authors found that the two wages were determined simultaneously. The results for the first sub-period corroborated the so-called "beacon theory," under which the minimum wage is believed to be an important determinant of the other wages [Souza and Baltar (1979)]. For the second sub-period, the simultaneous determination of the minimum wage and the market wage was interpreted as an indicator of (i) the minimum wage's loss of effectiveness and (ii) the increased bargaining power of unions beginning in the second half of the 1980s [Carneiro and Henley (1998)].

7.64. Adopting a similar methodology, Lemos (1997) showed that the minimum wage has a positive effect on the other wages in the economy for five trimesters, after an initial shock. Emphasizing the simultaneity between the minimum wage and the other wages, the author also showed that the average wage positively affects the minimum wage for a period of three quarters after the shock. Soares (1998), furthermore, concluded that the minimum wage behaved reactively toward the labor market during the 1990s.

7.65. A limitation of this methodology is that because it does not supply elasticities, it is hard to quantify the extent to which a change in the minimum wage impacts the other wages in the economy. Furthermore,

the fact that there is temporal precedence does not mean that there is a cause-and-effect relationship; therefore, there also exists a limitation in terms of the causal relationship between the minimum wage and the other wages. Compensating for this methodological limitation, Foguel, Ramos, and Carneiro (2000) present econometric results based on the methodology known as co-integration analysis of time series in order to investigate the impact of changes in minimum wage on the other wages in the Brazilian economy during the period 1983-99. The equation estimated by the authors takes the following general form:

$$W = f(m, q - l, u, h, \pi) \quad (4)$$

where all the variables are expressed in their logarithmic form,  $W$  is the average nominal wage,  $m$  is the minimum wage,  $q - l$  represents the productivity of labor,  $u$  is unemployment,  $h$  is a proxy for labor costs, and  $\pi$  is the rate of inflation.<sup>3</sup> Just as in the case of the examination of the employment-effect of the minimum wage, it was possible here to obtain short- and long-term estimates for the wage-elasticity of the minimum wage. Over the long term, the model presented a unitary elasticity of wages with respect to the minimum wage and positive coefficients for labor productivity, cost of labor and inflation, with the unemployment rate attracting the expected negative signal.

7.66. Furthermore, the same behavioral pattern was observed for the formal and informal sectors, indicating that the two sectors adapt to demand shocks in a fairly similar manner. For workers whose jobs are registered on their employment record cards, a 10 percent increase in labor productivity would lead to a 4 percent increase in their nominal wages, but a 10 percent increase in unemployment would provoke a decline of about 6 percent in their wages. The price-elasticity of the nominal wages for the workers in the formal sector varied between 0.3 and 0.5, indicating that those workers are no longer able to recover all their inflation-related wage losses. For workers in the informal sector, the impact of changes in the unemployment rate on their income was much more pronounced than in the formal sector, since the unemployment-elasticity of the informal earnings ranged from  $-0.38$  to  $-0.89$ . On the other hand, the workers in the informal sector appear to be able to adjust their earnings more effectively with respect to inflation, since the price-elasticity for that sector was higher than unity. In both sectors, increases in labor productivity result in wage increases, suggesting that in both the formal and informal sectors, workers are able to convert positive demand shocks into wage gains.

7.67. With regard to the finding of a short-term dynamic, we note that the minimum wage has only limited power to influence the other wages. The minimum wage-elasticity declines considerably over the short term and does not exceed 0.10 for the formal sector and 0.24 for the informal sector. This result seems to indicate that changes in the minimum wage have a more pronounced impact on the earnings of informal workers. In addition, earnings by informal workers are also more sensitive to short-term fluctuations in economic activity. The employment-elasticity of nominal wages for informal workers was  $-0.12$ , while it was only  $-0.09$  for formal workers.

7.68. Despite presenting elasticities that enable us to measure the impact of changes in the minimum wage on the other wages in the economy, this methodology of analysis does not allow us to identify which

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<sup>3</sup> In the authors' formulation, " $q$ " represents aggregate industrial product,  $l$  the total employed, and the ratio between them a measure of labor productivity. Then labor costs are measured by the ratio between the real wage from the standpoint of the producer and the real wage received by the worker; the numerator incorporates the taxes paid when a formal worker is hired and the denominator deducts the income tax on worker wages [see Layard *et al.* (1993) for further details].

wages would be most directly affected by changes in the minimum wage. To accomplish this, we would need to study the behavior of the wage distribution in the economy in the presence of changes in the minimum wage. On this point, the work of Lemos (2000), Corseuil and Morgado (2000), Maloney *et al.* (2000), Carneiro and Corseuil (2001), and Fajnzylber (2001) presents empirical evidence of the impact of changes in the minimum wage on wage distribution.

7.69. Lemos (2000), Corseuil and Morgado (2000), Carneiro and Corseuil (2001), and Maloney (2000) present evidence that suggests that the wages most affected by changes in the minimum wage are precisely those that are close to the minimum. Indeed, Corseuil and Morgado (2000) and Carneiro and Corseuil (2001) show that the wage distribution changes little after a change in the minimum wage for wages above the equivalent of two minimum wages. This behavior pattern remained practically the same throughout the 1990s, according to the authors.

7.70. The study by Fajnzylber (2001), however, deviates from this rule by presenting evidence that the wages farthest from the minimum are also influenced by changes in the minimum wage, thus corroborating the so-called "beacon effect." The author argues that this result can be observed via the wage distribution if we acknowledge that the use of the minimum wage as a unit of measure is a widespread practice in the labor market. Furthermore, the author postulates that in an environment of perfect competition, one should expect that employers would respond to increases in the minimum wage by replacing workers whose productivity is deemed to be lower than the minimum wage with workers whose initial earnings and productivity are above the minimum.

7.71. In contrast to earlier works, Fajnzylber (2001) does not limit his analysis to those workers who earn one minimum wage or less than that, or to those workers who are paid multiples of the minimum wage. Instead, the author adopts the methodology proposed by Neumark *et al.* (2000) and estimates the impact of changes in the minimum wage on different points in the wage distribution, calculating both the contemporaneous effects and the lagged effects of the minimum wage. The analysis is developed using data from the Monthly Employment Survey for the period 1982 to 1999. Simply put, the procedure followed involves estimating the impact of changes in the real minimum wage on real monthly earnings, thus permitting the occurrence of differentiated effects throughout the wage distribution, as well as lagged effects. Furthermore, they are controlled for individual characteristics (race and years of schooling), as well as for the survey month (May and September) and interactions between the metropolitan area and some years for which there were significant interventions in the economy (in order to see whether different regions respond differently to political intervention).

7.72. The results obtained by Fajnzylber (2001) suggest that the impact of changes in the minimum wage is not restricted to those workers who earn up to one minimum wage in the formal sector. Instead, the author finds that the minimum wage has a significant impact on the entire wage distribution in the formal sector, as well as the earnings of workers in the informal sector, thus corroborating the so-called "beacon effect". Moreover, the author reports results that indicate that the income of adult male workers and of heads of households are the ones most affected by the changes in the minimum wage, *vis a vis* the income of women, young people, and workers who are not heads of households.

7.73. Possible extensions of that study and the agenda for research on the impact of the minimum wage on employment would cover an analysis of the behavior of hours worked and the hourly wage in the presence of increases in the minimum wage. Those points have not yet been explored in Brazilian literature

and would certainly add relevant information to the debate on the behavior of the labor market after a change in the value of the minimum wage.

7.74. In the next section, we will discuss the principal results available in the literature relating to the impact of the minimum wage on poverty, inasmuch as the primary objective of a minimum wage policy is directly associated with protection of the income of the lowest-income workers, the ones closest to the poverty line.

## VI. IMPACT OF THE MINIMUM WAGE ON POVERTY

7.75. In principle, considering the main objective of a minimum wage policy, we would say that real increases in that wage tend to reduce poverty. However, this cause-and-effect relationship is not always that clear. Considering a change from the traditional Harris and Todaro model, for example, one might argue that when the economy includes a large informal sector, an increase in the minimum wage in the formal sector can lead to an increase in informal employment and a reduction in formal employment. Given the surplus of labor in the informal sector, earnings by the lowest-income workers who find work in that sector will tend to fall, and this can manifest itself, in reality, as an increase in poverty [Lustig and McLeod (1996)].

7.76. Alternatively, one might argue that the effects of the minimum wage on poverty will depend on the elasticities in the formal and informal sectors. If, for example, demand for formal labor is inelastic, wages in both sectors will rise if the wages in the formal sector rise. Consequently, if the elasticity of the other wages with respect to the minimum wage is positive and close to unity, any increase in the minimum wage will be transmitted to the other wages in the economy, and the ultimate effect will be to reduce poverty levels, because of the inelasticity of the employment in the formal sector [Hamermesh (1993)].

7.77. One can also argue that in small open economies, increases in the wages of the formal sector always lead to an increase the wages in the formal and informal sectors, while at the same time reducing the rate of return on capital. This is because an increase in the minimum wage cannot be passed along to prices, hence profits decline and we see a migration of capital, instead of labor, in the formal sector. Capital would therefore move to the informal sector, boosting both the earnings and employment of the informal workers [Carruth and Oswald (1981) and Leamer (1985)].

7.78. Furthermore, there are some factors that would condition an increase in the income of poor families following an increase in the minimum wage. First, the increase in the income of poor families resulting from the increase in the minimum wage must exceed the decline in family income that occurs as a result of the loss of earnings of the lower-income workers in the family who become unemployed after the minimum wage is raised. Second, it is important to know the direction and magnitude of the effect of the minimum wage on the supply of labor by the other members of the family. And, lastly, since changes in the minimum wage affect family income—for example, through the loss of earnings by some members who become unemployed—it is also important to consider what types of monetary compensation are received through mechanisms such as government transfers, as in the case of the unemployment insurance program.

7.79. In general, there is a certain bias in the literature in crediting increases in the minimum wage with reducing poverty in developing countries. [Lustig and McLeod (1996)]. Some studies have attempted to research this matter specifically for the case of Brazil. Corseuil *et al.* (2000), Neri *et al.* (2000), and Barros

*et al.* (2000) are recent examples. In the study by Corseuil *et al.* (2000), the poverty gap for six metropolitan regions of the country is broken down so as to isolate the impact of the minimum wage on poverty throughout the period 1995 to 1998. More specifically, this breakdown attempts to capture the effects of the minimum wage on the incomes of workers who would probably be affected by the minimum wage in the formal and informal sectors, i.e., those who had an income situated between the old minimum wage and the new one. The data used are from the Monthly Employment Survey.

7.80. It is important to note that the methodology captures only the impact on the earnings of those workers who did not lose their jobs after the increase in the minimum wage. This way, the results should be viewed as an upper limit of the impact of the minimum wage on poverty, since they do not consider the possible negative effect on employment of an increase in the minimum wage. The results by Corseuil *et al.* (2000) show that the impact of increases in the minimum wage on poverty during the period considered was positive: the elasticity of the poverty gap with respect to the minimum wage found by the authors was 0.4, which means that a 10 percent increase in the minimum wage would reduce poverty by 4 percent. The authors also concluded that about two-thirds of the reduction in poverty associated with the minimum wage is attributable to increases in the income of workers in the informal sector.

7.81. The study by Neri *et al.* (2000) used a different methodology. Instead of breaking down the effects of the minimum wage on poverty, the authors simulated the effect of real adjustments in the minimum wage on the incomes of individuals from different segments of the labor market for which the minimum wage policy is effective. The analysis was based on data from the 1996 National Household Sample Survey. The simulations, however, do not take into account the effects of the minimum wage on employment, since the authors assume that the wage-employment elasticity is zero (p. 6)<sup>4</sup>. Simulating a real 43 percent adjustment in the minimum wage, the authors found that there would be about a 6 percent reduction in the proportion of poor people.

7.82. The methodology adopted by Barros *et al.* (2000) consists of breaking down the observed changes in the level of poverty into a set of changes associated with different effects of the minimum wage and another set not associated with the minimum wage. This procedure enabled them to determine, in the change in poverty associated with the minimum wage, which portion is due to the earnings tied to the minimum wage and which portion is due to changes in the level of employment linked to the minimum wage. The period analyzed fell between 1995 and 1998 and the authors used longitudinal data from the Monthly Employment Survey in their analysis. The strategy used to identify the impact of the increases in the minimum wage consisted of comparing the level of poverty recorded at a given moment prior to the raising of the minimum wage with a simulated level of poverty corresponding to some point after that increase.

7.83. In general, the study concluded that there is a direct relationship between increases in the minimum wage and poverty reduction. However, the results indicate that the bigger the adjustments in the value of the minimum wage, the smaller its effects on poverty will tend to be. That relationship persists

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<sup>4</sup> Using the 43 percent increase in the minimum wage approved in May 1995, Neri (1997) demonstrated that the probabilities that groups of formal employees affected by the minimum wage would become unemployed or informal workers are greater than for unaffected groups. Amadeo and Neri (1998), however, present evidence that the month of May 1995 represents an inflection in the poverty series in Brazil.

even when one considers the change in the poverty that is associated with changes both in earnings and in jobs linked to the minimum. The authors further found that the reduction in poverty related to the increment in earnings associated with the minimum is more significant for informal earnings.

7.84. In the study by the Institute for Applied Economic Research (IPEA) (2000), however, it was argued that there are three ways to measure the impact of the minimum wage on poverty. In the first, one measures the direct effect of the increase in the level of the minimum wage on poverty, without considering the impact that such increase will have on the level of employment and the cost of living. In the second, one takes into account the fact that raising the minimum wage should have negative effects on the demand for labor, thus reducing the level of employment. And, lastly, a third way would be to consider a computable general equilibrium model in which it is possible to examine indirect effects on poverty, such as changes in the degree of informality of the labor market and increases in social security benefits.

7.85. The IPEA study presents some simulations with respect to the impact of the minimum wage on poverty, based on indexation scenarios and the ability of the minimum wage to impact the other wages in the formal and informal sectors. The simulations were developed according to the following expressions:

$$\begin{aligned} W_n &= (1 + \alpha)W_o && \text{se } W_o \leq M \\ \text{and} &&& \\ W_n &= \{1 + \alpha \exp[-\lambda (W_o - M)/M]\}W_o && \text{se } W_o > M \end{aligned} \quad (5)$$

where  $M$  is the old level of the minimum wage,  $W_n$  represents the new wages and  $W_o$  the old wage. The parameter  $\alpha$  indicates the percentage by which the minimum wage is raised and the parameter  $\lambda$  its ability to impact the other wages. The larger this parameter, the more rapidly will the impact of the minimum wage increase on higher wages lessen. Therefore, when  $\lambda = 2$ , for example, a 15 percent increase in the minimum wage would lead to a 2.0 percent increase for someone who earns 2 minimum wages. When  $\lambda = 1$ , a 15 percent increase in the minimum wage would lead to a 5.5 percent increase for someone who earns 2 minimum wages.

7.86. Looking at a case in which only those workers whose wages are below the new minimum wage benefit from an increase in the minimum wage, the effect of an increase in the latter on poverty would be rather limited. Under this scenario, the IPEA estimates that a 15 percent increase in the minimum wage would reduce poverty by less than one percentage point, even considering that the minimum wage impacts employees without employment record cards and the self-employed. Considering a scenario under which changes in the minimum wage tend to affect not only wages below that level but also the higher wages, a 15 percent increase in the minimum wage could reduce poverty by about 3.3 percentage points.

7.87. However, these simulations still do not take into account the possible negative impact of the minimum wage on the level of employment. Taking this aspect into consideration, the effect of increases in the minimum wage on poverty would depend, additionally, on the price-elasticity of the demand for unskilled labor in the formal sector. Based on estimates calculated by Ramos and Reis (1995), the IPEA study simulated several different scenarios for the impact of the minimum wage on poverty, taking into account the effect of the minimum wage on employment. In general, the impact on poverty does not seem to be very significant when the employment-effect of the minimum wage is considered. Leaving aside the so-called "beacon effect," for example, a hypothetical increase of 25 percent in the minimum wage would result in a reduction of 1.4 percentage points in the proportion of poor people, adopting the hypothesis that the demand for unskilled labor is inelastic. For the case in which the demand for labor is unitary, the effect



of a 25 percent increase in the minimum wage would result in a reduction of less than 1 percentage point in the proportion of poor people.

7.88. Lastly, the IPEA study estimates the effect of increases in the minimum wage on the poverty level in Brazil, taking into account its various effects on the economy, in addition to wage changes, based on a general equilibrium model developed by Cury, Barros, and Corseuil (1999). The model makes it possible to estimate what the level of poverty would be if the minimum wage were the only parameter to be changed in the economy. The exercise consists of permitting wage changes for workers whose wages are tied to the minimum. For purposes of illustration only, we will cite the results of one of the simulations. Assuming a 20 percent increase in the minimum wage and recognizing that all the wages in the economy are affected by this increase, an increase of 0.1 percentage point in the proportion of poor people was registered. Several alternatives were considered, and in all of them, the impact of increases in the minimum wage on poverty was quite insignificant. Therefore, the study concluded that minimum wage policy appears to be irrelevant in combating poverty in Brazil

7.89. Clearly, the debate about the effects of the minimum wage on poverty in Brazil is far from reaching a consensus. Some studies found results that indicated that increases in the minimum wage reduce the percentage of poor people, but the strongest criticism of those results is that they do not take into consideration the possible negative effects of the minimum wage on employment. When those effects are taken into account, the effectiveness of minimum wage policy in relieving poverty is substantially reduced. The international evidence seems to be similarly ambiguous. Studies that use the family, rather than the individual, as a unit of analysis tend to obtain results that indicate that the minimum wage has a fairly modest impact on the poverty level. Neumark (1999, 2000), for example, suggests that increases in the minimum wage merely cause a rearrangement of the individuals who find themselves close to the poverty line in the United States. But Lustig and McLeod (1996) found a reduction in poverty following increases in the minimum wage for a cross-section of developing countries. For this reason, unequivocal results in this respect have yet to be generated in the literature.

7.90. In the next section, we will review the principal results of the impact of increases in the minimum wage on the government accounts in Brazil. Our examination of this issue is relevant, since it can indicate whether the mechanisms for combating poverty, such as minimum wage policy, compromise the country's fiscal situation.

## **VII THE FISCAL IMPACT OF MINIMUM WAGE POLICY**

7.91. In this section, we examine the impact of changes in the minimum wage on two important components of the fiscal deficit in Brazil: (i) the payroll at all three levels of government (federal, state, and local), and (ii) the social security system budget. Foguel, Ramos, and Carneiro (2001) are credited with developing the evidence in this respect, which is based on simulations of the impact that the minimum wage would have on the government accounts when that wage assumes certain arbitrary values.

### **Impact on Payroll**

7.92. Increases in the minimum wage can have a direct impact on the payroll at the three levels of government, since the salaries of those civil servants who earn the equivalent of a minimum wage must be automatically adjusted when the minimum wage rises.<sup>5</sup> Identifying which of the three levels of government suffers the heaviest impact due to changes in the minimum wage can make an important contribution to the future of minimum wage policy in this country.

7.93. The analysis by Foguel, Ramos, and Carneiro (2001) was done using data from the Annual Social Information Report (RAIS) compiled by the Ministry of Labor and Employment for 1997.<sup>6</sup> This database contains information on the number of workers in the formal sector and their wages and salaries as of December of that year. The sample was constructed using only civil servants who were assigned to units of the "direct" government administration. More specifically, only civil servants who were employed in the executive, legislative, and judiciary branches of the federal, state, and local government were considered, including those who were working in semi-autonomous government agencies, the armed forces, and the police. It is important to observe that workers whose employment contracts are governed by both the Single Legal Regime (RJU) and the Consolidated Labor Laws (CLT) were represented in the sample, and that the sample did not include employees of state-owned companies.

7.94. The methodology was based on simulations in which certain arbitrary values were assigned to the minimum wage and used to calculate the change in the payroll at each level. The base value of the minimum wage used for the calculations was R\$136, the level in effect in April 2000. The figures used in the simulations were R\$151 (the value established in May 2000), R\$163 (equivalent to a 20 percent increase), R\$177 (a 30 percent increase), and R\$204 (a 50 percent increase).

7.95. The results of the simulations by Foguel, Ramos, and Carneiro (2001) appear in Table 7.3. The figures are on an annual basis, including the year-end bonus (the "13<sup>th</sup> month"). The results indicate that changes in the minimum wage do not seem to have an important impact on the federal government payroll, since only 0.2 percent of federal government workers have earnings equivalent to one minimum wage or less. The impact on the payroll of state governments is much more pronounced, since about 1.9 percent of state government employees receive the equivalent of one minimum wage. Local governments experience the biggest impact on payroll, since about 13 percent of civil servants at that level have earnings equivalent to the value of up to one minimum wage. In relative terms, the elasticities of the payroll at the three levels of government with respect to changes in the minimum wage are placed at 0.003, 0.045, and 0.134, respectively. This means that a 10 percent increase in the minimum wage would increase the payrolls at the three levels of government by 0.03 percent, 0.45 percent, and 1.34 percent, respectively.

### **Impact on the Social Security System Budget**

7.96. With the adoption of the 1988 Constitution, the minimum wage became the floor for social security benefits. This means that every adjustment in the minimum wage is passed along to the pensions and

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<sup>5</sup> According to the 1988 Constitution, no public wage or benefit can be less than the minimum wage.

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other benefits paid by the social security system. Foguel, Ramos, and Carneiro (2000) present estimates of the effect of the minimum wage on the social security budget, obtained through an exercise similar to the one they performed with the government payroll—by assuming different values for the minimum wage, ranging from R\$151 to R\$177.

7.97. The authors investigated the impact of changes in the wage on both the revenues and expenses of the social security system. The data used were obtained from the Brazilian Institute of Geography and Statistics (IBGE) National Household Sample Survey, and from the Statistical Bulletin and Statistical Yearbook published by the social security system, for 1996, 1997, and 1998. The impact on the social security budget was calculated by subtracting the aggregate increase in revenues from the aggregate increase in expenses, and the results appear in Table 7.4. The figures indicate that the increase in the expenses that is derived from the increases in the minimum wage is approximately 13 times greater than the increase in revenues. In general, each R\$1.00 increase in the minimum wage generates an additional deficit of about R\$160 million in the social security budget. This finding demonstrates how vulnerable the government's fiscal situation is to minimum wage policy.

## VIII TOOLS TO AID IN REFORMING MINIMUM WAGE POLICY

7.98. In this section, we discuss policy options that may contribute constructively to the debate on the future of minimum wage policy in Brazil. The intention here is not to offer a preferred alternative, but rather to identify the features of each policy option, along with its advantages, disadvantages, and prospects for the Brazilian situation. We discuss in general terms the issue of regionalization *vis a vis* the maintenance of a national minimum wage, the sectoral approach to the minimum wage, differentiated coverage, criteria for adjustment, and alternatives for managing minimum wage policy. All the options discussed here are summarized in Table 7.6.

### National vs. Regional Minimum Wages

7.99. In general, there are four possible types of minimum wage: national, regional, occupational, or by industry. Those systems are not necessarily mutually exclusive, and in several countries, a national or regional minimum wage can coexist with minimums that are occupation-based or differentiated by industry. The first two have already been used in Brazil. Initially, from its creation in 1940 until 1984, the minimum wage was differentiated by region. From 1984 to 2000, the minimum wage was standardized at a single nationwide value. More recently, the country has had a combination of a national minimum wage defined as the "floor" and regional minimum wages set by the local governments.

7.100. One of the principal advantages of the national minimum wage is ease of implementation and monitoring. Additionally, if we consider that wage differentials are a potential source of migration, the establishment of a single level of a minimum wage for the entire country would tend not to encourage migration by rural workers to densely-populated urban areas.

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<sup>7</sup> This section closely follows the discussion of minimum wage policy options presented in Foguel, Ramos, and Carneiro (2001).

7.101. The main disadvantage of this system, however, is that it presupposes both the existence of a homogenous labor market and the presence of few regional economic disparities. When those conditions do not exist, the fixing of a single wage floor for an entire country can produce significant negative effects. If labor productivity is significantly differentiated among the various regions of the country, it is to be expected that regions with lower average labor productivity will tend not to respect the official minimum wage. We might then see a growth in informality in the labor market, or even a rise in open unemployment in the less developed regions. Furthermore, in the case of Brazil, the national minimum wage system tends to impact significantly the government deficit because of its relationship with the pensions and other benefits paid by the social security system.

7.102. With regard to the option for a regional minimum wage, there are two alternative configurations. In the first, there is a differentiated minimum wage for each unit in the federation, as was the case in Brazil until 1984. In the second, a system can be adopted that is a combination of the national and regional systems, with the Federal Government defining a minimum floor to be observed throughout the country, and the local governments establishing minimum wages above that floor, depending on their ability to pay and the nature of their particular labor markets.

7.103. The main advantage of having minimum wages that are differentiated by region is that this system can reduce the negative effects in terms of informality and unemployment in the less developed regions, situations observed in the case of the national system. Furthermore, establishing regional wages may be more appropriate since the minimum wage of each region would necessarily reflect more accurately the differences in terms of cost of living and configuration of the different labor markets. The principal disadvantage, however, is the potential encouragement of migratory flows to more dynamic and more densely populated regions. Since the flow of low-skilled workers increases the labor supply in regions that have a higher average labor productivity, the expected result would be an increase in informality and under-employment.

7.104. Moreover, minimum wages differentiated by region can encourage the migration of the more highly-qualified workers from the less developed regions to areas where labor productivity is higher. Therefore, the average productivity in the less developed regions would tend to decline, reducing per capita income in the less developed regions, thus delaying their development even further.

7.105. For this reason, implementation of a combination of national and/or regional minimum wage systems demands a careful review of the economic conditions and the degree of heterogeneity among the various regions of the country. In the implementation of that combination of policies, the functions of labor supply and demand, distributions of productivity, degree of worker aversion to risk, and the ability of state and local government to pay, as well as political factors, must be evaluated.

### **An Occupational or Sectoral Minimum Wage**

7.106. There is yet another alternative, one that does not necessarily substitute for the options of a regional minimum wage and/or nationally-unified minimum wage. It is the system that differentiates the official minimum remuneration by industry sector or certain occupation. In most of the countries where this system has been applied (Germany, Austria, Sweden, and Denmark), the value of the minimum wage is determined by collective agreements at the industry level. The occupational minimum wage is defined in a similar way and is based on fairly specific occupations. It has been applied in countries like Costa Rica, Colombia, Spain, Luxembourg, and some African and East European countries.

7.107. The chief advantage of the industrial system is related to the heterogeneity observed among industrial sectors. To the extent that different sectors present different productivity levels, it seems reasonable to differentiate the wage floor for each of them. In the case of occupation-based minimum wages, the primary objective is to protect groups of less well-organized workers, who do not have enough bargaining power to negotiate their own minimum wage rates.

7.108. The disadvantage of the industrial or occupational-based systems has to do with the complexity of implementing them and monitoring compliance, which requires a major coordination effort. In order to function properly, the system also presupposes a decentralized wage bargaining structure, to prevent better-organized groups from setting higher wage floors. In the case of Brazil, the prevailing intermediate bargaining structure, along with the high geographical concentration of industry and the heterogeneity of the labor market, tend to make this alternative unfeasible.

### **Differentiated Coverage**

7.109. Under the differentiated-coverage system, there is a choice of two alternative strategies. The first would be to allow certain types of industrial establishments, employing small numbers of workers, to be exempt from paying the official minimum wage. Under the second, wages lower than the minimum can be adopted for young people and trainees. The main argument to justify these procedures has to do with small business' limited ability to pay. It is harder for them to get credit, and they have fewer means of surviving periods of lower economic activity. In the case of young people and trainees, the argument is that their productivity is lower than that of adult workers.

7.110. In weighing the advantages and disadvantages, one might argue that lower wages for young workers tend to encourage them to remain in school longer, thus improving their future prospects and the allocative efficiency of the labor market. On the other hand, in a country with a large informal sector, the lower the minimum wage is for young people, the greater will be the incentive for small businesses to hire young workers. Thus the incentive to staying in school will be stronger in the more developed regions, but the opportunity cost of doing so may perhaps be too high in the less developed regions, which have a large informal sector and higher poverty rates. We would therefore have to know precisely the extent of the demand for young workers and its function in the labor supply before thinking about implementing the alternative of minimum wages differentiated by age bracket.

### **Criteria for Adjustment and Management of the Minimum Wage Policy**

7.111. With regard to the determination of the criteria for adjusting the minimum wage, there are independent or combined criteria involving: (a) basic needs of workers; (b) their impact on employment and wages; and (c) macroeconomic factors. A strategy that combines all three criteria would seem to be better than one that takes into account only one or the other.

7.112. However, combining the three criteria would involve a certain amount of coordination among the interests of workers, companies, and the Government. Certainly such a policy would be more easily implemented in countries that have centralized collective bargaining structures. Its viability presupposes the existence of tripartite negotiating committees that would meet periodically to study and decide on changes in the minimum wage.

7.113. In Brazil, where the bargaining structure is intermediate, there is no single entity that can be considered capable of representing the interests of the working class as occurs in countries where the bargaining structure is centralized. Furthermore, fiscal difficulties would always tend to force the Government to depart from the initial objectives of the minimum wage policy. Therefore, this is not seen as a viable alternative for the Brazilian situation.

## IX CONCLUSIONS

7.114. This paper has presented a comprehensive review of the literature on the subject of the impact of the minimum wage on the Brazilian economy. It is particularly important under the present circumstances to be aware of the principal effects of the minimum wage on the economy, since academicians and policymakers have expressed a growing interest in debating alternative approaches for the future of minimum wage policy in Brazil. Therefore, the aspects examined in this article involve the impact of the minimum wage on the level of employment—both formal and informal—on the other wages, on the percentage of the population that is poor, and on the government accounts. Also briefly reviewed were the first minimum wage policies implemented in this country, and the profile of the workers whose earnings are close to the minimum. A summary table (Table 7.6) presenting the main results reviewed in the text appears in the Appendix.

7.115. With regard to the impact of the minimum wage on levels of formal and informal employment, all the studies reviewed here point to negative effects on formal employment. On the other hand, some results suggest that increases in the minimum wage generate increments in informal employment, a situation compatible with the existence of dual labor markets in which the impact of the minimum wage on the unemployment rate is attenuated by the absorption of workers in the informal areas of the economy. The article by Fajnzylber (2001), however, found a negative impact for both the formal and informal sectors, thereby confirming the classic prescriptions of textbook models of competition, in which the minimum wage tends to lead to involuntary unemployment.

7.116. With regard to the impact on the other wages in the economy, the hypothesis usually tested by the studies we reviewed was on validity, rather than on the so-called beacon effect. The debate on this point was initiated in this country in the 1970s, with Baltar and Souza (1979) presenting empirical evidence that suggested that changes in the minimum wage impact all the other wages in an economy in the same proportion. Those results were the opposite of those found by Macedo and Garcia (1978), who found elasticities lower than unity for a different period of time than was analyzed by Souza and Baltar (1979). More recent evidence based on time-series analyses prove that the minimum wage has some effect on the other wages, but there is no consensus in the literature on the existence of a unitary elasticity of the other wages in relation to the minimum wage.

7.117. Some methodological advances were introduced into the debate by studies that examined the effects of the minimum wage, not on an average of other wages in the economy, but on the distribution of wages. This made it possible to examine which wage bracket is most affected by changes in the minimum wage. Here too, the evidence does not help us reach a consensus, since there are studies that conclude that the minimum wage tends to affect only those wages that are closest to it [see Corseuil and Morgado (2001), Cameiro and Corseuil (2001), and Lemos (2000)], and findings that suggest that the entire distribution of wages in the economy is affected by changes in the minimum wage [see Fajnzylber (2001)].

7.118. One point on which there existed a certain amount of consensus in the literature pertains to the impact of the minimum wage on the percentage of poor people in a country. In general, all the studies reviewed seem to suggest that increases in the minimum wage have a fairly limited impact on poverty levels. That finding comes as an unpleasant surprise, to some extent. Because of the specific objectives of the minimum wage policy, one would expect to find a direct relationship between increases in the minimum wage and a reduction in the number of poor people. Indeed, such a correlation does exist for Brazil, but what the studies reviewed here show is that the increases in the minimum wage in real terms would have to be fairly significant before we could observe significant reductions in poverty levels.

7.119. The frustration with the success of wage policy in negatively affecting poverty intensifies when we consider its effects on the government accounts. The results presented in this article show that, although a different impact was observed for each level of government (federal, state and local), the biggest and most significant impact is on the social security accounts. In general, each R\$1.00 increase in the minimum wage adds about R\$160 million to the deficit in the social security budget. This situation demonstrates the vulnerability of the Government's fiscal situation in terms of minimum wage policy and makes clear the limitation in the Government's ability to use minimum wage policy as a meaningful tool in a more aggressive poverty-reduction strategy.

7.120. Lastly, we presented a critical discussion in this article concerning several possible alternatives for the future of minimum wage policy in this country. We looked at options for regionalization versus unification of the minimum wage, sectoral and occupation-based minimum wages, differentiated coverage, and alternatives for managing minimum wage policy. Instead of pointing to one political option as being the best among all those presented, what we showed was that isolated positions tend to have serious limitations.

7.121. In general, what has become clear is that there are certain costs associated with a poverty-reduction strategy that relies heavily on a minimum wage policy. Those costs may manifest themselves most directly in the short run via the impact of an increase in minimum wage on the government accounts and a rise in informality and/or unemployment. Furthermore, we have observed from the analysis of the literature on the effects of the minimum wage in Brazil that there are winners and losers, which leads to ambiguous results as to the redistributive effects of minimum wage policy. Therefore, more specific analyses must be done in order to determine whether the expenditure associated with a minimum wage policy can effectively help, over the long term, to lift families out of poverty.



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**Table 7.1 Profile of Workers who Earn Minimum Wage in Brazil  
Urban Sector- 1998 (%)**

	EAP	Formal Sector	Workers who Earn MW
<b>Sex</b>			
Male	66.5	61.0	58.3
Female	33.5	39.0	41.7
<b>Age</b>			
10-19	9.6	6.7	18.1
20-29	28.8	32.3	34.9
30-39	27.7	30.3	21.4
40-49	20.5	20.9	15.1
50-64	11.7	9.1	9.5
65+	1.8	0.7	1.0
<b>Education</b>			
Illiterate	7.4	4.5	12.8
Elementary	25.9	19.4	31.5
Middle School	27.4	25.6	32.2
High School	27.3	33.8	22.3
University	12.0	16.7	1.2
<b>Position in the Family</b>			
Head	53.9	51.9	40.6
Non-Head	46.1	48.1	59.4
<b>Race</b>			
White	58.8	62.4	41.1
Non-White	41.2	37.6	58.9
<b>No. of Workers (Millions)</b>	<b>40.2</b>	<b>22.5</b>	<b>2.4</b>

Source: Foguel, Ramos, and Carneiro (2001), p. 7.

**Table 7.2 Profile of Workers who Earn Minimum Wage  
Characteristics of Jobs Held -- 1998 -- (%)**

	EAP	Formal Sector	Workers who Earn MW
<b>Region</b>			
South	16.2	17.4	11.7
São Paulo	27.6	30.3	8.2
Southeast	22.3	23.7	27.1
Northeast	20.8	17.1	38.1
Other	13.1	11.6	14.8
<b>Area</b>			
Metropolitan	37.7	41.9	25.2
Non-Metropolitan	62.3	58.1	74.8
<b>Business Sector</b>			
Manufacturing	15.6	20.2	19.1
Construction	9.5	4.4	6.7
Commerce	17.0	13.8	17.6
Services	27.6	22.5	24.2
Other	30.3	39.1	32.4
No. of Workers (Million)	40.2	22.5	2.4

Source: Foguel, Ramos, and Carneiro (2001), p. 8.

**Table 7.3 Impact of the Minimum Wage on the Payroll, in R\$ Million  
Federal, State, and Local Governments – Annual Figures**

<b>Minimum Wage</b>	<b>Federal</b>	<b>State</b>	<b>Local</b>	<b>Total</b>
151	3.1	129.6	197.7	330.4
163	4.9	211.0	359.2	575.0
176	9.1	324.2	553.6	886.9
204	23.6	562.0	1017.2	1602.7
<b>Relative Impact (%)</b>				
151	0.02	0.52	1.41	0.64
163	0.04	0.84	2.55	1.11
176	0.07	1.29	3.94	1.71
204	0.19	2.24	7.23	3.09

Source: Foguel, Ramos, and Carneiro (2001), p. 18.

**Table 7.4 Impact of the Minimum Wage on the Social Security Deficit  
Annual Figures in R\$ Million**

<b>Minimum Wage</b>	<b>Impact on Revenue</b>	<b>Impact on Expenditure</b>	<b>Net Impact</b>
151	171	2.340	2.169
160	290	3.820	3.530
165	360	4.660	4.300
170	432	5.520	5.088
177	537	6.740	6.203

Source: Foguel, Ramos, and Carneiro (2001). p. 18.

**Table 7.5 Matrix of Options for Minimum Wage Policy in Brazil**

	<b>GENERAL CHARACTERISTIC</b>	<b>ADVANTAGES</b>	<b>DISADVANTAGES</b>	<b>PROSPECT FOR THE BRAZILIAN SITUATION</b>
<b>National Minimum Wage</b>	Single minimum wage for the whole country.	Simple to apply and monitor; reduction in rural-urban migration.	Assumes economic and labor market homogeneity; significant fiscal impact; unemployment and informality in less developed regions.	Sub-optimal option in light of fiscal vulnerability, major economic disparities, and heterogeneous labor markets. Can be combined with a policy of minimum wages differentiated by region or level of government.
<b>Regional Minimum Wage</b>	Different values for different regions.	Reflects regional differences in terms of cost of living and productivity.	Incentive to migration; unemployment/informality; decline in productivity in less-developed areas.	Since April 2000, has been implemented in this country, using a mix of a national floor and regional minimum wages.
<b>Sector or Occupation-based Minimum Wage</b>	Different values for certain industry sectors or specific occupations.	Reflects heterogeneity of economic sectors and productivity; protects the less well-organized worker groups.	Complicated application and monitoring. Assumes decentralized bargaining so as to avoid favoring better-organized groups.	Intermediate bargaining existing in this country makes this alternative impracticable. Highly concentrated industrial sector and heterogeneous labor market would make it difficult to apply here.
<b>Differentiated Coverage</b>	Some companies with a certain number of employees may be exempt from paying minimum wage; minimum wage differentiated by age bracket.	Takes into account company ability to pay. Can be an incentive for young people to stay in school. Increases the allocative efficiency in the economy.	Difficulty in defining the exempt groups or those entitled to differentiated minimum wage.	Existence of a significant informal sector in the economy reduces effective scope of this alternative.
<b>Adjustment Criteria</b>	Independent or combined criteria, involving: (a) basic needs; (b) impact on employment and wages; (c) macroeconomic factors.	(a) Meets workers' nutritional needs; (b) considers possible impact on the labor market; (c) takes into account impact on inflation, the government deficit, and economic growth.	Political factors may divert the minimum wage policy from its initial objectives. Links social security benefits to the minimum wage, and its impact on the public sector deficit.	Efficient allocative criteria for adjusting the minimum wage will be possible only if the link with social security pensions and other benefits is broken.
<b>Centralized Management</b>	Definition of the scope, coverage, and rules for adjusting the minimum wage are established by the federal Government.	Can facilitate macroeconomic coordination and the monitoring process. Can be used for regional or sectoral/occupational minimum wages.	Fiscal problems may dictate the rules of minimum wage policy, resulting in inefficient allocation of resources.	Difficulty in management in light of the heterogeneity of the labor market and sharp regional disparities.
<b>Tripartite Commissions</b>	Government, employers, and employees decide jointly on the rules of minimum wage policy.	Democratic system. In economies with centralized bargaining, facilitates macroeconomic coordination. Government can represent the interests of the outsiders (the unemployed).	In economies that have an intermediate bargaining structure, may favor the better-organized groups, which has deleterious consequences for the economy and worsens income distribution.	Not feasible because of the presence of an intermediary bargaining structure.

**Table 7.6 Summary of the Results of Studies on the Impact of the Minimum Wage in Brazil**

Source	Methodology	Type of Data	Sample Period	Effects On		
				Employment	Wages	Poverty
Macedo & Garcia (1978)	Time-series analysis	Aggregate time series	1964-74		Limited Impact $\Sigma < 1$	
Souza & Baltar (1979)	Time-series analysis	Aggregate time series	1961-76		Validates the beacon effect $\Sigma = 1$	
Velloso (1990)	Time-series analysis	Aggregate time series	1976-86		Limited Impact Formal Sector: $0.36 < \Sigma < 0.63$ Informal Sector: $0.43 < \Sigma < 0.60$	
Carneiro & Faria (1997) Lemos (1997) Soares (1998)	Causality analysis	Aggregate time series	1980-97		Granger Minimum wage Causes other wages	
Foguel, Ramos & Carneiro (2000)	Time-series analysis Co-integration and exogeneity	Aggregate time series	1980-99		Validates the beacon effect in long term $\Sigma = 1$ Limited impact in the short term $\Sigma < 1$	
Foguel (1998)	Differences-in-differences Natural experiment	Aggregate time series	1980-87	Negative informality		
Lemos (2000)	Time-series analysis Impact on wage distribution	Aggregate time series	1982-98	Negative $-0.020 < \Sigma < 0.006$	Positive impact on wages close to the minimum	
Carneiro (2000)	Time-series analysis Co-integration and exogeneity	Aggregate time series	1982-99	Negative formal sector $-0.020 < \Sigma < 0.001$ Positive informal sector $0.0004 < \Sigma < 0.003$		
Carneiro & Corseuil (2001) Corseuil & Morgado (2001)	Kernel functions Time-series analysis Differences-in-differences	Aggregate time series and longitudinal data	1982-99	Negative formal sector $\Sigma = -0.3$ Positive informal sector $\Sigma = 0.22$	Positive impact on wages close to the minimum	
Fajnzylber (2001)	Impact on Wage Distribution (see Neumark, 2000)	Time series based on longitudinal data (small businesses)	1982-99	Negative formal sector $\Sigma = -0.10$ Negative informal sector $\Sigma = -0.25$	Positive impact on all wages	
Corseuil et al. (2000)	Breakdown of effects of increases in the minimum wage	Cross-section of families (PNAD)				Limited impact $\Sigma = 0.4$
Neri et al. (2000)	Simulation of impact of increases in the minimum wage	Cross-section of families (PNAD)	1996			Insignificant impact
Barros et al. (2000)	Breakdown of effects of increases in the minimum wage	Longitudinal data on small business	1995-98			Decreasing impact
IPEA (2000)	Various methodologies Simulations					Insignificant impact

## 8. THE POVERTY IMPLICATIONS OF MINIMUM WAGES IN DEVELOPING COUNTRIES

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### I INTRODUCTION

*Minimum wages do, of course, distort relative prices, and hence compromise economic efficiency, but so do all other attempts to redistribute income through tax-and-transfer systems. The important question is not whether minimum wages distort, but whether the benefits of any income redistribution they bring about are in some political sense sufficient to outweigh the efficiency costs.*

-Gramlich (1976)

8.1. A primary policy objective of minimum wage laws is to reduce poverty and inequality, but there is little empirical evidence that they meet this goal. Instead, much of the research examines the dis-employment and wage effects of an increase in the minimum wage and uses these results to draw conclusions about the poverty impacts. The imprecise nature of the exercise does not convincingly show that the minimum wage is meeting its intended objective, but the exercise also falls short, particularly in the context of developing countries, since it does not take into consideration coverage of minimum wage laws or resource pooling.

8.2. The poor often work in uncovered jobs so an understanding of the coverage of minimum wage laws is important to identify their impact on poverty. In most developing countries, more than 40 percent of the jobs are in the informal sector, i.e. not bound by legislation, including informal salaried employment, self-employment, unpaid work, and agricultural labor. Under the traditional dualism model, labor laws govern and are enforced in the formal sector, but not in the informal sector, so minimum wage legislation would not cover half of the labor force. More recent theories suggest that minimum wages may affect informal sector workers due to linkages between the formal and informal sectors in labor and product markets. This suggests that although only half of the labor force is covered, the whole labor force feels the employment and wage effects of minimum wage laws.

8.3. The concept of risk pooling is also important to understand the impact of minimum wages on the individual's welfare since a change in the worker's employment or wage status caused by an increase in the minimum wage is not likely to lead to an equivalent effect on his/her welfare. In industrialized countries, resources are pooled at two general levels: the household and society. Household risk sharing is somewhat complete, such that all members share incomes and costs. An income loss as a result of the unemployment effects of a higher minimum wage will not be born by the individual alone. Instead, he/she is likely to live in a household such that the earnings of others in the household are re-allocated to the newly jobless household member, thus greatly



diminishing the potential individual welfare effects of the job loss.<sup>1</sup> Risk pooling may exist at the societal level, as well, where everyone contributes a portion of their income to a general pool that serves as insurance for those who may experience unemployment. This scheme leads to partial insurance such that the loss of income of the newly unemployed individual is partially offset by a transfer of income from those who maintained their jobs. The former method of pooling is used in all countries, but the latter is largely absent in developing countries due to underdeveloped social protection programs. Thus, to understand the impacts of minimum wage laws on poverty in developing countries, it is important to take into consideration how changes in the minimum wage (and associated income and employment changes) affect *household*, rather than *individual*, income.<sup>2</sup>

8.4. This paper reviews the literature on the poverty effects of minimum wages to determine whether or not the minimum wage is an effective and efficient poverty alleviation tool. Lessons are drawn from developed and industrialized countries to build a picture of the impacts of minimum wages on employment, the wage distribution, household income level and inequality,<sup>3</sup> and fiscal balances. To capture the developing country model, particular focus is given to the structure of the labor market in terms of its implications for coverage of minimum wage laws and risk pooling at the household level.

## II CONCEPTUAL FRAMEWORK

8.5. Several theories explain the impact of minimum wages on employment and earnings, but they do not consider poverty effects. This section discusses the standard theories of minimum wages, applies the theories to developing countries, and adds risk pooling and poverty discussions to the models.

### Competitive Model

8.6. The competitive model is based on the theory of the supply and demand for labor. In its most simple form, the demand for labor is negatively correlated with the price (wage) and the

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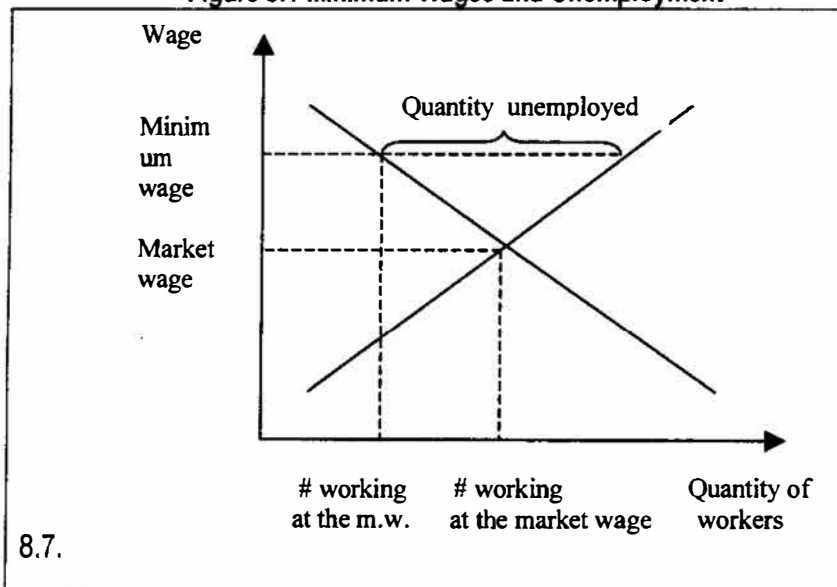
<sup>1</sup> Various models of household dynamics suggest that income is not shared equally among household members. Unlike the Mincer (1962) and Becker (1976) models where the household head (the person with the most power in the household) is altruistic and ensures an equitable distribution of household resources, these alternative models assume a cooperative or even a non-cooperative bargaining game where the outcome is not necessarily Pareto Optimal. In other words, the person who has the most power in the household and makes resource allocation decisions will not necessarily distribute household income in a way such that everyone is equally well-off. See Haddad et. al. (1997) for a review of household bargaining models.

<sup>2</sup> The minimum wage may also contribute to non-economic well-being. For example, if an increase in the minimum wage leads to higher earnings of women, they may have more say in how household resources are spent and/or on the formation and dissolution of the household. The intra-household dynamics of minimum wages are not covered in this paper.

<sup>3</sup> Ideally, a causal relationship between minimum wages and household's poverty level would be established, but consumption data are needed for the exercise. Due to the scarcity of consumption data, there are no studies that empirically establish a connection.

supply is positively correlated. In a purely competitive market, the equilibrium price and quantity is determined by the intersection of these two schedules (Figure 8.1). When a minimum wage is set above the market clearing wage, individuals who are attracted by the higher wages will enter the labor force, but firms will also dismiss workers by substituting labor with capital, replacing current workers with more skilled workers (such that the wage again reflects the marginal product of labor), or going out of business. These two effects lead to an increase in the unemployment rate since the number of people willing to work exceeds the number of available jobs. The labor supply curve may shift back due to a discouraged worker effect, but the minimum wage remains above the market wage so the labor market does not clear. The increased wage reduces the poverty of those who keep their jobs, but it increases the poverty of those who become jobless. The net employment effect will depend on the elasticity of the demand and supply curves while the net poverty effect depends on the net change in household income as some household members' wages increase and others lose their jobs.

Figure 8.1 Minimum Wages and Unemployment



8.8.

8.9. This model has several shortcomings. **First**, the model assumes that all workers are covered by minimum wage laws. In fact, in most developing countries, less than 60% of workers are covered, so a change in the minimum wage law will not necessarily affect employment of all low wage earners. **Second**, it does not predict the effects of a change in the minimum wage on the wage in the *uncovered* sector, so it is very incomplete in a developing country setting. **Third**, the model assumes that minimum wages are above the equilibrium wage, but this is not necessarily the case. Especially during periods of high inflation, minimum wages often erode to below market clearing wages. For such cases, a corollary to the model is needed that states that if minimum wages are set below the market wage, there is no effect on employment, wages, or poverty. **Fourth**, an increase in the minimum wage may simply align wages with marginal productivity, not leading to any disemployment effects. **Fifth**, workers do not have full information about wages, so legislative alterations in the minimum wage may not be transferred to the worker. Casual interviews, especially with the poor, reveal that they often do not know the minimum wage. Instead, labor contracts are negotiated on a case by case basis. **Finally**, it is not a good predictor

of poverty since households pool resources, so a job loss by one family member may be dampened by the earnings of other working household members. Households may diversify their "labor portfolio" such that some members are in the covered sector, providing a stable income and benefits to the household while others are in the uncovered sector. If a member in the covered sector does lose his/her job due to an increase in the minimum wage, the increased earnings of other household members may compensate, or, at the very least, the poverty effects on the household would be dampened by the continued employment of household members in the uncovered sector.

### Two Sector Model

8.10. Most development literature argues that a primary characteristic that differentiates developing country labor markets from those of developed countries is the simultaneous existence of two labor markets: the formal and informal sectors. The linkages between these range from a dualistic view (Harris-Todaro 1970, Mazumdar 1983, Stiglitz 1984) to an integration interpretation (Maloney 2001). The impact of minimum wages on employment, wages, and poverty differs based on the model adopted.

#### *Dualistic model*

8.11. The dualistic model assumes that segmentation is partly a result of minimum wages. The existence of the formal sector is attributed to institutional constraints that set wages above the market wage. Employers pay that wage either to increase the productivity of workers (Esfahani 1989, Krebs and Maloney 2001), avoid payment of fines from non-compliance, or provide concessions to unions (Maloney and Ribeiro 1999). Those who are not fortunate enough to secure a formal sector job work in the informal sector while waiting for formal sector jobs to open.<sup>4</sup>

8.12. An increase in the minimum wage would create an even larger gap between the formal sector wage and the market wage as employers substitute skilled workers or capital for their existing labor force or even close their firms, thereby leading to a greater dislocation of workers from the formal sector. Those individuals who lose their jobs may enter unemployment to queue for formal sector jobs, enter the informal sector, or leave the labor force if the market wage in the informal sector is below their reservation wage. As the supply of workers in the informal sector increases, the equilibrium informal sector market wage would fall for all workers. Poverty would increase for two reasons: 1) those who are laid off from the formal sector would lose all income as they enter unemployment or would take lower paying informal sector jobs and 2) the wages of all informal sector workers would fall.

8.13. This model falls short in six primary areas. **First**, statistics do not support the assumption that the formal sector is superior to the informal sector, so workers are not necessarily forced into the informal sector. Instead, wages of informal sector workers may exceed those of formal sector

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<sup>4</sup> Alternatively, individuals may choose to become unemployed rather than working in the informal sector, but the very low levels of unemployment in many developing countries suggest that this does not occur.

workers with the same observable characteristics; this is particularly notable for those who are self-employed (Maloney 1998, 1999). Furthermore, even if informal sector wages are below formal sector wages, the jobs are not necessarily inferior since the time flexibility and independence of informal sector work is a valuable non-pecuniary benefit to informal sector work, especially for women with household responsibilities and retired men (Cunningham and Maloney forthcoming, Cunningham 2001). This explains the frequent voluntary movement between the formal and informal sectors observed in many countries.

8.14. **Second**, informal sector employment does not necessarily increase and informal sector wages do not necessarily decrease with a rise in wages. Recent work in Mexico shows that employment in the informal self-employment sector may be pro-cyclical, i.e. as the economy grew, the self-employment sector did as well (Maloney, Fiess, and Fugazza 2001). The increase in the size of the informal sector in Brazil since 1994 has been accompanied by an increase in wages as well (Ministerio de Trabalho 1996).

8.15. **Third**, unemployment rates are rising in Latin America suggesting that the informal sector cannot absorb all excess labor. Studies in Argentina (Arias 1999) and Mexico (Arango and Maloney 2000) show that most unemployment comes from the informal sector, so it is not a reliable means of employing excess labor. This may be due to a lack of demand for informally produced goods when the economy slows down, since the informal sector is heavily comprised of services and construction, both of which may be easily substituted by own labor or deferred to better times. However, even if labor demand does not fall, all displaced labor may not choose to enter the informal sector since there are barriers to entry, especially for men (Geldstein 2001). Therefore, if minimum wages increase, the movement of people to the informal sector is likely to be more limited than the theory predicts, indicating that the fall in informal sector wages, and resulting poverty, is likely to be less than predicted.

8.16. **Fourth**, as in the competitive model, firms do not necessarily comply with regulations. Labor may not shift between sectors, but rather sectoral allocation would remain constant and non-compliance would increase. This is only possible if the enforcement of the new laws is incomplete.

8.17. **Fifth**, this model omits the consideration of risk pooling. If the household has a diversified labor portfolio, an increase in the minimum wage of a formal sector employee who does not lose her job may compensate for the lower wage of her husband who does lose his job and enter the informal sector. Thus, the model cannot predict the effects of an increase of the minimum wage on poverty.

8.18. **Sixth**, it ignores the product demand side of the story. If minimum wages increase, the demand for goods and services produced in the informal sector may increase, since the consumption of informal sector goods is positively correlated with income. The increased product demand would lead to higher demand for informal sector employees, thereby pushing up the informal sector wage, especially if unemployment rates are low (Fiszbein 1992)

### *Integration Model*

8.19. In the integration model, the formal and informal sectors are assumed to be linked through product and labor markets such that changes in the minimum wage will indirectly affect the informal sector through many channels, not only through employment. In a closed economy, an increase in the minimum wage in the covered sector would increase the price of formal sector goods, causing the relative price of informal sector goods to decrease. The demand for informal sector goods would increase, so wages in the informal sector would increase as well to attract new workers to the jobs. Thus, an increase in the minimum wage would *increase* wages in the informal sector. In an open economy, an increase in the minimum wage could not be covered by higher prices, so firms shut-down, capital moves to the informal sector, and the demand (and price) for informal sector workers increases (Maloney et. al. 2001, Leamer 1995). Unemployment may increase, but all wages will as well, thereby having a dubious effect on poverty.

8.20. This model challenges the conventional belief that minimum wages cannot reduce the poverty of those who work in the uncovered sector (World Bank 1995, Inter-American Development Bank 2000). Instead, it suggests that the benefits of minimum wage legislation do reach the poorest, although the linkages are less direct. The model does fall short, though, since it ignores risk pooling.

## III THE CORRECT MINIMUM WAGE LEVEL

8.21. The "correct" level of the minimum wage is difficult to determine. Comparisons of minimum wages across countries is not informative since productivity levels and the cost of living differs between countries and currency or PPP conversions introduce measurement error to the statistics. Alternatively, the ratio between the minimum wage and the industrial wage can be compared across countries since it omits the need to convert to a single currency and, since wages are a measure of productivity, the denominator serves as a way to "normalize" the productivity differences (Inter-American Development Bank 2000). For example, a study for Brazil (IPEA 2000b) uses the ratio of the minimum wage to the industrial mean wage to calculate an international norm for the minimum wage. Drawing from countries as diverse as the United States, Botswana, Belgium, Hungary, and the Philippines, a ratio of 0.4 is identified as the international standard. The paper concludes that minimum wages in Brazil should be doubled in Brazil to meet the same ratio.

8.22. The ratio of the minimum wage to the mean industrial wage may not be the best measure to calculate a target ratio. **First**, the median wage, rather than the mean wage is a better benchmark against which to measure the minimum wage. Wage distributions tend to have long right tails, so outliers may increase the size of the denominator. Table 8.1 shows that when using the mean wage as the statistic of comparison, of eight countries in LAC, only Colombia and Honduras meet the 40 percent criteria for the appropriate minimum wage.<sup>5</sup> The ratios range from

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<sup>5</sup> This is calculated for all wages, not only manufacturing wages, as IPEA (2000) suggests since the manufacturing wage was not available for the countries in the sample. Nevertheless, the argument will hold for manufacturing wages as well.

19 percent of mean wages (urban Uruguay) to 62 percent (Honduras) However, when using the median wage as the base, five of the nine countries meet the 40 percent criteria, including Brazil. The range of the ratios shifts upward, falling between 27 percent (Uruguay) and 90 percent (Honduras), showing that the relative minimum wage is much closer to the recommended 40 percent when omitting the high earners in the upper tails of the wage distribution.

**Table 8.1 Ratio of the Minimum Wage (Mw) to Comparison Wages**

	year	Mw/mean	Mw/median	Mw/10 <sup>th</sup> percentile wage
Argentina (urban)	1998	0.26	0.33	0.67
Bolivia	1997	0.22	0.34	0.80
Brazil (all)	1998	0.24	<b>0.43</b>	<b>1.00</b>
Brazil (urban)	1998	0.22	0.37	<b>1.00</b>
Chile	1996	0.34	<b>0.55</b>	<b>1.09</b>
Colombia (urban)	1998	<b>0.40</b>	<b>0.68</b>	<b>1.00</b>
Honduras	1999	<b>0.62</b>	<b>0.90</b>	<b>2.26</b>
Mexico (urban)	1999	0.34	<b>0.48</b>	0.87
Uruguay (urban)	1998	0.19	0.27	0.64

Source: Maloney and Nufiez (2001)

8.23. **Second**, a target level is perhaps better calculated by a ratio between those with similar skill levels since the returns to the highly skilled manufacturing may not be purely due to productivity differences, especially when manufacturing wages are distorted by union pressures. Minimum wage earners tend to be in the lower tail of the wage distribution while industrial workers are in the upper tail. The last column of Table 8.1 attempts to control for productivity differences by calculating the ratio of the minimum wage to wages in the lower 10 percent of the distribution, which is where unskilled worker wages are clustered. The eight country sample shows that the minimum wage is at or above the wage at the 10<sup>th</sup> wage decile in four countries (Brazil, Chile, Colombia, Honduras). In Bolivia (80 percent) and Mexico (87 percent), the minimum wage is not far from the earnings of the low skilled.

8.24. **Finally**, since the minimum wage is determined by political, not economic standards, there is not an economic rule for the correct level. A problem with using any ratio to identify the correct level of the minimum wage is that it does not give a criteria for a "correct" level, especially if the objective of the minimum wage is to reduce poverty. Those who are earning the minimum wage are likely to be those whose productivity is equal to the wage, so in fact, they are earning the correct level of wages. The ratio is useful to show where minimum wage earners are relative to various segments of the working population, but it cannot be used to identify whether or not the minimum wage is set at a fair level.

#### **IV. IMPACT OF THE MINIMUM WAGES ON THE WAGE DISTRIBUTION**

8.25. A change in the minimum wage may affect the shape of the whole wage distribution. If an increase in the minimum wage causes firms to substitute more productive labor, the wages paid to these new, more skilled workers may exceed the new minimum wage. Alternatively, wages may adjust along the distribution as employers alter wages of workers who earn more than the new minimum to keep relative wages among employees differentiated (Card and Krueger 1995). A

comparison of minimum wage studies in developed and developing countries shows that minimum wages affect the distribution of the entire wage distribution in developing countries but not in industrialized countries.

### **Is the Minimum Wage Binding?**

8.26. The usefulness of the minimum wage as a tool to address poverty depends on whether or not it is binding. In industrialized countries, where most employers abide by labor laws, minimum wages tend to be binding, i.e. they do tend to set a lower bound (Card and Krueger 1995). The high proportion of informal sector workers in developing countries may suggest that the minimum wage is not binding since, by definition, this sector is outside of the sphere of the legal system. However, the relationship between the formal and informal sectors may be such that minimum wages in the covered sector spillover to the uncovered sector.

8.27. A series of studies in industrialized countries show that minimum wages are binding for youth. A comparison of the minimum wage to the average wage does not indicate whether or not the minimum wage is binding; instead, spikes in the wage distribution are more revealing.<sup>6</sup> In the United States, while two to four percent of adults earn the minimum wage in the period 1988-1996, twelve to nineteen percent of youth did (Brown 1999). Katz and Krueger (1992) show that an increase in the minimum wage in the period 1989-1991 shifts upward the earnings of those who were earning between the old and new minimum wages. In Europe, the minimum wage is even more binding (Machin and Manning 1997).

8.28. Surprisingly, the minimum wage tends to be more binding in the uncovered sector than the covered sector in many Latin American countries. In Brazil, Colombia, Chile, Mexico, Argentina, and Uruguay, there is a "spike" at the minimum wage for the informal sector wage distributions, while this spike is only evident in the formal sector wage distributions for Brazil, Chile, and Colombia (Maloney and Nuñez 2001). Additional work in Brazil (Neri, Gonzaga, and Camargo 2000) shows that there are spikes in the wage distribution not only at the minimum wage, but also at multiples of the minimum wage, indicating that the minimum rate binds wages that are above the legal minimum. These trends are seen in both the covered and uncovered sectors, indicating that there is a spillover effect of minimum wages to the unprotected sector. In the United States, a spillover from the covered to the uncovered sector is also statistically identifiable and the spike is higher in the uncovered sector wage distribution than in the covered sector wage distribution (Brown 1999 p. 2144).

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<sup>6</sup> This technique only works if the minimum wage is not a round number, in which people commonly denominate wages. For example, surveys often show that people will report wages in multiples of 10. If the minimum wage is a multiple of 10, it will be difficult to distinguish in cross-sectional data between a spike due to "rounding error" versus a spike due to the minimum wage.



## How Does the Minimum Wage Affect the Wage Distribution?

8.29. A change in the minimum wage has little impact on the wage distribution in industrialized countries. In the United States, wages of workers who earn below or near the (new) minimum wage before the wage increase are positively affected by the new minimum wage (Neumark, Schweitzer and Wascher 2000), especially women (DiNardo, Fortin, and Lemieux 1996). However, these effects are neutralized when considering the lagged effects (Neumark 2000) such that only those earning below the minimum wage benefit in the long-run. Those who earn above the new minimum wage experience small increases in the period of the increased minimum wage (Grossman 1983, Neumark, Schweitzer and Wascher 2000) but negative changes in the long run as the supply of labor increases more than the demand for more skilled workers. Katz and Krueger (1992) find that an increase in the minimum wage increases wages of those earning in the bottom ten percent of the wage distribution, but they also find that any effects disappear at higher income levels. In the low wage (fast food) industry, an increase in the minimum wage leads to a corresponding increase in wages that were below the new minimum, but there are little effects further up the wage distribution (Katz and Krueger 1992, Card and Krueger 1995).

8.30. In Latin America, minimum wage laws positively affect formal sector wages throughout the whole wage distribution. In Colombia (Maloney and Nuñez 2001) and Brazil (Fajnzylber and Maloney 2001), a one percent increase in the minimum wage leads to wage increases along the formal sector wage distribution, with the greatest effects occurring *below* the minimum wage, and the effects diminishing across the wage distribution. Even those who are earning far above the minimum wage experience an increase in their wages.

8.31. A higher minimum wage spills-over to the informal wage sector, possibly due to "benchmarking", but evidence of spillover effects in the self-employment sector are mixed. Neri, Gonzaga, and Camargo (2000) find clear spikes at multiples of the minimum wage for the informal sector wage distribution in Brazil. They hypothesize that these are due to a lighthouse effect, where the wages in the formal sector affect those in the other sectors. Maloney and Nuñez (2001) hypothesize that in Latin America, the lighthouse effect of minimum wage laws on uncovered wage work is due to the common usage of the minimum wage as a "benchmark" for fair remuneration. Although the minimum wage is often randomly set, it may be commonly taken to be a market-wide standard for wages. Even without formal enforcement, this wage indirectly affects the earnings of those (especially the poor) who are outside of the formal labor market. In the Maloney and Nuñez study (2001), this is corroborated by an absence of minimum wage effects on self-employment, a sector that is not paid by wages but rather by profits.<sup>7</sup>

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<sup>7</sup> It is surprising that spikes in the earnings distribution of the self-employed in Brazil are also detected since their income is from profits, not from a set wage (Neri, Gonzaga, and Camargo 2000). This may reflect reporting bias in the data. This suspicion is supported by studies of the lighthouse effect on the self-employment earnings of Mexicans and Colombians where spikes are visible in the formal wage distribution but are absent in the self-employment earnings distribution.



## V. IMPACT OF MW ON EMPLOYMENT<sup>8</sup>

8.32. The theoretical implications for the employment effects of an increase in the minimum wage are clearly negative for the single labor market model and mixed for a dual labor market, but the empirical evidence show little if any dis-employment effects. Over the past twenty years, numerous studies in the United States and Europe find small and (marginally) negative employment effects in response to an increase in the minimum wage for those clustered near the minimum wage. There is less evidence in developing countries, but the neutral or slightly negative effects are also identified. The primary differential effect between developed and developing countries is that the dis-employment effects are felt further up the wage distribution for the former than they are for the latter.

### Single labor market

8.33. Most empirical work finds a small negative impact or no influence of an increase in the minimum wage on employment (Appendix I). The research from the 1970s on the US and French labor markets finds that a 10 percent increase in minimum wages is associated with a one to three percent decline in youth employment (Brown 1999). The negative employment effect is stronger for girls than boys (Brown Gilroy and Kohen 1982, p. 504). The employment effects are even smaller among young adults in the United States (Brown 1999). A similar magnitude of disemployment effect is also found for Canada, Portugal, and Greece using data from the 1980s (Ghellab 1998). In the United Kingdom, though, employment effects have not been generally identified (Ghellab 1998, Machin and Manning 1996) but have been noted for specific industries (Machin and Manning 1994).

8.34. More recent studies in the United States and France, using longer time series and more careful analysis, find mixed results, but maintain that the employment effects are small. Contrary to earlier studies, analysis of the recent minimum wage increase in the fast food industry in the United States show that employment may actually *increase* as the minimum wage rises (since fast food jobs are undesirable so the labor shortage can only be allayed by a rise in wages) (Katz and Krueger 1992) while others find the standard disemployment effect of two percent (Neumark and Wascher 1992).

8.35. Less evidence exists in developing countries, but findings are similar to those in industrialized countries. Under the assumption of a single labor market, dis-employment effects range from 0 to 5 percent for a 10 percent increase in the minimum wage in Indonesia, Puerto Rico, Botswana, and the Czech Republic (Appendix I).<sup>9</sup>

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<sup>8</sup> Employment is not the complement to unemployment since minimum wages may lead to labor force entry or exit, without employment.

<sup>9</sup> The estimates for Botswana and Kenya are not econometrically derived but instead are the result of manager interviews in these countries, with recall about the change in the firm's labor force when the minimum wage increased.

## Covered and Uncovered Sectors

8.36. In the covered sector, only explicitly examined for developing countries, an increase in the minimum wage by 10 percent leads to a fall of formal sector employment ranging from 5 percent (Colombia) to 0 percent (Mexico). Bell (1997), who analyzes the impact of an increase in the minimum wage in both Mexico and Colombia, attributes the difference in the effects to the high level of the Colombian minimum wage, thus making it more binding, while the Mexican minimum wage is "too low" and easily paid by employers. An alternative estimate for Colombia (Maloney and Nuñez 2001) support Bell's findings, but find a lower elasticity of -1.9 percent to -3.5 percent for a 10 percent increase in the minimum wage. Interestingly, this study shows that the employment of those across the wage distribution, not only those who are earning at or near the minimum wage, is also negatively affected. Even smaller effects are found in Brazil, where the minimum wage is low (IPEA 2000b) but binding (Neri, Gonzaga, and Camargo 2000, Fajnzylber and Maloney 2001) - disemployment of 0.5 percent in response to a ten percent increase in the minimum wage.

8.37. Three papers that examine the effects of the minimum wage on employment in the informal sector have mixed conclusions. In Brazil, as the minimum wage increases by 10 percent, employment in the informal sector increases by 1.76 percent (Carneiro 2000). A similar finding is estimated for Ghana, where employment increases by 1.4 percent in the uncovered sector (Ghellab 1998). These employment effects can be attributed to the dual nature of the labor markets in these countries such that as minimum wages increase, formal employment decreases and the unemployed are forced into the informal sector. Or, under the integration hypothesis, the increased informal sector employment may be explained as a spillover effect between sectors such that the wage in the informal sector also increases and absorbs those who lost formal sector jobs while attracting new workers to the labor market. The evidence does not permit selection of one of these hypotheses. Conversely, in Colombia, an increase in the minimum wage has negative employment effects on the self-employment sector of the magnitude 0.6 percent to 2.2 percent (Maloney and Nuñez 2001).

## VI. POVERTY IMPACTS

8.38. The small but negative employment effects of the minimum wage found in the some countries in the covered and the uncovered sector may lead to a net increase in poverty. However, the ripple effects of an increase in the minimum wage may sufficiently boost wages such that, on average, people are better off. Given the distribution of minimum wage earners across the working population, though, it is not likely that all workers and households will equally share in the benefits and losses. Instead, the positive and negative effects of the minimum wage may affect people along the wealth distribution differently. There is a shortage of evidence on the poverty effects of minimum wages, so lessons will be drawn from the few existing studies that are summarized in Table 8.2. The general finding drawn from US data is that minimum wages do not reduce poverty, but they do reduce inequality by increasing household income of the poorest households. However, this conclusion may underestimate the impacts in Latin America since the minimum wage positively affects a larger portion of the labor force, in terms of higher wages, than in the United States while having similar disemployment effects.

**Table 8.2 Overview of the Impact of Minimum Wage on Poverty**

<b>Country (year of data)</b>	<b>Magnitudes of change in minimum wage and poverty rate</b>	<b>Source</b>
<b>Individual poverty (No risk pooling)</b>		
Brazil (1997)	Increase in the minimum wage have insignificant effects on the level of poverty	IPEA (2000)
Brazil (1996)	A 10% increase in the minimum wage would bring 1% of poor minimum wage earners above the poverty line and 1.4% of all poor above the poverty line.	Neri, Gonzaga, and Carmargo (2000)
United States (1983-1996)	10% increase in the minimum wage => decrease poverty an average of 3.6% for unskilled workers in the 1990s (no dis-employment effects); by 0% in the 1980s (with dis-employment effects).	Addison and Blackburn (1999)
Colombia (1997-2000)	10% increase in the minimum wage => decrease individual poverty of those earning 0-1.3 m.w. by 5-18%; increase poverty of those earning more than 1.3 m.w. by 2%	Maloney and Nuñez
United States (1986-1992)	10 % increase in minimum wage => increase individual poverty of minimum wage earners by 6% because hours worked fell and wages increased very little; zero change for those earning above the minimum wage	Neumark, Schweitzer and Wascher (2000)
<b>Family Poverty (Risk Pooling at the Household Level)</b>		
Asia, Africa, LAC (1950-1980)	10% increase in m.w. => decrease in poverty rate 6-10%	Lustig and McLeod (1996)
Latin America (1981-1989)	An increase in the minimum wage is more correlated with a decrease in the poverty rate during periods of recession and a decrease in the poverty rate is more correlated with a decrease in the m.w. in periods of recovery	Morley (1995)
United States (1986-1995)	An increase in the minimum wage moves poor families into a non-poor status and moves non-poor families into poverty, with a net increase in poverty, though this is not statistically significant. However, it does boost incomes of families who are below the poverty line both before and after the change in the minimum wage.	Neumark and Wascher (1997)
United States (1990, 1992)	Increase in the minimum wage 1 percent => no effect on poverty rates or a decline of the poverty rate by 1.6 percentage points, but this measure cannot be fully attributed to an increased minimum wage rather than to other changes in the economy at the time.	Card and Krueger (1995)

### Poverty without risk pooling

8.39. Taking the individual as the unit of observation, the impact of a higher minimum wage on net average income is mixed in the five studies reviewed. Evidence is found in the United States that the unemployment effect dominates the wage effect since those who earn near the minimum wage experience a fall in net income of six percent for a 10 percent increase in the minimum wage (Neumark, Schweitzer, and Wascher 2000), but another study shows that poverty *decreases* by 3.5 percent for a 10 percent increase in the minimum wage (Addison and Blackburn 1999). Mixed results are also found in Brazil. One study finds no correlation between a higher minimum wage and the rate of poverty (IPEA 2000b) while another shows that the minimum wage does reduce poverty across the wage distribution due to indexing of the minimum wage.<sup>10</sup> Under the assumption of no dis-employment effects and no risk pooling, a one percent increase in the minimum wage in Brazil is associated with a decrease in poverty of 0.1 percent for those earning the minimum, but a fall of 0.14 percent for workers across the whole wage distribution (Neri, Gonzaga, and Camargo 2000). Similarly to Brazil, an increase in the minimum wage in Colombia is felt across the whole earnings distribution, not just at the minimum, but the change in net income (poverty) effects depends on where the individual was located in the distribution before the change. An increase in Colombia's minimum wage of 10 percent leads to an increase in poverty (net fall of average income) by two percent among those earning more than 1.3 minimum wages, but among the poor, poverty falls 5 percent to 18 percent among those earnings 0-1.3 minimum wages (Maloney and Nuñez 2001).

### Who Earns the Minimum Wage?

8.40. A newer set of papers have examined the poverty impacts of the minimum wage by using the household as the unit of observation, which is perhaps more appropriate for developing countries due to risk pooling at the household level. As pointed out in the developed country literature (Neumark and Wascher 1997, Gramlich 1976, Card and Krueger 1995), poverty at the individual level is not synonymous with poverty at the household level. In the United States, it is found that 40 percent of minimum wage earners live in households with a total income more than three times the poverty line. Thus, to identify the poverty reduction effectiveness of the minimum wages, it is important to identify who earns the minimum wage and if they are the poor.

8.41. Using data from Mexico and Argentina, Table 8.3 shows that most minimum wage earners are not the primary income earner in the household. In Argentina, ten percent of household heads (male or female) earn at or below the minimum wage while four percent of Mexican household heads do. In contrast, 21 percent of Argentine children living with their parents and ten percent of Mexican children in their parents' home (age 12-17) earn the minimum wage. This is supported by the breakdown by age where 70 percent of working people age 12-17 earn the minimum wage or less in Argentina and 26 percent in Mexico, compared to 20 percent and 6 percent, respectively, of young working adults (18-24). The proportions in the United States are similar to those in Mexico

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<sup>10</sup> The conflicting results from studies in the same country that examine the poverty effects over the same period are due to different assumptions made by the authors and different estimation techniques.

with 29.4 percent of those age 16-19 and 19.8 percent of those age 20-24 earning at or below the minimum (Card and Krueger 1995).

8.42. Table 8.3 and Table 8.4 show that the poor are more likely to earn at or below the minimum wage, but households in *all* wealth quintiles include minimum wage earners in Argentina, Mexico, and the United States. In Argentina, 24.5 percent of the workers in the first wealth quintile (poorest) earn at or below the minimum wage while 5.6 percent of the top quintile do. In Mexico, there are fewer minimum wage earners across all wealth quintiles with 14.6 percent of those in the first wealth quintile and 4.1 percent of those in the fifth quintile earning the minimum wage. The United States is similar with 28.8 percent of the lowest decile earning below the minimum wage but only 2.7 percent of the highest income decile. Minimum wages constitute 17 percent of poor household's income but two percent of wealthy household's income in Argentina and 30 percent in Mexico (Table 8.4) while in the US, they contribute to 51 percent of total family income (Card and Krueger 1995). Thus, in the two Latin American countries selected for the table, minimum wages are a less important source of income than in the United States. Although minimum wages constitute a larger portion of poor households' total income, nearly equal proportions of households have minimum wage earners in Argentina: 22 percent of poor households have at least one minimum wage earner while 18 percent of wealthy households do. This pattern is not reflected in Mexico, where the poor are three times as likely as the wealthy to have a minimum wage earner in the household.

**Table 8.3 Wage Earners at or Below The Minimum Wage**

	Argentina <sup>1</sup>	México <sup>2</sup>		Argentina	México
<b>Role in household</b>			<b>Sector</b>		
Head	10.1	4.2	Self-employment	23.7	13.9
Spouse	19.8	14.3	Informal wage	31.7	16.9
Child	20.9	9.9	Formal	4.7	0.5
<b>Age</b>			<b>Education</b>		
12-17	70	25.6	None	—	22.7
18-24	20.3	6.5	Primary	24.6	11.9
25-64	12.4	6.03	Secondary	12.9	6.5
65+	31.7	24.4	Higher	6.5	2.2
<b>Sex</b>			<b>Wealth quintile</b>		
Male	11.9	4.6	1	24.5	14.6
Female	19.9	13.2	2	16.4	10.3
			3	12.1	8.4
			4	10.5	6.9
			5	5.6	4.1

<sup>1</sup>The National Urban Employment Survey (Encuesta Nacional de Empleo Urbano) 1997, quarter two

<sup>2</sup> The Permanent Household Survey (Encuesta Permanente de Hogares) 1997, semester one

8.43. Table 8.3 also shows that those who are typically associated with lower wages tend to be minimum wage earners. Argentine women are nearly twice as likely as Argentine men to be minimum wage earners while Mexican women are three times as likely as Mexican men to earn at or below the minimum wage, despite working women's higher levels of education in both countries. These proportions are very similar to the percentage of spouses (who are likely to be women) who earn at or below the minimum wage. Less educated workers are also more likely to be minimum wage earners, with over 25 percent of those with less than primary education earning the minimum wage. However, 6.5 percent of Argentines with higher education and 2.2 percent of Mexican who

have more than secondary school are minimum wage earners, showing that it is not confined to low skilled people. A very low percentage of formal sector workers earn the minimum wage, with a larger portion of self-employed (23 percent in Argentina, 14 percent in Mexico) and informal wage employees (32 percent and 17 percent in Argentina and Mexico, respectively) earning at or below the minimum.

**Table 8.4 Household Characteristics**

	Argentina <sup>1</sup>	Mexico <sup>2</sup>
<b>Percent of household income that is minimum wage</b>		
All	0.084	0.14
Poor (wealth quintile 1)	0.17	0.30
Rich (wealth quintile 5)	0.02	0.17
<b>Percent with a minimum wage earner</b>		
All	22.59	8.94
Poor (wealth quintile 1)	21.95	16.56
Rich (wealth quintile 5)	18.09	5.89

<sup>1</sup>The National Urban Employment Survey (Encuesta Nacional de Empleo Urbano) 1997, quarter two

<sup>2</sup>The Permanent Household Survey (Encuesta Permanente de Hogares) 1997, semester one

### **Poverty and Inequality with risk pooling at the household level**

8.44. Since those who earn the minimum wage do not tend to be the sole income earner, or even the primary income earner, in the household, and households do pool income, poverty rates at the individual level are not very meaningful. If the negative impact of the minimum wage is concentrated among those who live in households that are clustered around the poverty line while the benefits accrue to the non-poor, the average negative effects on individual poverty, discussed in the last section, may not lead to a reduction of poverty for poor households. Instead, it is more appropriate to simultaneously consider the net change in household income resulting from an increase in wages of working household members and dis-employment of others when the minimum wage increases.

8.45. The minimum wage and national poverty rates (measured at the household level) are negatively correlated. A study of the minimum wage in Asia, Africa and Latin America (Lustig and McLeod 1996) estimates that an increase in the minimum wage of 1 percent leads to a decrease in the poverty rate in developing countries of 0.6 to one percent. These estimates are robust across regions, urban and rural sectors, and business cycles. Morley (1995) and de Janvry (cited in Lustig and McLeod 1996) identify a negative correlation between minimum wages and poverty in Latin America, though their findings are not robust across the business cycle. Lustig and McLeod (1996) also find that an increase of the minimum wage leads to a fall in poverty among formal sector workers by 2.5 percent but a decrease of 2.9 percent among workers in self-employment and the informal wage sector (Lustig and McLeod 1996).

8.46. When considering the transition of families into or out of poverty, the negative correlation between minimum wages and poverty weakens or even disappears, suggesting that the minimum wage is not an effective poverty reduction strategy and that the national correlations may be due to other factors. Two papers, both for the United States, present the only micro evidence of the effect of minimum wages on poverty at the household level. Neumark and Wascher (1997) directly

examine the poverty effects of a change in the minimum wage when there is risk pooling in the household. They show that an increase in the minimum wage causes an increase in incomes of the poor and near-poor such that 4.1 percent of rise out of poverty but 3.9 percent of those who are near-poor fall below the poverty line. The 0.2 percent net decrease in poverty is not statistically significant, indicating that a real improvement in the poverty status cannot be clearly identified. Instead, the minimum wage redistributes income and jobs among households that are clustered around the poverty line rather than redistributing income from wealthy households to poor households. Card and Krueger (1995) conduct a similar experiment, finding that an increase in the minimum wage by one percent is correlated with a decline of the poverty rate by 1.6 percentage points, but this may be due to changes in the economy apart from the minimum wage. No studies were found to understand the impacts of the minimum wage on poverty in developing countries when there is risk pooling.

8.47. The evidence of the impacts of the minimum wage on family income inequality weakly suggests an inequality decreasing effect of the minimum wage. In the United States, an increased in wage inequality in the period 1973-1992 is attributed to a fall in the real value of the minimum wage, especially among women (di Nardo, Fortin, and Lemieux 1996, Horrigan and Mincy 1993), but these do not affect family income inequality (Horrigan and Mincy 1993, Neumark and Wascher 1998). Card and Krueger (1995) find that a 10 percent increase in the minimum wage leads to an increase in family income by an average of 2.3 percent for families in the lowest wealth decile and an increase in family income of 2.5 percent for families in the fifth (median) decile while no changes in family income are detected in the top wealth deciles. This suggests that income inequality falls, but the results are not strongly statistically identified. Machin and Manning (1997) also find an equalizing effect on income distribution for Europe. Card and Krueger (1995) report that in states where the minimum wage is binding, it is associated with a larger increase in the earnings of the poorest families relative to the poorest families in states where it is not binding, indicating that minimum wages do increase the earnings of those at the bottom of the family income distribution. Similar results are found in Colombia, where minimum wages are found to be very binding (Maloney 2000): cross-sectional data show that an increase in the minimum wage corresponds to a decrease in inequality, even during recessionary periods (Bell 1997).

## VII FISCAL IMPACTS OF THE MINIMUM WAGE

8.48. The cost of an increase in the minimum wage is not confined to the individual or household level, but it may have implications for fiscal balances as well. Since the minimum wage has been used as a denominator for the wages of public servants, government social programs, indexation, and government revenues, a politically motivated increase in the minimum wage, which may gain votes (despite its minimal effect on the labor market or poverty) may have grave implications for fiscal imbalances. To name a few:

- **Public sector.** Many public sector workers earn at or below the minimum wage. In Brazil, it is estimated that an increase in the minimum wage of 7.5 percent would increase total government expenditures on the public sector by nearly 75 percent, with most of the increase occurring at the municipal level, which already has the largest wage bill (IPEA 2000a). A similar exercise in Ecuador suggested that a one percent increase in the

minimum wage would increase the government's wage bill by 2.4 percent (World Bank 1996).

- **Government transfers.** Some government programs are tied to the minimum wage. For example, in Brazil, poor workers receive a "thirteenth wage" every year, which is a direct transfer that is equal to one monthly payment of their wages. Only formal sector workers are eligible, but all workers who earn at or below three minimum wages are eligible. An increase in the minimum wage would have two effects on the costs of the program: (a) increase the number of recipients since the threshold for eligibility has increased even though wages have not and (b) the value of the payout is higher since the maximum amount paid out has increased.

8.49. Another example is the unemployment insurance program in Brazil. The minimum payment to the unemployed is one minimum wage, regardless of the wage that he/she earned before becoming unemployed. As the minimum wage increases, the value of this payment increases as well. A similar lower bound is set for pensions in Brazil, as well (ILO 1995a). In Uruguay, social benefits such as pensions, family allowance, unemployment and illness benefits are multiples of the minimum wage (ILO 1995b). Additionally, a higher minimum wage may create disemployment, as seen in Section V. An increase in unemployment would increase the number of eligible for unemployment insurance programs or other means tested government programs that are based on income. This would increase government expenditures on those people who had been productive members of society before the increase.

- **Price or Wage Indexing.** The minimum wage may be used as a denominator to which other measures, used for the provision of government services, are indexed. An increase in the minimum wage would increase the level of the indexed indicator and therefore indirectly affect government expenditures. For example, in the Brazilian state of Ceará, the poverty line is based on the minimum wage. If the minimum wage increases, the poverty line also rises, thus increasing the number of people who are eligible for various social protection programs. Or, in the case of Argentina, the *mopre* is a unit of measure that is indexed to the minimum wage. If the minimum wage increases, the *mopre* does, too, but this may actually decrease health expenditures in Argentina, for example, since formal sector workers earning less than three times the *mopre* (valued at approximately \$80 monthly) are ineligible for government provided health benefits. This would decrease government expenditures but also lower benefits to the poor.
- **Government revenues.** Taxation may also be tied to the minimum wage. In México, for example, individuals who earn less than three times the minimum wage are exempt from income taxes and are even eligible for tax credits. An increase in the minimum would decrease the stock of individuals who are required to pay taxes, thus negatively affecting government revenues. Furthermore, they would also be eligible for tax credits, thus further draining government reserves.

8.50. Thus, the potential inequality reducing benefits of the minimum wage may be outweighed by an increased fiscal deficit in governments that use of the minimum wage as a denominator for social spending or revenues and for those that have social programs to support the unemployed. Any decision to increase the minimum wage need take into account the fiscal impacts as well.



## VIII CONCLUSIONS AND IMPLICATIONS FOR POLICY

8.51. The review showed that minimum wages have a bigger impact on the labor market in developing countries than in developed countries, despite the lower potential coverage. While an increase in the minimum wage only increases wages of those between the old and new minimum in the US, it positively influences wages across the distribution in Latin America. These effects are felt in both the covered (formal) and uncovered (informal) wage sectors. Similarly, the disemployment effects may be larger in Latin America, ranging from zero to five percent and affecting workers along the entire wage distribution, compared to the United States where only workers near the minimum wage are affected, if at all. Taking together the dis-employment and wage effects, in the three developing country studies (two countries) reviewed, the wage and employment effects either cancel each other out or the former dominates the latter, leading to a net improvement in the average individual's earnings. This contrasts with studies in the United States that find no effect.

8.52. Despite these findings, little can be concluded about the poverty impacts of the minimum wage, especially in a developing country context. Although cross-country comparisons show a negative correlation between the minimum wage and poverty, studies for the US labor market suggest that the minimum wage causes a churning of those who are near the poverty line. Many of those who were below the poverty line retain their jobs and benefit from a higher wage when the minimum wage is increased, thereby rising above the poverty line, while others lose their jobs and sink below the line. These results perhaps cannot be extrapolated to developing countries since the wage and employment effects are further reaching than in industrialized countries, thereby affecting everyone, not only those near the poverty line.

8.53. This is not to say that the minimum wage does not or cannot improve the lot of the poor, in Latin America, though. In the United States, although an increase in the minimum wage only caused families just below and just above the poverty line to swap positions, the household income of those below the poverty line did increase, though not enough to pull them out of poverty. Since minimum wages affect the employment and wages of those along the wealth distribution, its increase may have larger effects than in the United States, however, to date, no evidence exists to support this. Furthermore, a higher minimum wage is correlated with a zero change or a decrease in income inequality measured at the household level, so it does have the effect of bringing up the bottom of the distribution.

8.54. Minimum wages can be binding even in a labor market with a large uncovered sector. Whether due to an indexing effect or some other spill-over, policymakers should not assume that the minimum wage only affects the welfare of those in the formal sector. It is likely to have even larger effects on informal sector workers since it is more binding in that sector.

8.55. A final fact to point out is that the minimum wage may be a means of helping those who are most disadvantaged in the labor market. Although there is much leakage in the minimum wage, since even workers whose households rank in the top wealth quintile earn the minimum wage, those who are considered the least likely to succeed in the labor market tend to earn the minimum. Women, youth, informal sector workers, and the uneducated are more likely to be minimum wage earners than are those who have more skills or are more entrenched in the labor

market. Thus, the minimum may make the labor market more attractive for these groups, though empirical evidence is absent.

8.56. Policy recommendations may be premature since the evidence of the poverty implications of the minimum wage are still largely unknown. At this preliminary stage, maintaining the minimum wage may be beneficial since it does decrease income inequality at both the household and individual level, it may be helpful to those who are typically low earners while not being too distortionary on the labor market, and it does impact those who are otherwise uncovered by labor legislation. However, if the minimum is set too high, as in Colombia, it may do more harm than good by causing the dis-employment effect to outweigh the positive wage effects.

8.57. Thus, if the minimum is to be maintained, governments need to clearly identify the criteria for the minimum, thus making it an economic rather than a political tool. The "correct" level of the minimum would be that amount that achieves the government's social objectives while not distorting the labor market to the extent of creating unemployment that is not counter-balanced by safety nets. This would require tying the minimum wage to economic factors, which may be a function of wages, as used in the Brazilian study to calculate a "correct" minimum wage, or may be tied to poverty indicators with some upper bound.

8.58. Any systematic development of a minimum wage need also consider the fiscal impacts. As discussed in the review, there is a great deal of leakage in the program since most minimum wage earners are not poor. If distortionary effects are created such that the poor lose their jobs, but the government plans to counter-balance this with social safety nets, the costs of a minimum wage policy are potentially high. Also, the propensity of governments to tie social protection eligibility and payouts to the minimum wage may lead to unnecessary fiscal imbalances. Since the minimum wage is largely a political, not an economic value, an increase based on political motives will increase the income of those who benefit from government transfers or wages tied to the minimum even though their needs have not increased. Linking eligibility and payouts of social protection to a poverty indicator would be more beneficial to the poor.

8.59. The foremost recommendation, though, is to better identify the poverty impacts and the cost to government of changes in the minimum wage. Only then can the usefulness of the minimum wage as a poverty alleviation tool be evaluated

**Table 8.5 Summary of the Literature on the Employment Effects of Minimum Wages**

Country	Change in the employment rate due to a 10% increase in the minimum wage			Notes
	<i>all</i>	<i>Male</i>	<i>female</i>	
<b>Developed Countries</b>				
US (1970s) <sup>1</sup>	-1% to -3%			For time series estimates, the results are consistent. Cross section estimates have more variance, but still tend to be <0 for
US (after 1970s) <sup>1</sup>	No employment effects			Mixed effects, but may be due to econometric problems. Katz and Krueger (1992) find 18.5 to 26.4% increases in unemployment.
Canada (1980s) <sup>1</sup>	-1.4% to -5%			
UK (1980s) <sup>1</sup>	No employment effects			
France (1970s) <sup>1</sup>	-3.5% to -4.1%	-2.63% to -6.1%	Weakly negatively significant	
France (1980s) <sup>1</sup>	-1% to -3.5%	-1.3% to -6.24%	-1.88% to -3.6%	
Netherlands <sup>1</sup> (1980s)	No employment effects			
Portugal* (1980s) <sup>2</sup>		-0.1 to -0.8%	-0.3% to -4.7%	Negative effects for youth are larger
Greece* (1980s) <sup>2</sup>	-0.59% to -1.09%	-0.6% to -1.1%		
<b>Developing Countries</b>				
Indonesia (1998) <sup>3</sup>	0 to -5%			For a doubling of the minimum wage; the estimates are not statistically significant
Puerto Rico (1977) <sup>4</sup>	-0.5			
Brazil (1988 <sup>5</sup> , 2000 <sup>6</sup> )	-0.4%; -0.1% in the formal sector, 1.76% the informal sector;			Formal is defined as "com carteira" and informal is defined as "sem carteira"
Botswana (1988) <sup>2</sup>	Some disemployment effects			Not econometrically tested
Kenya (1988)* <sup>2</sup>	Dis-employment effects in the private sector, none in the public sector			Not econometrically tested
Czech Republic <sup>2</sup>	Disemployment effect on low-skilled workers			

Mexico (1997) <sup>7</sup>	No employment effect		Formal sector manufacturing firms
Ghana (1970s-1980s) <sup>2</sup>	-1.2% (all); 1.4% (informal sector);	0.06%-0.05%	Coefficients for the women are not significant
Colombia (1980s <sup>7</sup> , 1997-2000 <sup>8</sup> )	Less than -5%;	-1.9% to -3.5% for salaried workers across the wage distribution; -0.6% to -2.2% for self-employed across the wage distribution	Formal sector manufacturing firms; only men

\* results from one study only

<sup>1</sup> from various studies, most summarized in Brown (1999)

<sup>2</sup> as reported by Ghellab (1998)

<sup>3</sup> Rama (forthcoming)

<sup>4</sup> Freeman and Castillo (1991)

<sup>5</sup> Camargo (1988)

<sup>6</sup> Carneiro (2000)

<sup>7</sup> Bell (1997)

<sup>8</sup> Maloney and Núñez (2001)

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## 9. UNEMPLOYMENT AND UNEMPLOYMENT INSURANCE

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### I INTRODUCTION

9.1. The Brazilian unemployment insurance (UI) system is the largest in Latin America, serving an average of 300,000 to 400,000 beneficiaries each month. According to Law No. 7998 from 1990 the objective of the Brazilian unemployment system is to: (1) provide temporary financial assistance to the worker, who is unemployed due to dismissal without just cause and (2) assist workers in their search for new employment. Concerning the provision of financial assistance to the worker, the law is silent on whether UI benefits are aimed at smoothing consumption or are primarily intended to prevent unemployed workers from falling into poverty.

9.2. The main difference between consumption smoothing and safety-net oriented unemployment insurance systems lies in replacement ratio and depth of coverage. Unemployment insurance systems which primarily focus on consumption smoothing generally aim at a high replacement ratio of the previous income. Such systems are often restricted to unemployed workers, who have been employed during a substantial period of time before becoming unemployed. UI programs that emphasize a social net objective generally provide low levels of benefits, but cover a large fraction of the population. The Brazilian UI system is characterized by a low replacement ratio, short benefit duration and the fact that it is restricted to formal sector workers. Latter implies that UI is not accessible to over 50 percent of the workforce. A further inconsistency with the social net objective arrives from the fact that receiving UI is conditional on having access to the *Fundo de Garantia do Tempo de Serviço* (FGTS).

9.3. The FGTS was created in 1966 (Law No. 5107) by the military regime to serve as an alternative to the job security law prevailing at that time. It is combined with a fine that employers have to pay if they dismiss a worker without just cause. For a long time the FGTS was the only labor market institution that provided income to the workers at the moment they were laid off without just cause. And even nowadays, this aspect of the FGTS is important. UI benefits in Brazil are low and do not exceed two minimum wages. As a consequence, the amount worker receives from their fund at the moment they become unemployed is likely to exceed unemployment benefits by far.

9.4. This analysis reveals evidence on unemployment in Brazil using data from the Monthly Employment Survey (PME). We look not only at unemployment rates, but analyze the determinants of the probability of becoming unemployed, as well as unemployment duration. Separating these two factors is crucial for analyzing the existing UI system. We show that informal sector employees who have neither access to unemployment insurance nor FGTS are most likely to become unemployed in Brazil. Furthermore, the conditional probability of becoming unemployed is highest for minimum wage earners. This proves the conventional notion of unemployment being luxury in Latin America that only the rich can afford to be wrong.

9.5. While formal sector workers are less likely to become unemployed than informal wage earners *ceteris paribus*, they are more likely to remain unemployed once they have lost their job. Unemployment duration among formal sector workers is higher for those who received FGTS before becoming unemployed. This may hint at the fact that only the "rich" can afford a longer

unemployment duration. However, this kind of statement should be treated with care. Formal sector workers may just face a longer unemployment duration as they are choosier when accepting a new job.

9.6. We provide evidence on this fact by estimating a competing risk model, which allows to consider not only unemployment duration, but also exit states. Independent of the exit state formal sector workers are less likely to leave unemployment than informal wage earners. However, this difference turns insignificant when we consider exit to the formal sector.

9.7. Among formal sector workers, FGTS (and hence UI) recipients are less likely to exit unemployment. This proves to be independent of the exit state. Thus, at least in terms of the employment sector, the unemployment insurance system seems to fail in its objective to assist workers in their search for new employment. Whether this also holds in terms of wages remains a question to be answered.

9.8. The paper is organized as follows. Section II describes the Brazilian unemployment insurance system and the FGTS. Section III discusses the data used in this analysis and provides some descriptive statistics. Section IV analyzes the evolution of unemployment rates. Estimates of the probability of becoming unemployed and unemployment duration conditional on worker specific characteristics are provided in Section V. Section VI discusses policy implications and concludes.

## II UNEMPLOYMENT INSURANCE SYSTEM AND THE FGTS

### The Brazilian Unemployment Insurance System

9.9. Already in the Constitution of 1946, the Brazilian President Getulio Vargas proposed an unemployment insurance system. However, it was not before 1990 that unemployment insurance became universally accessible. The current Brazilian unemployment system was created in 1986, within the context of the Cruzado Plan. Its success was rather limited due to strict eligibility criteria and severe fiscal limitations. In 1988, the source of funding was changed from general Treasury revenues to the *Fundo do Amparo ao Trabalhador* (FAT).<sup>1</sup> Eligibility criteria were relaxed in 1990 (Law No. 7.998), expanding the base of workers with access to UI benefits. The benefit level was also increased. As a consequence, the number of checks distributed to the unemployed doubled. By 1990, unemployment insurance covered 43 percent of all dismissals from formal employment. In 1994, collection constraints and eligibility criteria were relaxed and potential payments were increased, extending the coverage of the program even further. (Cunningham, 2000)

9.10. In order to become eligible for benefits, workers must meet the following criteria:

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<sup>1</sup> The FAT is financed by a 0.65 percent tax on revenues of private firms, 1 percent tax on revenues of public firms and a 1 percent of costs in non-profit firms. It then pays UI, the 13<sup>th</sup> wage (abono salarial), a fiscal stabilization fund, training initiatives from SENAI/SENAC and the National Development Bank (BNDES), which receives 40 percent of the FAT.

- **Dismissal without just cause** by the employer or **indirect dismissal**. Indirect dismissal refers to the fact that the employee requests dismissal from his job by court decision, claiming that his employer did not comply with the work contract.
- Employment under a **formal labor contract** for at least six months during the last three years or **legal self-employment** for at least 15 months.
- A **period of unemployment** for at least seven and at most 120 days.<sup>2</sup>
- **Lack of other sources of income** to guarantee own subsistence and that of family.

9.11. In order to make a claim for unemployment insurance benefits, a worker requires a form from his former employer specifying time of service as well as earnings received in the three months prior to the dismissal. This form is reviewed by a national clearinghouse, which proves eligibility. Once accepted, the worker receives a proof of eligibility stating the value of benefits and the maximum benefit duration. In order to collect the monthly payment the worker must present this proof together with his signed work-card at a federal bank or employment office. After a successful claim, a worker will not be eligible again for 16 months.

9.12. The monthly benefit level (so-called parcela) depends in general on the average wage of the last three months prior to unemployment. It ranges from one minimum wage to approximately twice the minimum wage.<sup>3</sup> The average benefit level in 1998 was about 1.56 minimum salaries. (Thomas, 1999). Benefits do not decrease with unemployment duration. Since 1995, workers with an employment record of 6 to 11 months, 12 to 23 months and more than 24 months within the last three years are eligible to three, four and five parcelas, respectively. The average benefit duration is between 3.5 and 4.5 months (Cunningham, 2000). Neither benefit level nor benefit duration is contingent on job search. The payment of unemployment insurance benefit is suspended at the moment the worker finds a new job. If the worker has not used up all parcelas before finding new employment, he can accumulate the remaining parcelas for a future incidence of unemployment.

### The FGTS

9.13. In addition to unemployment insurance, dismissed workers receive the Fundo de Garantia do Tempo de Serviço (FGTS). This fund originated from a type of severance payment, which was in 1966 converted into a severance fund. The FGTS is an individualized interest-bearing fund. Each month the employer contributes the equivalent of 8 percent of his employee's current wage to the fund. This implies that the amount accumulated per year in a worker's fund corresponds approximately to one monthly wage. A worker has access to FGTS if dismissed without just cause, upon retirement or death, or as a means of co-financing a private home purchase or high health expenses. The FGTS is transferable between jobs and bears interest if not accessed during a spell of unemployment.

9.14. In the case of dismissal without just cause ("sem justa causa"), the worker has not only the right to access his entire fund, including all funds accumulated during previous employment, but also receives a penalty in proportion to the accumulated FGTS in the job he is being

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<sup>2</sup> For those workers that go to court in order to claim dismissal with just cause or indirect dismissal, this term starts at the end of the court decision or legal ratification of the agreement.

<sup>3</sup> For details of the benefit calculation see [http://www.mtb.gov.br/se/fgts/servicos/fgts\\_idx.htm](http://www.mtb.gov.br/se/fgts/servicos/fgts_idx.htm).

dismissed from. This additional compensation amounted to 10 percent of the worker's FGTS balance at the time of dismissal and has been increased to 40 percent of the FGTS balance in 1988 and to 50 percent in 2001. <sup>4</sup>

#### Box 9.1 Dismissal in the Formal Sector

Formal sector workers who have been formally employed for at least three months have access to their FGTS account if fired without just cause or if they induce indirect dismissal. Latter refers to the fact that the employee requests the dismissal from his job by court decision, claiming that his employer did not comply with the contract.

- According to monthly labor surveys in the six largest metropolitan regions (PME) from 1982-1998, 72 percent of workers who reported job separations were in fact fired and 65 percent of fired workers received FGTS.
- According to the RAIS 1999, **84.5 percent of formal sector workers** with an employment record of at least six months, who separated from their job, were either fired without just cause or induced indirect dismissal. As receiving FGTS is a precondition for having access to UI, this indicates that the fact that unemployment insurance is related to cause does imply that a substantial fraction of formal sector workers are excluded from access to UI benefits.
- **Women are less likely to have access to UI** compared to men. This arises basically from the fact that women are more likely to quit without claiming indirect dismissal. This may be due to the fact that women have to leave their job for specific reasons such as pregnancy or illness of a family member. Furthermore, women are more likely to have a temporary contract.<sup>5</sup>

### III. DATA ISSUES

9.15. Our analysis mainly draws from the following data set:

- (1) *Pesquisa Mensual de Emprego* – PME (Brazilian Monthly Labor Market Survey). The PME is a monthly labor market survey, which provides information on six metropolitan areas in Brazil (Sao Paulo, Rio de Janeiro, Belo Horizonte, Porto Alegre, Recife and Salvador), covering roughly one quarter of Brazil's labor force. The survey is conducted by the Brazilian Census Bureau (IBGE), began in 1980 and after a revision in 1982 remained basically unchanged until to date. The PME provides up to eight interviews for one person. In each year an individual is usually interviewed in four consecutive months. The rotating panel structure of the PME allows to track individual workers for a limited period of time and hence to construct individual work histories.

However, we also refer to the:

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<sup>4</sup> The FGTS fund is administrated by the government. According to Paes de Barros et al. (1999), inefficiencies in the administration of the FTGS translate in investment returns well below market rates and provide an incentive for workers to seek access to their funds by provoking their dismissal.

<sup>5</sup> In 1998, the government introduced legislation that allows employers to hire workers on their temporary contracts. (Law No 9601). Under temporary contracts the contribution to the FGTS fund is reduced from 8 to 2 percent and the obligatory fine in case of unjust dismissal is waived.

- (2) *Pesquisa Nacional por Amostra de Domicílios* - PNAD (Brazilian Annual National Household Survey). The PNAD data is an annual national household survey of approximately 100,000 households, which is performed in the third quarter of each year. It is also conducted by IBGE and began at national level in 1971. Between 1990 and 1992 it underwent a major revision, which makes it difficult to obtain full compatibility of data between the PNAD concept before and after 1992. This is important to keep in mind when comparing data across the last two decades. The survey contains extensive information on personal characteristics, including information on income, labor force participation, and educational attainment and attendance. However as we will discuss below, information provided for the unemployed is rather scarce.
- (3) *Relação Anual das Informações Sociais* – RAIS (Brazilian Annual Labor Market Register). The RAIS is a nationwide register and covers about 90 percent of the formal Brazilian labor force. Employers are required to declare flows and stocks of employees during the course of the year. The RAIS is administrated by the Ministério do Trabalho e Emprego and was first implemented in December 1975.

#### **Box 9.2 Improving the Design of PME and PNAD – Recommendations**

PME and PNAD were designed for different objectives. While comparability of labor market statistics calculated from both sources is one caveat to keep in mind, the two survey instrument could be improved to provide a better understanding of unemployment in Brazil. It might be useful to consult the following list of recommendations:

- The PME does not query if an unemployed worker actually receives unemployment insurance. Information on who receives unemployment insurance is crucial for evaluating the unemployment insurance system. The PNAD provides this type of information however it does not contain any information related to the work histories or the pre-unemployment salaries of unemployed workers. It is therefore not possible to deduce the amount of unemployment insurance benefit the worker is likely to receive. For example, as we will see below, unemployment has grown dramatically among the self-employed. Self employed may have access to unemployment insurance, but we have no information how many self-employed actually receive unemployment insurance and how much.
- Neither the PME nor the PNAD provide information on a worker's level of the unemployment benefit or a worker's benefit duration. This information is important to evaluate the role of unemployment insurance as an instrument for income support or as a temporary safety net against poverty.
- The PME queries if a worker receives FGTS or not. However, neither PME nor PNAD contain information if a worker actually received the FGTS fine. This information is crucial to evaluate the importance of the FGTS as an instrument for income support during unemployment or as potential start-up capital for self-employment.
- The PME queries only if a worker was dismissed or quit the job. As access to unemployment insurance and FGTS depends on the cause of dismissal, it would be relevant to query the cause of dismissal.

## **IV UNEMPLOYMENT RATES IN BRAZIL**

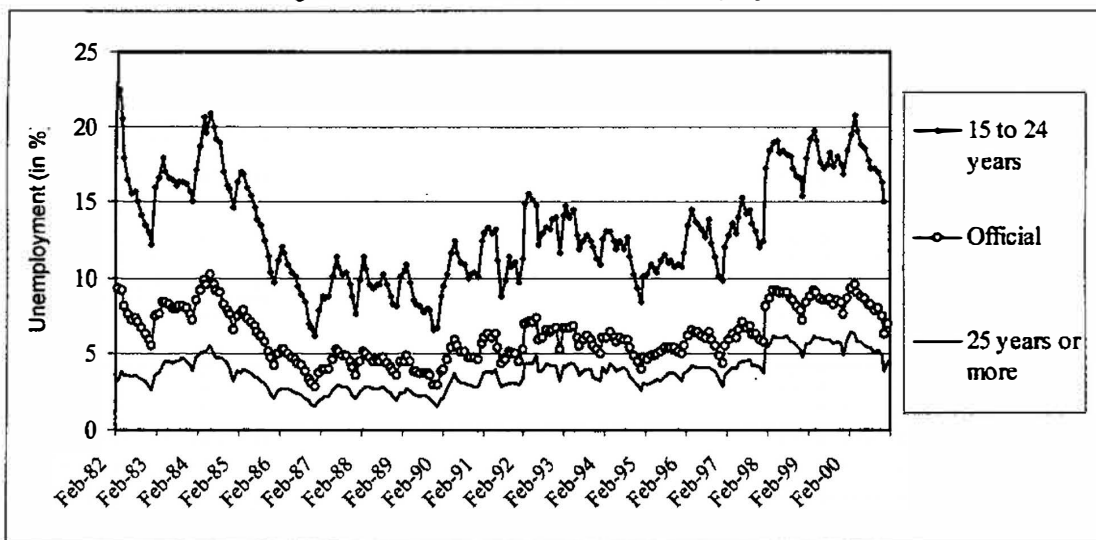
9.16. For Brazil, the beginning of the 1990s seems to mark a pivot point for unemployment in Brazil. While unemployment was on the decrease through the 1980s, the 1990s show an increasing trend in unemployment. This change in the trend may have been due to a variety of factors such as the introduction of the Real Plan or the change in the Constitution in 1988.

However, rather than investigating the causes of unemployment, we attempt to profile the unemployed in order to evaluate the Brazilian unemployment insurance system.

9.17. Figure 9.1 reveals the evolution of different unemployment rates for Brazil. The **official unemployment rate** is measured for workers aged 15 to 65 who are unemployed in the reference period and who have been searching for employment during the last four weeks. This unemployment rate increased from 4 percent in February 1990 to 7 percent in May 1992. The Real Plan brought a short reduction in unemployment, leading to a decline in the official rate to 4 percent in December 1994. After the Asian crisis (October 1997) unemployment rates started to climb again reaching 10 percent in March 2000.

9.18. **Unemployment of younger workers** is measured as the official unemployment rate of workers who are between 15 to 24 years old. At the beginning of the 1990s, this unemployment rate was about three times higher than the rate amongst workers older than 25. But this gap increased, such that at the beginning of the new millennium the unemployment rate of younger workers was about five times higher compared to that of older workers. It is important to keep in mind that the unemployment rate of younger workers reflects well the dynamics of the unemployment rate of labor market (re)-entrants, who do not have any access to unemployment insurance.

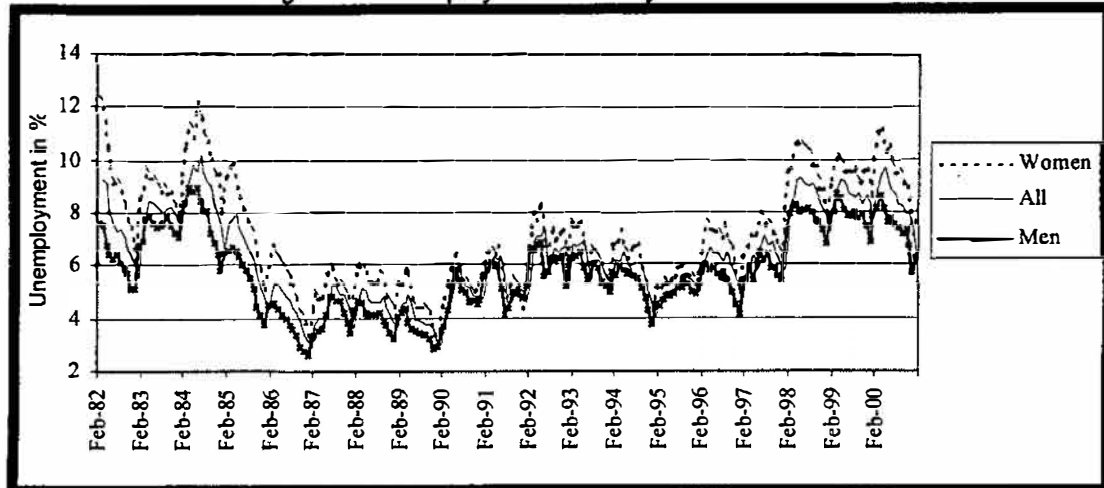
Figure 9.1 Different Definitions of Unemployment Rates



Source: PME/IBGE. Elaboration: CPS/IBRE/FGV

9.19. **Unemployment by gender** shows that female unemployment is almost 30 percent higher than male unemployment. In May 1998, the female unemployment rate reached its highest peak of the 1990s. From 1991 to May 1998 female unemployment rates faced on average an annual growth rate of 0.33, while the corresponding value for men was 0.002. The sharp increase in female unemployment may be partially explained by an increase in female labor force participation. From 1982 to 2000 the female labor force participation rate rose from 36 percent to 42 percent. Furthermore, the gender gap widened during periods of high unemployment. This may hint at a so-called added worker effect due to women entering the labor force during recessions as other family members especially their spouses become unemployed or face reduction in income, pushing unemployment rates even further up during recessions. On the other hand, it may indicate that women are more likely to be dismissed during recessions as tenure is usually shorter among women and hence the costs of dismissal in terms of the FGTS fine are lower for formal employers. We will provide more evidence on this below.

Figure 9.2 Unemployment Rates by Gender



9.20.

Source: PME/IBGE. Elaboration: CPS/IBRE/FGV

9.21. **Unemployment rates by household status** show that children of the household head face the highest unemployment rate. This is consistent with the above finding that unemployment rates for young workers are relatively high. However, this group faced the lowest increase in the unemployment rate due to the fact that unemployment of sons and daughter had been already at a high level of 9.38 in 1991. The unemployment rate of spouses more than doubled between 1991 and 1998, surpassing the unemployment rate of household heads in 1998.

9.22. Table 9.1 provides **unemployment rates by different educational level** and household status. Workers with 9 to 11 years of education (completed secondary education) had the highest unemployment rate in May 1998. This group also faced the highest increase in the unemployment rate from 1991 to May 1998, followed by the lowest education group (primary I education). Hence from Table 9.1, we cannot deduce any clear relation between level of unemployment/change in unemployment and education.

Table 9.1 Unemployment Rates by Education and Household Status

Characteristic	1991	1994	May, 199 <sup>1</sup>	May, 199 <sup>8</sup>	Change <sup>a</sup> 91-98
<b>By Education</b>					
0- 4 years	3.88	4.03	4.41	6.66	71.65
5-8 years	7.03	7.03	8.41	10.10	43.67
9-11 years	5.37	6.00	7.39	10.28	91.43
12 or more years	2.59	2.41	2.66	4.10	58.30
<b>By Household Status</b>					
Head	3.08	3.22	3.68	5.42	75.97
Spouse	2.59	3.11	4.42	6.43	148.26
Son/Daughter	9.38	9.72	11.36	14.21	51.49
Other	6.16	6.68	6.93	9.55	55.03

<sup>a</sup>Change in percent. Source: IPEA/Ministerio do Trabalho (1998). PME (selected years)

### Summary

- Unemployment increased since 1995, independent of the underlying definition.

- During the 1990s, unemployment increased especially among young workers, labor market (re-) entrants, long-term unemployed and women.
- The unemployment rate of workers with completed secondary education faced the highest increase, followed by workers with primary education.

## V THE PROBABILITY OF BECOMING UNEMPLOYED

9.23. The evolution of unemployment rates are determined by the incidence of unemployment and unemployment duration, i.e. unemployment rates may increase because more people become unemployed and/or stay unemployed for a longer time. As separating these two effects is crucial for understanding unemployment and consequently the evaluation of the existing unemployment insurance system, we first analyze the probability of becoming unemployed and then turn to the determinants of unemployment duration.

### Descriptive Statistics

9.24. For our analysis of the probability of becoming unemployed, we use the 12 monthly surveys of the PME 1999. Our sample consists of 421,133 observations on members of the active labor force who are between 15 and 65 years old. As can be seen in the first column of Table 9.2, less than 5 percent in our sample are unemployed, which is significantly lower than the official Brazilian unemployment rate in 1999 of more than 8 percent. One reason why this is the case is that the mean age in our sample is strikingly high. The unemployment rate of 25 year olds or older workers was 5.8 in February 1999, which is much closer to the statistics provided by the PME.

9.25. The PME does not contain directly accessible information on pre-unemployment wages. However, in order to understand the importance of unemployment insurance benefits as a means of providing income support to the unemployed, this information is crucial. As in the PME about 90 percent of the workers are interviewed at least 3 times during the course of a year, we are able to construct individual work histories. In the data we then observe some unemployed workers who had been employed in the previous interview and hence provide information on their pre-unemployment wage. The descriptive statistics of this **sample with wage information** are presented in column 2 of Table 9.2. As all employed workers provide information on their wage, we obtain the sample with wage information by excluding those unemployed individuals for whom we do not observe an employment spell before becoming unemployed. Excluding workers without pre-unemployment wage information hence reduces the proportion of the unemployed and accordingly the proportion of FGTS recipients in the sample even further.

9.26. Note that the percentage of unemployed receiving FGTS drops from 45 percent in the unrestricted sample to 33 percent in the sample with wage information. This may be due to the fact that FGTS recipients have a higher unemployment duration and hence, we are less likely to observe an employment spell in the data. The statistics of the other variables remain basically unchanged.

9.27. The descriptive statistics of the **sample of formal sector workers** are presented in column 3. We define formal sector workers as a worker with *carteira assinada* or an unemployed person, who had a *carteira assinada* in his previous job. Formal sector workers are more likely to become unemployed. As a consequence, the percentage of unemployed increases to 5.9 percent when we restrict our sample to formal sector workers. Furthermore, the proportion of people employed in the manufacturing sector increases.



**Table 9.2 Descriptive Statistics**  
(Mean Values)

Variable	All	Wage Information	Formal Sector
Age	41.9	41.0	39.3
Yes	2.2	0.5	5.0
No	97.8	99.5	95.0
Employed	95.1	98.5	94.1
Unemployed	4.9	1.5	5.9
Female	18.3	18.1	17.5
Male	81.7	81.9	82.5
Formal Employee	44.2	43.7	100
Informal Employee	21.2	21.0	0
Self-employed	28.3	28.82	0
Employer	6.3	6.5	0
Manufacturing	16.8	16.6	26.1
Construction	11.1	10.9	7.0
Commerce	14.0	14.0	12.1
Service	49.4	49.6	51.6
Other Sectors	8.7	8.9	3.2
No education	22.6	22.6	21.1
Primary	26.1	25.9	25.9
Lower Secondary	17.0	16.9	18.5
Secondary	22.3	22.4	23.9
Tertiary	12.0	12.2	10.6
Rio de Janeiro	17.8	18.0	16.9
Sao Paulo	20.9	20.9	21.7
Rio Grande do Sul	17.5	17.5	18.1
Minas Gerais	18.3	18.4	18.7
Bahia	13.1	12.9	13.7
Pernambuco	12.4	12.4	10.8
# of observations	241,133	213,065	106,590

Source: PME 1999— Authors' own calculations.

### Evolution of the Probability of Becoming Unemployed Conditional on Employment Status

9.28. In this section, we analyze the probability of becoming unemployed conditional on the employment status of a worker *prior* to falling into unemployment. In contrast to the previous section, the term employment status refers here to formal employees, informal employees and self-employed workers.<sup>6</sup> Analyzing the probability of becoming unemployed conditional on the employment status is motivated by the fact that the informal sector is very large in Brazil. In our unrestricted sample (column 1 in Table 9.2) nearly 50 percent of the respondents are either informal wage earners or self-employed. We differentiate among self-employed and informal employees, as their economic behavior is different.

9.29. As can be seen in Figure 9.3, the probability of becoming unemployed increased from 1986 onwards for all workers independent of their employment status. After the Real Plan of 1994, the probability of becoming unemployed stabilized for a while, but has been growing

<sup>6</sup> We exclude employers as the number of employers who lost their job is very low in our data set.

strongly after 1997. Self-employed were least likely to become unemployed while informal sector workers suffered the highest probabilities of losing their job during the 1990s.

9.30. The development of the unemployment probabilities seems to be closely tied to the underlying labor market functioning. Fiess et al. (2001a, 2001b) using cointegration analysis and rolling Okun coefficients show that the Brazilian labor market passes through alternating periods of integration and segmentation. The degree of segmentation is determined by the degree of bindingness of labor market rigidities which is itself closely interlinked with the prevailing macroeconomic environment. As during segmentation labor market rigidities become binding, labor markets adjust to a negative shock more through quantities than prices and as a consequence the probability of becoming unemployed increases.

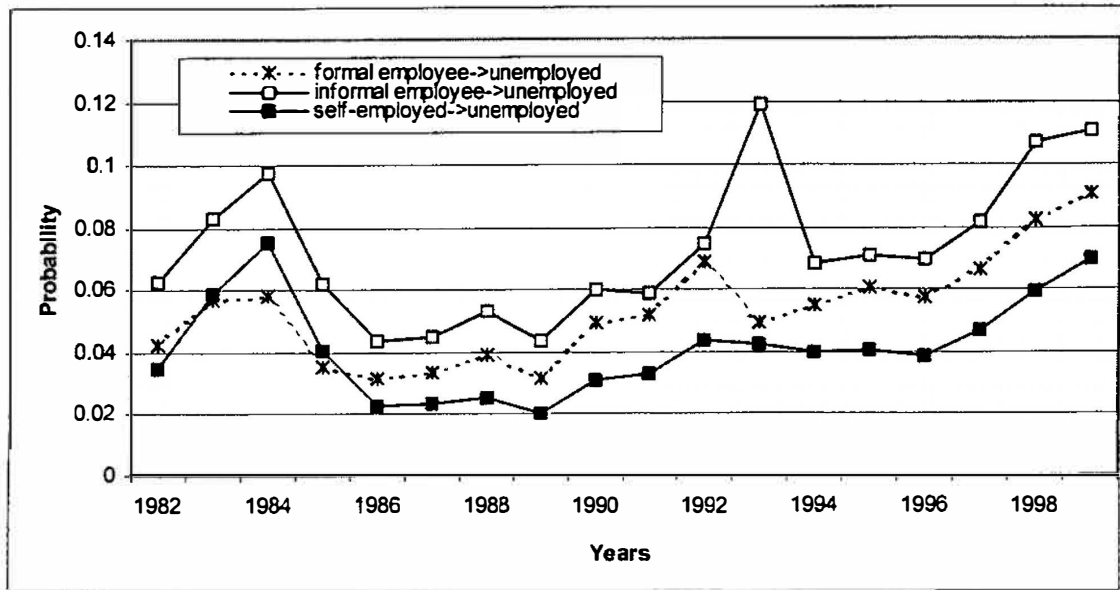
9.31. It seems therefore not surprising that we find an increase in the unemployment probabilities (most pronounced for informal employees) after the Collor plan failed and the economy was on a recessive path with increasing fear of a rapid and incisive opening of the economy. The return of hyperinflation without perfect indexation of workers wages allowed firms to adjust mainly through prices than quantities in 1993 and in the first half of 1994. This corresponds to falling unemployment probabilities (again most pronounced for informal employees) and lower and relatively stable unemployment probabilities during the economic recovery in the aftermath of the Real Plan. The Asian crisis then again brought increasing unemployment probabilities which is in line with the findings of Fiess and Fugazza (2001) that the labor market adjusted during this crises predominantly through quantities.

9.32. It has been claimed that the increase in the FGTS fine in 1988 from 10 to 40 percent has motivated formal workers to induce their dismissal. The drop in unemployment probabilities across the board during 1988 and 1989 provides little evidence for this hypothesis. In fact the general comovement of unemployment probabilities for different working classes appears to be more driven by the prevailing macroeconomic environment and the degree of labor market segmentation and less by specific changes in the labor market legislation.<sup>7</sup>

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<sup>7</sup> This finding is also supported by Ramos and Carneiro (1997). They find no econometric evidence that the change in the level of turnover rates observed at the end of the 1980s was associated with a change in legislation. De Barros et al. (1999) find some evidence that the 1988 constitution by increasing firing costs lowered separation rates and increased employment spells. However, they also acknowledge the difficulty to isolate the impact of the 1988 constitutional changes from the impact of the large macroeconomic changes at the end of the 1980s and beginning of the 1990s.

Figure 9.3 Unemployment Entrance Probability Conditional on Employment Status



9.33.

Source: PME – Authors' own calculations.

### Probability of Becoming Unemployed Conditional on Individual Characteristics

9.34. In the previous section, we have shown that informal sector workers are most likely to become unemployed, followed by formal sector workers. Here, we determine the probability of becoming unemployed conditional on different individual characteristics. The estimation method is a probit analysis, where the dependent variables is a dummy that assumes value 1 if a person is unemployed and 0 otherwise.

9.35. In

Table 9.3, we present the results of four different sample specifications. Specification 1 includes all workers. Specification 2 is restricted to formal sector workers. Specification 3 includes only workers who provide information on their job prior to becoming unemployed. Specification 4 restricts specification 3 to formal sector workers. The different specifications are not only estimated for different groups of workers, they also include different sets of explanatory variables as we only have information about pre-unemployment wages for the workers in specification 3 and 4.

9.36. As already mentioned, neither PME nor PNAD contain directly accessible information on the wage and the tenure a worker had obtained before becoming unemployed. However, in order to understand the importance of unemployment insurance benefits as a means of providing income support to the unemployed, this information is crucial.

9.37. As in the PME about 90 percent of the workers are interviewed at least 3 times during the course of a year, we are able to construct individual work histories. We then obtain wage information for workers who had been employed during one interview and unemployed in the preceding interview. Using this restricted sample, we are able to provide evidence on how the previous wage affects the probability of becoming unemployed. Wages are deflated using monthly INPC data to ensure comparability over time.

9.38. Explanatory variables in specification 1 and 2 include age, gender, education levels, sector of employment, employment status as well as regional dummies. By employment status, we refer to self-employed, employer, formal or informal wage earner. The baseline dummy for this group refers to informal wage earners, which implies that the coefficients of the other employment status dummies have to be interpreted relative to this group. The baseline dummy for the regional dummies is Sao Paulo.

9.39. The coefficients of specification 1 in

Table 9.3 show that men are less likely to become unemployed and that the probability of becoming unemployed decreases with age. Consistent with the unconditional probabilities, informal sector wage earners face the highest conditional probability of becoming unemployment, followed by formal sector workers. Being formal (self-employed) reduces the probability of becoming unemployment relative to informal workers. Relative to the industrial sector, working in construction increases the probability of becoming unemployed, while for the service sector the opposite is the case. Workers in Rio de Janeiro and Minas Gerais are less likely to become unemployed respective to workers in Sao Paolo, while workers in the Northeast of Brazil (Pernambuco and Bahia) are more likely to fall into unemployment.

9.40. Regarding education, we find that individuals with primary or secondary education are more likely to become unemployed than non-educated workers. However, this difference is not always significant. This changes when we restrict our sample to formal wage earners (specification 2). We now find that workers with primary and secondary education are significantly more likely to become unemployed than non-educated formal sector workers. This may indicate a sorting effect in the sense that only highly motivated or able non-educated workers achieve formal worker status. Higher educated individuals, on the other hand, are less likely to become unemployed.

**Table 9.3 Probability of Becoming Unemployed**

	All		Formal		Wage Information		Formal and Wage information	
	Coef.	z	Coef.	Z	Coef.	z	Coef.	z
Age: 25-44	-0.141	-7.17	-0.060	-2.13	-0.071	-2.25	-0.026	-0.535
Age: >45	-0.219	-10.66	-0.089	-2.97	-0.161	-4.83	-0.062	-1.182
Female	0.161	13.99	0.131	8.01	-0.092	-4.35	-0.138	-4.086
<b>Working Class:</b>								
Formal employee	-0.113	-10.14			-0.161	-8.77		
Self-employed	-0.447	-33.32			-0.364	-17.64		
Employer	-0.781	-24.23			-0.693	-12.08		
<b>Sector:</b>								
Construction	0.246	15.28	0.306	13.01	0.298	11.85	0.347	8.882
Commerce	-0.069	-4.25	0.029	1.35	-0.089	-3.23	0.034	0.876
Service	-0.140	-11.23	-0.084	-5.47	-0.101	-4.73	-0.041	-1.461
Other	-0.429	-19.15	-0.541	-10.36	-0.369	-9.91	-0.392	-4.188
<b>Education :</b>								
Primary	0.029	2.38	0.049	2.71	0.033	1.69	0.060	1.908
Lower Sec.	0.018	1.27	0.071	3.61	0.027	1.20	0.101	2.905
Secondary	-0.064	-4.68	-0.026	-1.39	-0.076	-3.21	0.025	0.712
Tertiary	-0.331	-16.72	-0.288	-10.42	-0.284	-7.46	-0.167	-2.890
<b>Wage:</b>								
1-2 SM					-0.332	-16.24	-	-
3-5 SM					-0.515	-19.40	-0.217	-6.767
5-20 SM					-0.620	-19.49	-0.341	-8.246
>20 SM					-0.770	-7.89	-0.375	-3.241
<b>Region:</b>								
Rio de Janeiro	-0.191	-12.16	-0.158	-7.26	0.172	5.49	0.023	0.544
Minas Gerais	-0.052	-3.63	-0.059	-2.97	0.397	12.96	0.145	3.672
Rio Grande do Sul	-0.020	-1.42	0.005	0.25	0.373	14.14	0.122	3.189
Pernambuco	0.172	11.67	0.159	7.73	0.614	22.83	0.043	9.942
Bahia	0.045	2.84	0.010	0.42	0.393	13.78	0.361	0.978
Constant	-1.222	-48.77	-1.491	-44.38	-1.860	-45.46	-2.221	-37.223
<b># of observations</b>	241,133		106,590		213,065		92,690	
<b>Log Likelihood</b>	-45,200.6		-23,352.5		-15,306.4		-6,470.3	

Source: PME 1999. Authors' own calculations.

9.41. Specification 3 and 4 control for wages. Both specifications clearly show that the probability of becoming unemployed decreases with wages.<sup>8</sup>

<sup>8</sup> As formal sector workers cannot be paid legally below the minimum wage, we use the wage bracket between one and two minimum wages as the base line dummy in specification 4. We find that about 0.35 percent of formal (continues)

9.42. Note however, that we are only able to deduce wage information for short-term unemployed. If workers who earn very low wages have a relatively short unemployment duration, then we are likely to overestimate the probability of becoming unemployed for this wage group. The following analysis on unemployment duration will shed more light on this issue. Moreover, we have shown above that women are more likely to become long-term unemployed. The fact that we eliminate the long-term unemployed through our sample selection criteria is likely to produce the observed change in the sign of the female dummy coefficient. Additionally, in the unrestricted sample women are more likely to become unemployed as they belong usually to the group with the lowest earnings.

9.43. Low open unemployment rates in developing countries are commonly attributed to the hypothesis that unemployment is a luxury that the poor – especially household heads – simply cannot afford. Unemployment is then a phenomenon afflicting the relatively young, secondary earners in households, or the better educated. Our findings from the probit analysis do not support this point of view. It are the low-income, less educated households who are most likely to become unemployed.

### **Summary**

9.44. The probability of becoming unemployed increased from 1986 onwards for all workers independent of their employment status.

- The conditional and unconditional probability of becoming unemployed is highest for formal sector workers, followed by informal employees and self-employed
- Women are *ceteris paribus* more likely to become unemployed than men.
- The conditional probability of becoming unemployed is highest for young, informal construction workers with some education.
- Workers who receive the lowest wages are most likely to become unemployed.

## **VI UNEMPLOYMENT DURATION**

9.45. Unemployment rates are determined by the *incidence* and *duration* of unemployment. A distinguishing feature of duration data is that it is censored. Censoring is caused by the fact that we do not observe a completed unemployment spell for individuals who are still unemployed at the time of their last interview. As estimates that ignore censoring actually underestimate unemployment duration, we account for censoring, by identifying completed and uncompleted unemployment spells from individual work histories.

### **Data and Descriptive Statistics**

9.46. The samples used for the duration analysis are described in Table 9.4 The **basic sample** consists of unemployed individuals, who are between 15 to 65 years old and who are at most 48 weeks without employment. Dropping unemployed who have been without work for

more than 48 weeks does not change the characteristics of our sample, as can be seen, when comparing column 1 (*All*) and column 2 (*Basic*) of Table 9.4.<sup>9</sup>

9.47. Sample characteristics change when we eliminate informal sector workers from our sample. In the **formal sample**, the percentage of men and former manufacturing workers increases relative to the basic sample, which is similar to our findings in Table 9.1. Mean wages as well as unemployment duration are significantly higher in the formal sector. As only formal sector have access to FGTS the proportion of workers who received FGTS before becoming unemployed increases.

9.48. The **wage sample** restricts the basic sample to workers for whom we can deduce pre-unemployment wages. Relative to the basic sample, the percentage of formal workers and hence the proportion of manufacturing workers, FGTS recipients and workers with higher education decreases. We underestimate the proportion of formal sector workers in the wage sample due to the fact that in order to obtain the wage information, we require that the worker was employed during at least one interview before becoming unemployed. As the mean unemployment duration is longer for formal sector workers, we are less likely to observe a pre-unemployment employment spell of a formal worker.

**Table 9.4 Descriptive Statistics of Duration Data**  
(Mean Values)

<b>Variable</b>	<b>All</b>	<b>Basic</b>	<b>Formal</b>	<b>Wage</b>
Age	38.63	38.4	38.0	38.2
<b>FGTS</b>				
Yes	42.2	41.0	84.2	34.9
No	57.8	59.0	15.8	65.1
<b>Gender</b>				
Female	22.4	22.0	19.0	16.1
Male	77.6	78.0	81.0	83.9
<b>Former Employment Status</b>				
Formal Employee	50.0	49.0	100	44.0
Informal Employee	30.0	30.5	0	31.8
Self-employed	18.8	19.2	0	23.2
Employer	1.2	1.3	0	1.0
<b>Former Sector of Employment</b>				
Manufacturing	18.6	17.8	25.6	16.1
Construction	19.4	20.4	13.9	25.8
Commerce	12.9	12.8	13.8	11.8
Service	43.3	43.3	45.2	41.8
Other Sectors	5.8	5.7	0.5	4.5
<b>Education</b>				
No education	27.6	28.0	24.3	31.4
Primary	29.9	30.1	28.4	30.3
Lower Secondary	19.1	19.2	21.5	19.4
Secondary	18.8	18.3	21.0	15.7
Tertiary	4.6	4.4	4.8	3.1
<b>Duration</b>				
Duration in weeks	20.8	15.2	17.3	11.0
Censored	36.8	36.3	34.1	33.2

<sup>9</sup> Unfortunately we are not able to differentiate in the data whether a person was four weeks or one month without employment. We thus assume that each month corresponds to four weeks. This implies that we are actually underestimating unemployment duration.



Former Wage				
Wage	350.5	351.55	408.2	351.55
# of observations	8167	7549	3674	2350

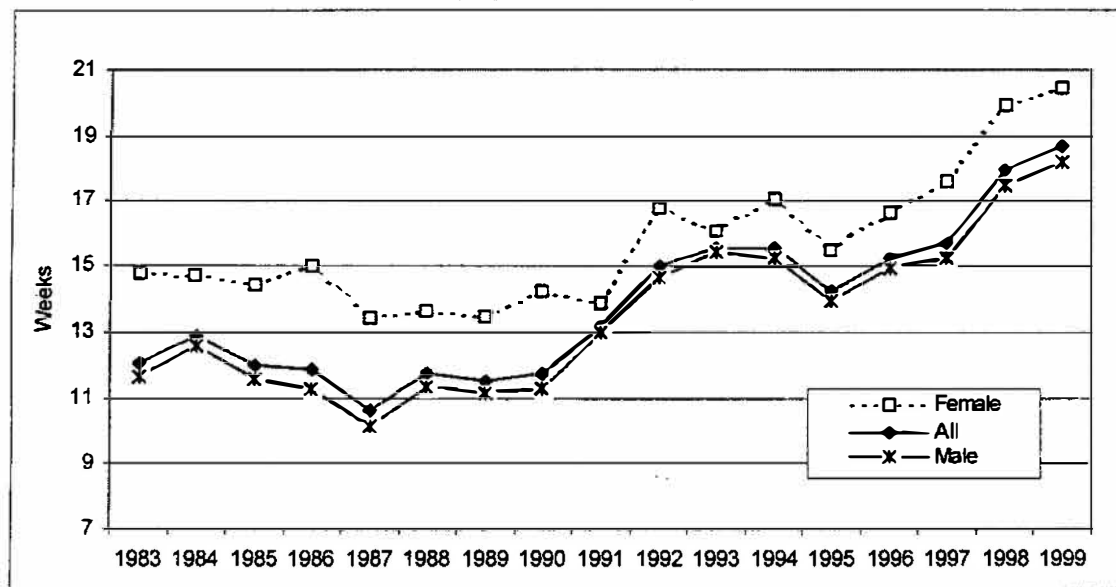
All includes all unemployed who are between 15 to 65 years old. Basic, Formal and Wage are restricted to unemployed, who are between 15 to 65 years old and at most 48 weeks without employment. Formal refers to unemployed who had a signed work card before becoming unemployed. Wage consists of those unemployed who provide information on pre-unemployment wages.

Source: PME 1999. Authors' own calculations.

### Evolution of unemployment duration

9.49. The duration of unemployment spells is significantly higher today than in the mid 1980s. As can be seen in Figure 9.4, after the introduction of the new constitution in 1988, unemployment spells rose by about 50 percent. Similarly, to unemployment rates, this trend came to a halt between mid 1994 and mid 1997. After the Asian crisis, unemployment duration increased again.

Figure 9.4 Mean Unemployment Duration by Gender



9.50.

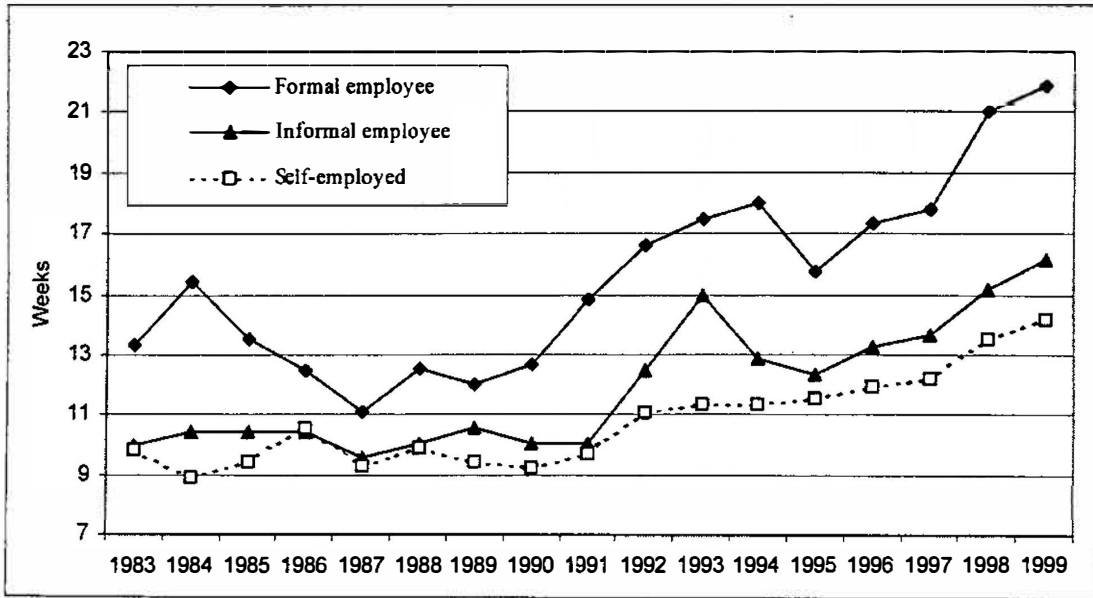
Source: PME 1983-1999. Authors own calculations.

9.51. Looking at **unemployment duration by gender**, it can be seen that male unemployment duration traces the mean unemployment duration closely. During the 1990s male unemployment duration increased from 13 weeks in 1990 to more than 15 weeks in 1997. Similarly, female unemployment duration has become longer and exceeds male unemployment duration on average by 20 percent. The gap between male and female unemployment duration seems to have narrowed at the end of the 1980s, but started to widen again after the Asian crisis.

9.52. The evolution of **unemployment duration by working class** is displayed in Figure 9.5. Unemployment duration of the self-employed grew since 1990 without interruption, but formal sector workers faced the highest increase in unemployment duration during the 1990s. From 1990 to 1997 their unemployment duration increased by 73 percent. The corresponding increases for informal wage earners and self-employed amount to 61 and 53 percent, respectively. Note that only formal sector workers may have access to their FGTS account.

Hence, the mean duration of workers who received FGTS traces that of formal sector workers closely.

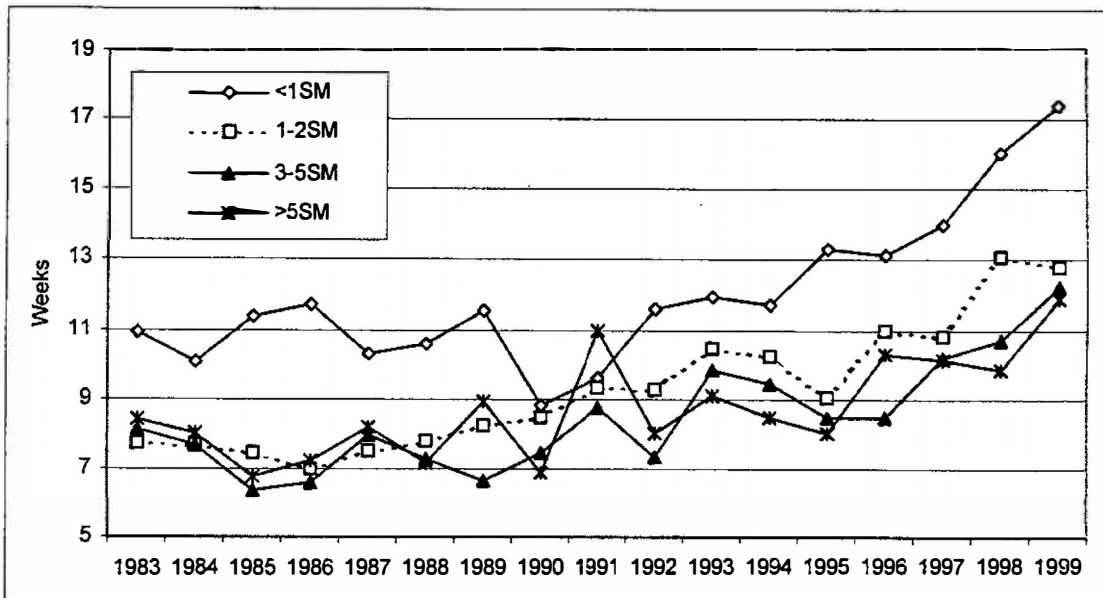
Figure 9.5 Mean Duration by Working Class



Source: PME 1983 -1999. Authors own calculations.

9.53. Figure 9.6 provides a breakdown of **unemployment duration by wage groups**. Unemployment duration increased for all wage groups, however most dramatically for below minimum wage-earners. From 1990 to 1999 the unemployment duration of this wage group nearly doubled. Strikingly enough, the group with the second highest increase in unemployment duration during this period consists of the highest wage earners (73 percent), followed by workers who earned three to five minimum wages (64 percent) and one to two minimum wages (51 percent).

Figure 9.6 Unemployment Duration by Wage Groups

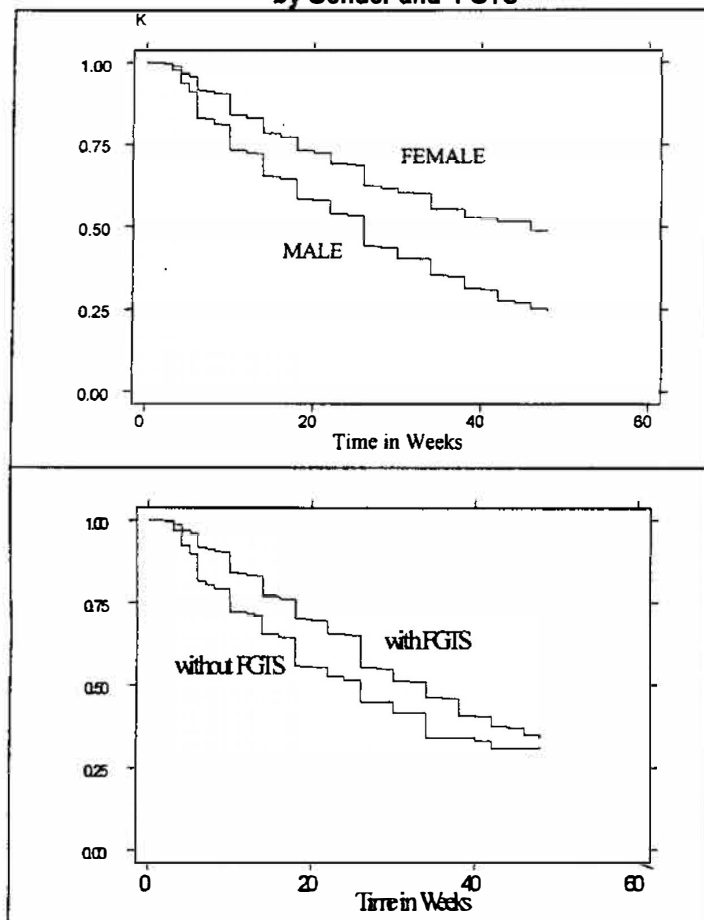


Source: PME 1983 -1999. Authors own calculations.

### Kaplan Meier Estimates

9.54. In order to provide some first evidence on unemployment duration, we present the Kaplan Meier estimators of the survivor function.<sup>10</sup> From Figure 9.7 it can be seen that the probability of facing an unemployment spell of  $t$  weeks is higher for women than for men at all times. The difference between the respective fraction of **men and women** increases with unemployment duration, indicating that it becomes more difficult for women than men to find a job as unemployment duration increases. The probability of facing an unemployment spell of at least 48 weeks is above 0.5 for women, but only 0.25 for men.

Figure 9.7 Estimated Kaplan Meier Survivor Function by Gender and FGTS



9.55. Figure 9.7 shows the Kaplan Meier Survivor function for the **formal sector**, stratified by FGTS recipients and those who do not receive FGTS. Recall that receiving FGTS is a precondition for receiving unemployment benefits. As can be seen, the probability of an unemployment spell lasting at least  $t$  periods is higher for FGTS recipients as compared to formal sector workers who did not receive FGTS before becoming unemployed. The difference in this probability between FGTS and non FGTS recipients increases first and reaches its maximum after 28 weeks. (Unemployment benefits are available for 12 to 20 weeks). The probability of an unemployment spell in excess of 48 months is again very similar for the two subgroups: 0.34 for FGTS recipients and 0.31 for non recipients.<sup>11</sup>

<sup>10</sup> The Kaplan Meier estimator is a strictly empirical approach to estimating survival functions and hence does not rely on distributional assumptions. This makes it an interesting starting point for the analysis of duration data. The survivor function indicates the probability that the unemployment spell is at least of length  $t$  or put differently, it indicates the fraction of unemployed who are at least  $t$  weeks without employment and plots this fraction against  $t$ .

<sup>11</sup> We use a log-rank test in order to test for the equality of the survivor functions of men and women and FGTS and non FGTS recipients. The respective chi square statistics are 126.97 and 26.97, we therefore reject the null hypothesis of no subgroup difference in the survivor function for both groupings.

### Conditional unemployment duration

9.56. Above, we presented evidence on unemployment duration for different groups of workers. Here, we apply a regression analysis to the sample of observed unemployment spells in order to characterize expected duration conditional on a set of covariates. These covariates include age, gender, education and regions, as well as pre-unemployment working class, sector and wage. Again, we proxy duration of unemployment spells by the number of weeks spent searching for a job for those currently unemployed.

9.57. Table 9.5 presents the estimation results of the Cox Proportional Hazard (Cox PH) model. The Cox PH model allows to derive the effects of the covariates on the hazard from unemployment to work without placing any restrictions at all on the shape of the baseline hazard.<sup>12</sup> The negative coefficients on the female dummy indicate that women have lower hazard rates *ceteris paribus* than men, i.e. a lower conditional rate of leaving unemployment and hence longer survival times. At each survival time, the hazard rate for **women** is less than 60 percent of the male hazard rate. Similarly, older worker are less likely to leave unemployment.

9.58. Former self-employed workers hence face the highest conditional probability of leaving unemployment. The hazard rate of **formal sector workers** is about 68 percent of the hazard rate of former informal employees, while the hazard rate of self-employed is nearly 30 percent higher. The coefficients on the **education** dummies are negative, hinting at the fact that the probability of leaving unemployment actually decreases with education. Concerning the **sector** of employment, we have seen above, that construction workers are more likely to loose their job. But as can be seen in Table 9.5 they also have less difficulties in finding a job than former manufacturing workers. The **regional dummies** reveal that in Sao Paulo unemployed are least and in Minas Gerais most likely to exit unemployment.

9.59. The results for former formal sector workers are displayed in column 2 of Table 9.5. The coefficient on **FGTS** indicates that at each survival time, the hazard rate of those who receive FGTS is only 66 percent of the hazard of those who did not received FGTS. Note that receiving FGTS is a condition for having access to unemployment benefits. This may hint at some kind of moral hazard issue, where those who receive unemployment benefits reduce their search effort. Or it may indicate that FGTS recipient are choosier when accepting a new job offer as compared to non FGTS recipients and only accept "good" matches. Latter would be in line with the objective of the UI system to assist workers in their search for new employment.

9.60. Evidence on the effect of **wages** on the hazard rate is provided in column 3. Minimum wage earners are less likely to leave unemployment compared to workers who earn less than 20 minimum wages, which is consistent with Figure 9.6. However, the Cox PH model reveals that the hazard rate of the highest wage group is *ceteris paribus* lower than the hazard rate of the lowest wage group. The coefficient for the highest wage group however is not statistically significant due to the few number of observation in the sample. The results furthermore may be due to outliers and hence should be interpreted with care.

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<sup>12</sup> In order to account for the fact that our data is continuous rather than discrete, we also estimate a discrete complementary log-log (proportional hazard) model with a log time baseline hazard for the entire sample and the formal sector. There exists no significant difference among the coefficients of the two models. The log time coefficient indicates the hazard is increasing over time, but at a decreasing rate.

**Table 9.5 Cox Proportional Hazard Model**

	Basic		Formal		Wage	
	Coefficient	z	Coefficient	z	Coefficient	z
Age	-0.017	-9.078	-0.021	-6.827	-0.009	-2.399
Female	-0.550	-9.629	-0.439	-5.069	-0.393	-3.216
FGTS			-0.431	-5.618		
<b>Working Class:</b>						
Formal employee	-0.376	-8.201			-0.418	-4.768
Self-employed	0.270	4.860			0.159	1.621
Employer	-0.230	-1.314			-0.274	-0.731
<b>Sector:</b>						
Construction	0.302	4.802	0.233	2.514	0.258	2.136
Commerce	-0.039	-0.812	0.069	0.717	-0.080	-0.561
Service	-0.05	-0.094	-0.024	-0.327	0.025	0.218
Other	0.008	0.007	-0.394	-1.224	-0.068	-0.309
<b>Education :</b>						
Primary	-0.084	-1.717	-0.107	-1.393	0.012	0.131
Lower Sec.	-0.088	-1.553	-0.056	-0.672	-0.080	0.744
Secondary	-0.361	-5.757	-0.305	-3.366	-0.237	-1.783
Tertiary	-0.370	-3.471	-0.247	-1.665	-0.065	-0.277
<b>Wage:</b>						
1-2 minimum wage					0.229	2.163
3-5 MW					0.355	2.672
5-20 MW					0.287	1.731
>20 MW					-0.670	-1.110
<b>Region:</b>						
Rio de Janeiro	0.212	2.880	0.334	3.190	0.413	3.29
Minas Gerais	0.436	7.048	0.508	5.454	0.496	4.491
Rio Grande do Sul	0.195	3.013	0.198	2.057	0.296	3.003
Pernambuco	0.100	1.424	0.066	0.585	0.280	2.540
Bahia	0.051	1.107	0.170	1.837	0.029	0.732
# of observations	7549		3674		2350	
Log Likelihood	-21,829.6		-9,140.0		-5,249.56	

*Basic, Formal* and *Wage* are restricted to unemployed, who are between 15 to 65 years old and less than one year without employment. *Formal* refers to unemployed who had a signed work card before becoming unemployed. *Wage* consists of those unemployed who provide information on pre-unemployment wages. Source: PME 1999 -- Authors' own calculations.

### Conditional unemployment duration and exit states

9.61. Up till now, we have only looked at the time until exit from unemployment and ignored the question whether an unemployed worker exits to a formal or informal sector job. To overcome this issue, we estimate an independent competing risks model, which allows us to differentiate

among for two or more independent exit destinations.<sup>13</sup> In our model these destinations are either formal or informal sector, or formal wage earner, informal wage earner and self-employed. The results we present below are estimated using a discrete complementary log-log (proportional hazard) model with flexible baseline hazard. The model assumes that for each time interval, there exists an interval specific parameter that is constant over this interval. Due to zero observations, we choose two weeks as the relevant time interval.<sup>14</sup>

9.62. We are not the first to apply a competing risk model to the analysis of unemployment duration in the Brazilian labor market. Cunningham (2000) uses this methodology and PNAD data to analyze the impact of the 1994 increase in UI benefits on unemployment duration. Cunningham's approach differs from ours in the sense that she is able to identify the effect of unemployment insurance on unemployment duration and exit states. Our approach is not able to provide evidence on the causal effects of unemployment insurance, as it is more descriptive in nature.

9.63. The first column of Table 9.6 presents the effects of the covariates on the hazard from unemployment to formal sector employment. In the second column we present the estimates which refer to exit to the informal sector. This subsumes informal wage earners, self-employed and employers. In the last column we provide the results on exit to self-employment. Independent of the exit destination, **age** has a significant negative impact. The negative age effect is lower for exit to the informal sector as compared to the formal sector and lowest for exit to self-employment. This indicates that older workers are less likely to exit to a formal sector job, once unemployed. Women are less likely to exit to formal employment. The female hazard rate to formal employment is less than 40 percent of the hazard rate of men. The gender differential in the hazard rate decreases when we consider exit to informal employment.

9.64. Regarding **working class**, we see that previous informal wage earners have the highest hazard rate to the formal and to the informal sector. The hazard rate to formal employment for former formal sector worker is about 87 percent of the hazard rate of informal wage earners. This indicates that former informal wage earners are actually not deprived from finding a job in the formal sector and contradicts the conventional dualistic perception of the Brazilian labor market. Furthermore, it shows that former formal sector workers are in general less likely to exit unemployment than self-employed, but that they are more likely to exit unemployment to the formal sector. Concerning the hazard rate to informal employment, we find that former formal sector workers face a hazard which is about 52 percent of the hazard rate of informal wage earners. The respective relative hazard rate of self-employed is 71 percent. Considering exit to self-employment, the hazard rate to self-employment for previously self-employed is 85 percent higher than the respective hazard rate of previously informal wage earners and 260 percent higher than the respective hazard rate of previously formal sector workers. Former self-employed are hence again most likely to exit to self-employment. The pre-unemployment working class is, hence, an important determinant of exit to a specific destination.

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<sup>13</sup> The competing risks model is based on the assumption that an individual actually enters the destination which corresponds to the minimum of the latent survival times.

<sup>14</sup> We use a flexible baseline hazard as this procedure provides more robust results than parametric approaches. We do not allow for unobserved individual heterogeneity. According to recent research this does not seriously bias our results given a fully flexible baseline hazard specification (see for example, Han and Hausman 1990, Meyer 1990).

**Table 9.6 Competing Risk: Basic Sample**

	Unemployment spell ends with move to:					
	Formal Sector		Informal Sector		Self-employed	
	Coefficient	Z	Coefficient	z	Coefficient	z
Age	-0.060	-17.559	-0.041	-16.435	-0.027	-14.440
Female	-0.955	-7.454	-0.463	-5.622	-0.820	-10.292
<b>Working Class:</b>						
Formal employee	-0.140	-1.505	-0.682	-9.949	-0.667	-10.920
Self-employed	-0.660	-3.792	-0.337	-3.357	0.615	9.164
Employer	-0.539	-1.055	-0.546	-1.606	-0.256	-0.937
<b>Sector:</b>						
Construction	0.026	0.192	0.080	0.781	0.326	4.194
Commerce	-0.142	-1.006	-0.039	-0.361	-0.197	-2.075
Service	-0.101	-0.985	0.012	0.014	-0.159	-2.236
Other	-0.352	-1.238	-0.009	-0.048	-0.037	-0.283
<b>Education :</b>						
Primary	-0.285	-2.596	-0.150	-1.901	-0.315	-5.280
Lower Sec.	-0.225	-1.913	-0.148	-1.685	-0.439	-5.954
Secondary	-0.149	-1.246	-0.415	-4.257	-0.865	-10.153
Tertiary	-0.074	-0.345	-0.436	-2.453	-1.003	-6.092
<b>Region:</b>						
Rio de Janeiro	0.166	1.039	-0.184	-1.558	0.381	3.996
Minas Gerais	0.682	2.738	0.270	2.840	0.559	6.849
Rio Grande do Sul	0.352	5.263	-0.456	-1.483	0.159	1.873
Pernambuco	-0.189	-1.141	-0.133	-1.290	0.309	3.618
Bahia	0.107	0.857	-0.495	-5.094	0.189	2.542
# of observations	143,648		140,378		144,246	
Log Likelihood	-3,387.96		-5,493.45		-7,500.81	

Note: The Basic Sample is restricted to the unemployed, who are between 15 to 65 years old and less than one year without employment. All estimations include biweekly spell dummies. Source: PME 1999 – Authors' own calculations.

9.65. Our estimates reveal that individuals without **education** face the highest probability ceteris paribus of exiting to the formal and to the informal sector. However, the difference in the hazard rate to formal employment decreases with education, indicating that those with more education leave unemployment to the formal sector at a faster rate than those with some education. This result is reversed when we consider exit to the informal sector. It becomes even stronger when we look explicitly at exit to self-employment. The hazard rate to self-employment with respect to individuals with no education is 73 percent education for those with primary education, but only 37 percent for individuals with tertiary education. This indicates that primarily workers with low education exit from unemployment to self-employment.

9.66. In order to analyze the effect of **FGTS**, we re-estimate the above described model for the formal sector and present the estimated coefficients in Table 9.7. The effect of FGTS on the exit from unemployment is negative and independent of the destination. The hazard rate to the formal sector of FGTS recipients is 56 percent of the respective hazard rate of those who have not received FGTS. Of particular interest is the role of FGTS for the exit to self-employment.

Cunningham (2000) finds that an increase in unemployment insurance leads to an increase in self-employment for those with longer recent experience in the formal sector. She argues that one possible interpretation may be that, given credit constraints, unemployment insurance provides a means of start-up capital and hence may provide a perverse incentives in increasing the informal sector even further. The coefficient on the FGTS indicates that FGTS recipients are less likely to exit to self-employment than non recipients. But the differential in the hazard rate among FGTS recipients and non-recipients is lowest when considering exit to self-employment, which supports Cunningham's findings.

**Table 9.7 Competing Risk: Formal Sample**

	Unemployment spell ends with move to:					
	Formal Sector		Informal Sector		Self-employed	
	Coefficient	z	Coefficient	Z	Coefficient	z
Age	-0.061	-14.182	-0.049	-12.835	-0.041	-12.807
Female	-0.794	-4.910	-0.258	2.102	-0.729	-5.547
FGTS	-0.586	-4.837	-0.706	-6.697	-0.526	-5.549
<b>Sector:</b>						
Construction	0.187	1.121	0.115	0.734	0.400	3.250
Commerce	-0.032	-0.199	-0.009	-0.064	-0.132	-0.947
Service	-0.079	-0.657	-0.067	-0.612	-0.079	-0.817
Other	--	--	0.051	-0.112	-0.329	-0.724
<b>Education:</b>						
Primary	-0.076	-0.563	-0.294	-2.444	-0.296	-2.950
Lower Sec.	-0.173	-1.178	-0.144	-1.169	-0.463	-4.051
Secondary	-0.039	-0.264	-0.527	-3.711	-0.755	-5.397
Tertiary	0.106	0.040	-0.700	-2.461	-0.583	-2.549
<b>Region:</b>						
Rio de Janeiro	0.444	2.428	0.616	0.616	0.549	3.754
Minas Gerais	0.698	4.411	-0.189	-1.886	0.636	4.790
Rio Grande do Sul	0.236	1.506	2.592	2.592	0.087	0.659
Pernambuco	-0.164	-0.768	-0.098	-0.098	0.240	1.589
Bahia	0.105	0.682	-3.267	-3.267	0.355	3.009
# of observations	82,131		79,477		83,481	
Log Likelihood	-2,255.57		-2,664		-3,143.72	

Note: The *Formal* Sample is restricted to the unemployed, who are between 15 to 65 years old, less than one year without employment and had a signed work card in the pre-unemployment job. All estimations include biweekly spell dummies. Source: PME 1999 – Authors' own calculations.

### Summary

With respect to the evolution of the unconditional unemployment duration, we find that:

- From 1990 to 1997 the unconditional unemployment duration increased for all workers.
- Conditional on **working class**, this increase amounted to 73 percent for formal workers, 61 percent for informal wage earners and 53 percent for self-employed.
- **Male** unemployment duration increased from 13 weeks in 1990 to more than 15 weeks in 1997. **Female** unemployment duration was on average 20 percent higher than male unemployment duration.



- From 1990 to 1999 unemployment duration of workers with a pre-unemployment **wage** below the minimum wage nearly doubled. The highest wage earners faced at the same time the second highest increase in unemployment duration of 73 percent.

Concerning the conditional unemployment duration and exit states we find that:

- **Age** has a negative effect on the probability of leaving unemployment. The age effect is smallest when considering exit to self-employment.
- **Female** unemployment duration exceeds male unemployment duration. The hazard rate of women is only 60 percent of the male hazard rate. The gender differential in the hazard rate is highest for exit to the formal sector and lowest for exit to informal wage employment.
- Workers without **education** face the highest probability ceteris paribus of exiting to the formal and to the informal sector. Workers with more education leave unemployment to the formal employment at a faster rate than those with some education.
- Pre-unemployment **working class** is an important determinant of the exit destination. Former formal sector workers are in general less likely to exit unemployment than self-employed, but they are more likely to exit unemployment to the formal sector. On the other hand, former self-employed are most likely to exit to self-employment again. Independent of the exit destination, informal wage earners are most likely to exit unemployment, which indicates that former informal wage earners are actually not deprived from finding a job in the formal sector.
- Unemployment duration is higher for workers with higher **education**, but those with more education leave unemployment to the formal employment at a faster rate than those with some education. Workers with low education primarily exit from unemployment to self-employment.
- FGTS recipients are less likely to exit unemployment. The differential in the hazard rate among **FGTS** recipients and non-recipients is lowest when considering exit to self-employment, and highest for exit to informal wage employment.

## VII. POLICY IMPLICATIONS AND CONCLUDING REMARKS

9.67. When most of the actual features of the actual Brazilian UI system were implemented at the beginning of the 1990s, the Brazilian UI was claimed to (1) provide temporary financial assistance to unemployed worker and (2) assist workers in their search for new employment. As UI benefits are only available to formal sector workers, the present system covers only about 50% of the total workforce. Further, according to the evidence provided above, unemployed worker who receive FGTS and hence UI are less likely to exit unemployment, even to the formal sector. This hints at the fact that unemployment insurance does not help workers to re-enter formal wage employment, however it may ease the transition to (informal) self-employment.

9.68. According to Barros et al. (2001) there exist two theoretical justifications for limiting UI benefits to the formal sector:

- First, if formal sector workers have a higher share in the aggregated demand function, limiting UI programs to the formal sector could be justified from a macro-stabilization point of view. The Brazilian UI system does not mention macro-stabilization as an explicit target. Further, as the formal sector in Brazil has been declining throughout the 1990s, any potential basis for formal sector based macro-stabilization potential is increasingly eroded.

Unless the trend into informality is reversed, limiting UI benefits to the formal sector cannot be justified by macro-stabilization or consumption smoothing arguments.

- Second, if the human capital of formal sector workers has a higher social value, then formal sector workers should be protected during spells of unemployment as to avoid that they are rationed into the informal sector, where their human capital is depleted at a faster rate.

9.69. However, unemployment insurance may induce longer unemployment spells. As such, UI may actually contribute to a depletion of human capital. We find that unemployment duration is longer for worker who receive FGTS. However, we are not able to determine if UI actually causes longer unemployment. Furthermore, we are not able to discriminate between the impact of FGTS and UI.

9.70. While low level and duration of Brazilian unemployment benefits *per se* is unlikely to induce longer unemployment duration, there are arguments that UI should be combined with search conditions and with training opportunities for young workers.

9.71. Barros et al. (2001) hypotheses are based on the assumption that productivity is highest in the formal sector. This corresponds to the traditional, dualistic labor market view that informal sector jobs are of lesser quality than protected formal sector jobs. Newer theories argue that this is not necessarily the case. The informal sector and especially self-employment may be preferable for certain individuals as they are not subject to the constraints imposed in the formal sector and can choose their level of earnings, benefits and labor protection optimally. (Maloney 1999).

### **Unemployment Insurance and Informality**

9.72. Cunningham (2000), Mazza (2001), Barros et al. (2001) point out that the Brazilian unemployment insurance system contributes to increasing informality. A possible explanation is that employers may enter in agreement with formal employees to fire them and then to rehire them under an informal contract.

9.73. It appears difficult to separate the discussion of unemployment insurance from a wider discussion of the causes of informality. If informality were purely the outcome of tax avoidance, then ensuring tax compliance would be sufficient to reduce informality. As a consequence, the tax base would be increased and the extension of UI coverage to a wider basis would be implied. However, if informality and in particular informal self-employment is partly the outcome of a rational decision of workers linked to the fact that benefits and costs of being formal are misaligned, then, forcing informal workers to comply with existing formal regulation can be counter-productive (see Fiess, Fugazza and Maloney, 2001).

9.74. Cunningham (2000) points to another channel why UI might increase informality. Cunningham finds that the increase in UI benefits in 1994 led to an increase in self-employment for workers with a substantial experience in the formal sector. One possible interpretation may be that, given credit constraints, unemployment insurance provides a means of start-up capital (Cunningham, 2000). If worker use their financial assistance as a start-up capital for new firms, this hints at the need of improved access to finance through e.g. micro-credit schemes such as the Brazilian PROGER program which provides credit lines to small enterprises through the national development banking system.

9.75. While incorporation of informal wage earners into the UI systems is difficult, self-employed may have access to UI insurance. Above we have shown that self-employed have become increasingly likely to become self-employed. Under the present UI system self-employed have the possibility of having access to UI if they contributed to the system. Unfortunately, the exiting design of the Brazilian data does not allow to analyze whether self-employed actually make use of it.

### **FGTS, UI and Unemployment**

9.76. In Brazil, workers who are laid off do not only receive unemployment insurance but also FGTS. The FGTS fine is especially difficult to handle for informal firms, as they are small in size, more likely to be credit constraint and have a more volatile production (Maloney and Levenson, 2000). High dismissal costs, hence, increase the premium for small firms to stay informal. But, most of the jobs during the 90's were created in small firms implying an increase in the number of workers not protected by labor legislation.

9.77. Macedo (1985) and Amadeo and Camargo (1996) document that the FGTS system and in particular the FGTS fine provide significant incentives for workers to induce their own dismissal. Two main incentives are highlighted: First, FGTS funds are poorly managed and provide negative returns or returns well below market rates. Secondly, short-sightedness or credit constraints might lead workers to heavily discount the future (see Barros et al .2001). However, these claims should be treated with care.

9.78. A reform of the administration of FGTS funds aimed at increasing returns and removing inefficiencies in the administration seems therefore strongly indicated.

9.79. Also, with FGTS and UI, two instruments exists in parallel for the same purpose. It is questionable if this duplication is efficient. Under the present system, if a worker has been working for a few years, it is likely that his/her FGTS account will exceed any UI benefit. As Barros et al. (1999) point out, it seems worthwhile to consider UI insurance as complementary for workers who have not been able to accumulated sufficient funds in their FGTS to ensure against unemployment.

9.80. Further, it might be worthwhile to delink access to FGTS funds from the cause of dismissal. FGTS funds are individualized accounts and act as a compensation fund. As firms can discount their FGTS contributions through lower wages, the FGTS account represents forced savings for formal sector workers. If workers had access to their FGTS account independent of the cause of dismissal, this would ensure that workers fired with just cause have access to UI and FGTS, while workers fired without just cause had access to their FGTS accounts.

9.81. The FGTS fine on the other hand is distortionary. It should be reduced and/or offered by firms on a voluntary basis. Under the present system, Brazilian employers do not contribute to the UI system. If employers were to be co-opted in the financing of the UI system, employer's contribution to the UI system could replace the function of the FGTS fine as a dismissal fine.

9.82. The interaction between FGTS fine and UI are not well understood and impossible to analyze given the exiting data sets.

9.83. Finally, while many incentives for workers to induce their own dismissal can be established from a theoretical point, it should however be kept in mind that the empirical support is very modest.

## **Human Capital and UI**

9.84. Further, during the 90s the unemployment rate of young workers increased. At the beginning of the new millennium the unemployment rate of workers aged 15 to 25 was about five times higher compared to workers older than 25. Mazza (2000) shows that workers under 30 years of age use increasingly the UI insurance system. This is consistent with the high increase in the unemployment rate of young workers. High unemployment rates among young workers may have high costs for the society as a whole, such as loss of human capital, crime or drug abuse. Special youth training programs might aid the job search of young workers.

9.85. Our findings show that education alone does not necessarily protect against unemployment. The high rates of unemployment among job-seekers with primary and secondary education may indicate a mismatch between schooling and skills required by firms. As such job intermediation services should be improved and public training programs should be more targeted to employment opportunities.

9.86. Brazil offers a program for training provision through PLANFOR, which is financed through the FAT. While PLANFOR provides basic skills training at a low cost and some positive evidence on employment and wages have been documented, there is also evidence of a substantial degree of mismatch between skills provided and employment opportunities and of poor information systems. (Castro et al., 2000)

9.87. Further, unemployment benefits are not linked to labor market intermediation services or job search. According to Mazza (2000) workers may choose to register for UI at a state employment agency (SINE). In 1997 about 23% of the beneficiaries relied on employment service offices, ranging from 9% in the Southeast to 57% in the South. Mazza claims that many private sector firms do not register available jobs at SINE, as SINE has the reputation of being highly politicized. Increasing the efficiency of SINE and strengthening the connection between UI benefits and job search may further ease job search and improve job search matches.

## **Special support for poor workers**

9.88. The probability of becoming unemployed decreases with wage, indicating that workers who earn below the minimum wage face the highest probability of becoming unemployed. At the same time, apart from the highest wage earners, they are least likely to exit unemployment. Barros, Corseuil and Foguel (2001) find that 32% of the poor and only 7% of extremely poor receive UI benefits and conclude that the majority of UI beneficiaries are from non-poor families. Further, the poor also receive lower average benefits. Average monthly UI benefit for the poor is R\$ 135 compared to R\$ 215 for the non-poor. As unemployment insurance is not available for informal sector workers and as a disproportionately large number of low income workers are represented in the informal sector, this further undermines the ability of the Brazilian unemployment insurance system to serve as a social safety net. Labor-intensive public work programs or employment generation programs might be considered, however, they should not be financed out of the unemployment insurance system and should be targeted directly at the poor.

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## 10. THE EFFICIENCY OF ACTIVE LABOR MARKET POLICIES FOR POVERTY REDUCTION IN BRAZIL

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### I INTRODUCTION

10.1. Labor earnings represent a major portion of total income among Brazilian families, especially the poorest of them. Accordingly, unemployment and the low incomes earned by a high percentage of workers have direct and indirect effects on the per-capita family income distribution, and hence on family welfare and poverty levels.

10.2. Historically, low wages have been more important than unemployment as a cause of high poverty levels in Brazil; in other words, Brazilian workers are poor not because of a lack of jobs, but because they earn little from the work they do. In Brazil, it is usually wages that are in short supply rather than jobs. The impact of unemployment on poverty has actually been relatively slight; estimates suggest that eliminating unemployment completely would reduce poverty by just three percentage points. The same poverty reduction could be achieved by raising labor earnings by 15%.

10.3. Nonetheless, the growing importance of unemployment should not be overlooked, having risen from around 5% in 1997 to about 8% in 1998, where it has remained ever since. The persistence of higher rates since 1998, along with the emergence of long-term joblessness, suggests that fighting unemployment is becoming relatively more important as a weapon to reduce poverty.

10.4. There is a close relationship between poverty and labor-market performance everywhere, not just in Brazil. National and subnational Governments have tried a variety of policies and programs to systematically combat unemployment and low pay in several segments of the labor market, with the ultimate objective of reducing poverty.

10.5. The aim of this paper is to analyze the efficacy of such policies in Brazil. Specifically, we attempt to measure their effectiveness as tools for combating poverty. Before embarking on this analysis, however, it should be pointed out that poverty reduction is not always the sole objective of employment and income policies; so, throughout the assessment we also try to take other possible objectives into consideration. Nonetheless, given the high level of poverty that persists among a large part of the population, despite the relative wealth of the country as a whole, combating poverty should be the ultimate aim of these policies and programs. It is therefore the central focus of this analysis.

#### Types of Policies

10.6. The central objective of employment and income policies is to reduce unemployment and raise workers' incomes in order to reduce poverty. Incomes can be improved either through transfers or through higher wages paid to those in employment. A wide range of policies can be devised to achieve this purpose, and, in order to structure the analysis, it is helpful to organize them into three large groups as follows: (a) compensatory policies; (b) distributive policies; and (c) structural policies. This division is similar to that proposed by Barros, Camargo and Mendonça (1994) for the study of policies to combat poverty.

10.7. Compensatory policies include those whose central aims do not necessarily include reducing unemployment or increasing wages. The aim of this type of policy is usually to transfer income to a set of unemployed or low-income workers, possibly with some form of counterpart requirement. Examples of such policies in Brazil include unemployment insurance that transfers income to unemployed workers, or the wage supplement; neither of these demand anything in return. An example of transfer programs with counterpart requirements are the "frente de trabalho" temporary employment/labor retraining programs.

10.8. Distributive policies, rather than acting on the stock of human capital, productivity, or the availability of jobs, aim to influence market prices in order to raise the value of human capital among the poor, or lower the prices of goods consumed by them. Distributive policies include those that attempt to influence the wages of employed workers directly via specific legislation. Examples include the statutory minimum wage, wage floors and wage indexation. Policies of this type aim to raise wages generally, and for low-paid workers in particular, by directly controlling minimum wages or the rate of growth of nominal or real wages in the economy.

10.9. Lastly, structural policies aim either to reduce the rate of unemployment or to increase productivity, and hence raise wages. They can be classified as direct or indirect.

10.10. Direct productive policies include those intended to reduce unemployment and raise productivity. The three traditional examples are: (a) subsidized provision of labor-market intermediation services; (b) subsidized professional training; and (c) microcredit programs.

10.11. Although the primary objective of labor intermediation is to reduce unemployment, it may involve more intensive job search, resulting in better matching and, consequently, higher productivity.

10.12. Professional training has twin objectives, with impacts expected on both the wage level and unemployment. Training increases workers' productivity, and hence their wage level; it also gives workers access to existing jobs that were previously not available to them, thereby reducing the number of people out of work. In other words, while professional training may not generate jobs directly, it does reduce unemployment by matching unemployed workers to job vacancies that would be inaccessible without training.

10.13. Microcredit programs also have two objectives, with impacts expected on both unemployment and the wage level. Microcredit allows productive investments to be made, which raise labor productivity and hence workers' incomes. It also serves to expand production and hence the demand for labor, thereby tending to reduce unemployment.

10.14. Indirect structural policies include macroeconomic measures to stimulate output growth and/or technological upgrading, which then raises labor productivity. Policies of this type range from direct public investment, to measures aimed at lowering market interest rates or lending at subsidized interest rates for investment in productive physical capital. As these policies are generally in the macroeconomic domain, they are not considered in this study, despite having a major impact on the general level of employment and wages.

## **II COMPENSATORY POLICIES AS A FORM OF WORKER PROTECTION**

10.15. This section attempts to assess the extent to which current compensatory policies in the Brazilian labor market do in fact protect employment and incomes among the poorest workers, and thus act a mechanism for combating poverty.

10.16. There are two basic reasons why a compensatory policy may not achieve its objectives. In a direct sense, the policy may be badly targeted: if most of the benefits of the program do not reach the target population, it is clearly unlikely to have the desired impact. In an indirect sense, it is impossible to design a

compensatory policy without spawning a number of often perverse incentives. Any assessment of the impact of a compensatory program needs to consider its potential for perverse effects on the behavior of economic agents.

10.17. In this section, we assess current compensatory policies in the Brazilian labor market from two perspectives: firstly, by evaluating their targeting; and secondly by investigating the perverse incentives they generate for workers and firms. Before doing so, however, we provide a brief description of the nature and functioning of the main compensatory policies and programs.

10.18. We then investigate targeting by attempting to identify program beneficiaries and, in particular, determine whether the most deprived part of the population is in fact the main target. Lastly, we investigate the incentives for firms and workers generated by institutions that could cause the presence of such programs to have negative side-effects on productivity, income and employment. In particular, we study whether these policies affect turnover rates, investment in specific human capital and the extent of informality in the labor market.

### **Description of the Main Compensatory Programs for Worker Protection**

10.19. The Brazilian system of worker protection consists of three programs and two basic rules. The programs are: the Length of Service Guarantee Fund (FGTS), unemployment insurance, and the wage supplement; the basic rules involve penalties for unfair dismissal and the requirement to give prior notice (Barros, Corseuil and Foguel, 1999).

10.20. The FGTS is a fund consisting of balances held in individual workers' earmarked accounts, in which the employer deposits a sum equivalent to 8% of the worker's wage each month. Like other worker protection programs and rules, the FGTS only encompasses workers covered by labor legislation, in other words those in the formal sector.

10.21. The second program is unemployment insurance. This covers workers subject to unfair dismissal who can prove having received six wage payments in the period immediately preceding dismissal, and having been employed for at least six months during the previous three years. Under the rules of the unemployment insurance program, a worker can only claim the benefit once in every 16-month entitlement period counted from the date of dismissal. The criteria established by the unemployment insurance program mean that only formal workers are entitled to receive the benefits of the program. Although benefit payments theoretically cease when the worker obtains a new job, this regulation has proved ineffective because enforcing it is very costly. Currently the program caters for about 4.3 million workers per year, representing annual expenditure of around R\$4.5 billion.

10.22. The third compensatory program is the wage supplement. This pays one annual minimum wage to workers earning an average of up to twice the monthly minimum wage, during the period worked in the previous year, from employers that contribute to PIS/PASEP. To qualify for the benefit, the worker needs to have been registered in PIS/PASEP for at least five years. Once again, like other worker protection programs, the wage supplement is only paid to formal workers. The program caters for around 1.5 million workers per year involving a total annual cost of about R\$500 million.

10.23. Of the two basic rules on worker protection, the first involves compensation for unfair dismissal, which is based on the FGTS balance accumulated by the worker during the lifetime of his or her



employment contract with the firm concerned. Until 1988, compensation was set at 10%, but the figure was raised to 40% following promulgation of the 1988 Constitution.<sup>1</sup>

10.24. The second protection rule is the requirement to give one month's advance notice of dismissal, during which the worker is allowed two hours per day on full pay to seek new employment. Nonetheless, as worker productivity tends to fall off considerably during a notice period, it is common for the employer to sign the worker off immediately and pay a full month's wage.

### **Analysis of Program Targeting**

10.25. In principle, the three programs all have the basic aim of guaranteeing a minimum income to unemployed workers. Nonetheless, as the beneficiary population is limited to workers in the formal sector, and benefits and beneficiaries are both decided independently of per-capita family income, there is no guarantee that benefits will in fact target the most poor. It is quite possible for a large proportion of the beneficiaries to be non-poor, with a substantial fraction of the benefits reaching families with incomes well above the poverty line.

10.26. Having shown that a significant portion of program funds do not reach the poorest families, we discuss possible reasons for this failure to target the most needy population segments.

#### ***Degree of targeting***

##### **Unemployment insurance**

10.27. Figures II.1 through II.5, based on data from the 1996-97 standard of living survey,<sup>2</sup> present a variety of evidence on the targeting of the unemployment insurance program. Individuals are ranked by per-capita family income, not including income from the program.

10.28. Figure II.1 shows how the proportion of people receiving unemployment insurance,  $D$ , varies across the percentiles of the per-capita family income distribution,  $C$ . Figure II.2 shows how those receiving unemployment insurance are actually distributed across the different percentiles. Clearly, the information presented in figure II.2 is merely a re-scaling of that presented in figure II.1, since they both show how  $P[D=1|C=i]$  and  $P[C=i|D=1]$ , respectively, vary with  $i$ , and

$$P[C=i|D=1].P[D=1] = P[D=1|C=i].P[C=i]$$

10.29. The way to interpret the latter expression, is that the first part measures the degree of incidence of the programs, understood as the proportion of people with access to the program in each percentile of the distribution ( $P[C=i|D=1]$ ). The second part of the expression measures program coverage ( $P[D=1|C=i]$ ), in other words the proportion of total beneficiaries located in each percentile (see Barros and Foguel, 1999).

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<sup>1</sup> Currently about 2½ years are required for the penalty arising from compensation to represent one month's wage for the worker. Prior to the 1988 Constitution, the equivalent period was approximately 10 years.

<sup>2</sup> The corresponding research covers the south-east and north-east regions, representing about 65% of the Brazilian population.

10.30. These figures show that a substantial fraction of the beneficiaries of unemployment insurance do not belong to the lowest percentiles. Indeed, there is not even any tendency for beneficiaries of unemployment insurance to be concentrated among the poorest population groups. In fact, using the values for the poverty and indigence lines proposed by Barros and Mendonça (1999), just 32% of the beneficiaries of unemployment insurance are poor, and only 7% are indigent (table II.1). In short, the vast majority of unemployment insurance beneficiaries live in non-poor families.

10.31. So far we have investigated the targeting of access to unemployment insurance; but not all beneficiaries receive the same benefit, so the targeting of insurance expenditures is not necessarily equivalent to targeting in terms of access. Figures II.3, II.4 and II.5 illustrate the targeting of expenditures.

10.32. Figure II.3 shows how the monthly benefit per beneficiary varies across the income distribution. The graph also shows that there is no evidence of higher benefits being paid to poorer beneficiaries: in fact the average benefit received by the most poor is below the overall average. Table II.1 shows that the average benefit received by the poor is just R\$135 per month, while the figure rises to R\$215 for the non-poor.

10.33. Figure II.4 shows how the benefit per person, whether a beneficiary of unemployment insurance or not, varies across the income percentiles. Lastly, figure II.5 shows how total unemployment insurance benefits are distributed in each percentile. These two figures show that the targeting of unemployment insurance benefits is more distorted than the targeting of access to the program. Table II.1 shows that just 23% of the benefits go to the poor and only 5% reaches indigent people.

10.34. There are two possible reasons for the weak targeting of unemployment insurance: either other members of the families of unemployed workers have high incomes, or the beneficiary's own income is high. This aspect is illustrated in figure II.6, which shows how the composition of income among families with unemployment insurance beneficiaries varies from percentile to percentile. This graph shows that unemployment insurance benefit represents no more than 40% of income received by program beneficiary families in the lower percentiles, but less than 15% in higher parts of the distribution. With regard to beneficiaries' personal income, figure II.6 shows that unemployment insurance benefit amounts to nearly 70% of the income of poor beneficiaries and about 40% among the non-poor.

10.35. Table II.1 summarizes the evidence by showing the composition of family income among poor and non-poor families that have an unemployment insurance beneficiary among their members. Unemployment insurance represents 33% of family income among poor families with a beneficiary, but just 14% among those that are non-poor.

10.36. The figures show that unemployment insurance largely fails to target the poor, because unemployed workers mostly do not live in poor families. To demonstrate this, figures II.7 and II.8 show how the proportion of unemployed people varies across the percentiles of the per-capita family income distribution, together with the distribution of unemployed people in each percentile. The graphs clearly corroborate the fact that a large proportion of unemployed workers do not live in poor families. In fact barely 40% of the unemployed are poor, and just 17% are indigent (see table II.1).

10.37. This result is not fully explained by the higher rate of unemployment among adolescents living in non-poor families; because when the analysis is restricted to unemployed workers over 24 years of age or

to those receiving unemployment insurance, the concentration among the poor and indigent still remains low (table II.1).

10.38. The fact that unemployment insurance benefit represents just 39% of beneficiaries' personal income suggests there must be a significant fraction of them who continue to receive the benefit despite having already found a new job. In order to test this hypothesis, table II.1 shows the proportion of poor and non-poor beneficiaries that are unemployed, employed and no longer in the labor force. The results are truly alarming. Barely 20% of unemployment insurance beneficiaries are unemployed and systematically looking for work, while nearly 50% are employed and earning incomes of about 2.8 times higher than the unemployment insurance. In short, a large proportion of the benefits of unemployment insurance goes to workers who are now working and live in non-poor families, and for whom the benefit represents no more than 36% of their personal income and 14% of family income.

### **Wage supplement**

10.39. As the wage supplement covers formal workers only, it is hardly surprising that its targeting – in terms of benefiting the low-income population – is also very weak and similar to that of unemployment insurance. Figures 2.9 and 2.10 present indicators of access to the wage supplement by percentile of the per-capita family income distribution not including the wage supplement, for the whole population.

10.40. Figure II.9 shows how the proportion of the population receiving the wage supplement varies across the percentiles of income distribution. Figure II.10 shows the distribution of the population that receives the wage supplement in each percentile. Both figures show that program targeting is actually worse than for unemployment insurance. The figures show that access to the program for the poorest 30% of the population is worse than the national average.

10.41. Table II.1 provides summary statistics on program targeting, showing that in 1997 just 36% of program beneficiaries were poor and only 10% were indigent.

### **Length of Service Guarantee Fund (FGTS)**

10.42. Lastly, figures II.11 and II.12 present indicators of the targeting of access to the FGTS. Figure II.11 shows how the proportion of people drawing their FGTS varies across the percentiles of the per-capita family income distribution, while figure II.12 shows the distribution of FGTS beneficiaries by income percentile. Half of all FGTS beneficiaries do not live in poor families. Table II.1 shows that 51% of beneficiaries are poor, and just 29% are indigent.

### ***Justifying the lack of targeting***

10.43. Given that the main objective of unemployment insurance and the FGTS should be to guarantee a minimum income to the families of poor workers that lose their jobs involuntarily, the extent of mistargeting in the distribution of beneficiaries and benefits in these programs is surprising. Nonetheless, as this is not the only objective of such programs, there may be other factors justifying the situation. Below, we speculate briefly on what such factors might be.

10.44. Possibly the strongest justification for the bad targeting of these programs stems from the role they are expected to play in facilitating structural changes which, despite not making everyone better off (Pareto optimal), generate aggregate benefits that far outweigh their costs.

10.45. In fact, it is only feasible for a society to implement a structural change that produces aggregate benefits that far outweigh its costs but does not benefit all individuals, if it has mechanisms to enable the potential beneficiaries of the change to compensate those likely to be made worse off by it. Only when there are mechanisms and institutions capable of effecting such compensatory transfers, can this type of transformation (with a positive net result without being Pareto optimal) generate consensus and be implemented. Poverty reduction targeting the poorest families is not the aim of transfers in this situation; the aim is to compensate those hurt most by the structural change. As the groups worst affected by the change are not necessarily the poorest groups originally, there would be no reason for such transfers to specially target them.

10.46. Apart from this basic justification, two additional arguments could be introduced to justify the targeting of programs on people employed in the formal sector of the economy. A typically Keynesian argument is that consumption by such workers represents a major portion of aggregate demand, so a sharp fall in their incomes could trigger additional reductions in output and employment, thereby generating further unemployment and poverty. According to this argument, the transfers generated by such programs would be intended to minimize fluctuations in aggregate demand, as they represent a strongly counter-cyclical source of income.

10.47. Secondly, it could be argued that specific human capital possessed by the labor force in the formal segment of the economy has a high social value, well above its private value. In a recession, without transfers, formal workers would not have the correct incentives to preserve their specific human capital during periods of unemployment. This is because the private value of that specific human capital is below its social value, so the personal discount rate of unemployed workers would tend to be much higher than the social rate. In this situation, it is socially desirable to subsidize the period of unemployment of that segment of the labor force, because otherwise the workers concerned would likely join the informal sector, allowing their human capital to depreciate and minimizing the chances of a return to the formal sector when the recession ends.

10.48. In summary, combating poverty may not be the only motive for compensatory programs such as unemployment insurance and FGTS. Nonetheless, it is difficult to imagine a motivation for the wage supplement other than poverty reduction, so it is hard to justify the mistargeting of that program in particular. Moreover, even in the case of unemployment insurance and FGTS, it is difficult to argue that the reasons for a certain lack of targeting are more important than fighting poverty.

10.49. In other words, as poverty reduction ought to be the fundamental concern of social policy, it is hard to argue in favor of allocating social expenditure to satisfy other objectives until the basic issue of poverty is properly resolved.

### **Protection Programs, Behavior of Economic Agents and Labor Market Performance**

10.50. The mistargeting of the benefits of unemployment insurance programs and FGTS is not the only problem and may not even be the most important one. As the presence of such programs affects workers'

and firms' behavior, there may be major perverse impacts on labor market performance, particularly in terms of wage levels, rates of unemployment and turnover and the degree of informality, and hence, on poverty itself.

10.51. As these impacts on the functioning of the labor market, and consequently on poverty, may be just as important as targeting failures, in this part of the paper we analyze the potential impacts on labor-market performance. We also consider the two basic protection rules (penalty for dismissal and prior notice), along with another – the probationary period – which, despite not forming part of the protection system as such, interacts strongly with some of its components.

### ***Impacts of the Length of Service Guarantee Fund on the labor market***

10.52. As the impacts of the FGTS itself are very different from those caused by penalties for dismissal, we will study the two factors separately. Firstly we consider the impact of FGTS itself. In the next section we deal with the FGTS penalty.

10.53. The FGTS is a fund owned by the worker, which he or she can access only on dismissal. The fact that workers have restricted access to their FGTS makes this a low-liquidity asset. Low liquidity, together with low financial return, reduces the value that each worker attributes to their fund. This undervaluation of the FGTS has two important consequences. On the one hand, it means that each R\$1 deposited by the firm in a worker's FGTS will be valued by the latter at less than R\$1. As the benefit to the worker is less than the cost of the firm, the presence of the FGTS becomes a source of inefficiency, leading to higher labor costs.

10.54. Inefficiency leads to informality, since employees and employers both prefer contracts where the latter pays a direct transfer, instead of making deposits in the employee's FGTS. This generates an incentive to informality. It should be made clear that the rise in the cost of labor is not a result of the FGTS itself, but stems from the existence of a wedge between the benefit for the worker and the cost to the firm. This increase in labor costs also leads to a fall in the demand for labor, and hence an increase in unemployment and/or a drop in the wage level.

10.55. In addition, the undervaluation of the FGTS by workers results in higher turnover rates, since one of the main ways they can gain control over their fund is by being fired or simulating dismissal. In other words, as the balance held in the FGTS accumulates, the incentive for the worker to be dismissed or to simulate dismissal rises. This is one of the main ways for workers to make their FGTS liquid, or to gain control over their fund in order to guarantee a financial return at market rates. This negative aspect of the FGTS has been pointed out consistently by various authors (see, for example, Macedo 1985, and Amadeo and Camargo 1996).

10.56. Table II.2 presents evidence based on PNAD-1990 and PME-1998 of strong demand among employees to gain control over their FGTS. Nearly two-thirds of employees with employment record cards that quit their current job simulated dismissal in order to gain access to their FGTS. These estimates merely suggest that workers are very keen to gain control over their fund, but they do not show the impact of the FGTS on turnover. For this it would be necessary to determine how many simulated dismissals actually result from workers' desire to personally control their FGTS.

10.57. Lastly, as the FGTS gives workers incentives to induce their own dismissal, employees and firms expect employment contracts to be shortlived, so both sides have little incentive to invest in specific human capital. This, in turn, prevents the employment relation from being long-lasting, thereby further raising the turnover rate. In other words, expectations that employment relations will be shortlived reduce incentives for investments in the relationship, which ends up raising turnover rates still further.

***First basic protection rule: penalty for dismissal***

10.58. The dismissal penalty has two characteristics with a major influence on workers' and firms' behavior. In the first place, the penalty is paid by the firm only in the event of unfair dismissal. Secondly, it is also received by the worker only as a result of unfair dismissal. These characteristics have a series of consequences for labor-market behavior.

10.59. It is worth mentioning, however, that the existence of the penalty can also have an impact on hiring. To the extent that firms consider the probationary period insufficient to judge a worker's performance, they will tend to invest more in the recruitment process. This is likely to raise hiring costs, possibly above the efficient level, since firms will try to identify and anticipate worker characteristics that could be more easily observed while they are actually working in the firm.<sup>3</sup>

10.60. Apart from making hiring more expensive, high dismissal costs can also lead to discriminatory practices, because, to avoid the high cost of trying a worker out, firms will rely on any kind of indicator that might have some correlation with observable personal characteristics, such as gender and color.

10.61. A more careful selection process will tend to make matching between firms and workers more selective, leading to increases in productivity and probably also in wages. In addition, better-quality matching together with the existence of the penalty engender expectations that the employment relation will be lasting. This in turn leads to additional investments in specific human capital, which raise productivity and wages and also reduce the likelihood of dismissal.

10.62. In summary, through its impact on firms' behavior, the existence of the penalty may lead to lower turnover rates, together with longer-lasting employment relations and higher productivity, as a result of firms choosing their workers more carefully and greater investment in specific human capital. Wages should rise as a result of the productivity increase. On the other hand, the existence of the penalty raises labor costs, thereby reducing the demand for labor and leading to lower wages. The final impact on wages will therefore depend on the relative importance of these two effects.

10.63. Lastly, the impact on employment is also uncertain since dismissals and hirings both decrease. While there may be fewer dismissals during a downswing, new hirings will also be fewer during the recovery. The net effect on the level of employment depends on production technology, the type of adjustment cost and rules associated with payment of the penalty (Hamermesh and Pfann, 1996). For example, if the technology and adjustment cost, including the penalty, are quadratic, an increase in the

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<sup>3</sup> A firm that considers the trial phase adequate for this purpose would intensify observation/evaluation of the worker during this period. In this case, the firm can be expected to make dismissals in the trial period that would otherwise occur later – in the absence of the intensified observation/evaluation mentioned.

penalty will not have any impact on the level of employment, but only on the average duration of employment contracts.

10.64. The penalty also has consequences for workers' behavior, since it is paid directly to the dismissed worker rather than to a collective workers' fund, to be used to finance an unemployment insurance or training program, for example. Under the system currently in force, the dismissed worker receives the penalty individually, so it may have a significant impact on his or her behavior. All these considerations are valid for workers employed by their current employer for over three months.

10.65. The existence of a penalty privately appropriated by the worker generates conflicting interests between workers and firms. In an economic recovery period, when there are good chances of obtaining employment elsewhere, the workers have an incentive to provoke dismissal, since this is the only way they can collect the penalty. In other words, from the workers' standpoint the penalty is a benefit that grows every day they remain in the firm, but which they only receive if they are fired. This generates a conflict of interests between workers and firms, because workers have incentives to provoke dismissal during an economic upswing, whereas firms are keen to avoid it.

10.66. To the extent that workers are capable of provoking their own dismissal, the existence of the penalty is likely to shorten the average duration of employment relations and increase the turnover rate. If workers and firms become aware of this trend towards higher turnover, incentives for workers and firms to invest in specific human capital will decline, thereby reducing productivity, wages, and hence also the duration of employment.

10.67. In brief, the fact that the penalty is paid by the firm leads to reduced turnover and, consequently, better-quality matching, greater investment in specific human capital, higher wages and longer-lasting employment. On the other hand, the fact that the penalty is received by the worker individually has opposite effects: it raises turnover and reduces investment in specific human capital, leading to less productivity and lower wages.

10.68. Which of these two effects dominates cannot be determined theoretically and is therefore an empirical issue. The substantial increase in the penalty, introduced by the 1988 Constitution, provides a natural experiment to answer this question. Below we describe results obtained by a recent study that investigated the issue empirically.

10.69. The effect of the penalty on turnover was investigated empirically by Barros, Corseuil and Bahia (1999). Their study estimates the probability of severance between worker and job, controlling for the duration of this relationship. Clearly, higher probabilities will be associated with higher turnover rates. Estimates were calculated at two points in time, before and after the new Constitution (1986/87 and 1991/92).

10.70. In order to isolate the effects of other factors – not stemming from the change in the value of the penalty – on the likelihood of severance, estimates of the turnover rate were calculated for groups affected by the penalty (treatment) and those not affected (control). Assuming both groups are affected to the same extent by all other factors determining this probability, the evolution of the control group would describe the evolution of the treatment group unless the level of the penalty changed during the study period.

10.71. Table II.3 shows that the effect on jobs lasting between three and six months is well-defined. The likelihood of severance occurring in this time interval fell after the level of the penalty was raised. In other

time intervals the results are more difficult to interpret, because they vary depending on the partition made between the treatment and control groups.

10.72. The probability of severance occurring in jobs that have lasted more than six months increased, if the trial period is considered as control. On the other hand, if the informal sector is taken as the most appropriate control group, the probability diminished.

10.73. In other words, evidence is compatible with the hypothesis that dismissals were inhibited in the months immediately following the trial period. Nonetheless, this inhibition could have been offset by a greater chance of severance in longer-lasting jobs.

### ***Second basic protection rule: prior notice***

10.74. Prior notice represents a dismissal cost, either in terms of reducing working hours or as payment of an additional wage. As regards the incentives it unleashes, prior notice has the same impact as the penalty for dismissal on workers' and firms' behavior, and hence on labor-market performance. Consequently, the entire analysis of the previous subsection can be applied also to prior notice. The only point that differentiates the incentives generated by these two components of the protection system is that the cost of prior notice is independent of the duration of the job.

### ***A third basic protection rule: probationary period***

10.75. The main function of the trial period is to reduce hiring costs, since a number of worker characteristics can be better assessed by observing the employee's behavior in the workplace, than by inferring or predicting such characteristics on the basis of tests, interviews or references from previous employers.

10.76. Insofar as it reduces hiring costs, the trial period tends to favor better matches between workers and firms, increasing the expected duration of employment for those who last beyond the trial period. This increase in the expected duration of employment encourages investment in specific human capital by firms and workers alike, further strengthening the trend towards more stable employment relations.

10.77. Apart from that, as the reduction in hiring costs for the firm does not entail a cost for the worker, the trial period also tends to reduce informality and raise wage levels.

### ***Unemployment insurance***

10.78. In order to understand the incentives generated by unemployment insurance, it is important to note that, although the latter benefits workers that suffer unfair dismissal, it does not represent a cost for the firm concerned. Unlike the United States, in Brazil a firm's track record on dismissals does not affect the tax it has to pay to form the fund from which the benefits of unemployment insurance are drawn.

10.79. From the worker's point of view, unemployment insurance functions as an additional income source at the time of dismissal. One of its impacts is to allow the unemployed worker to be more selective in choosing his or her next job. The existence of an additional income source raises the worker's reserve wage and so lengthens the search period, but it also increases the quality of the job finally accepted. Consequently, unemployment insurance tends to raise the rate of unemployment by increasing its duration;



but unemployment insurance also results in better matching and thus higher productivity and wage levels among employed workers. Better matching also tends to make employment durable, which strengthens incentives for investment in specific human capital, leading to improved productivity, higher wages and longer-lasting employment relationships.

10.80. While the insurance enables unemployed workers to undertake more careful job search, for those in employment it offers the chance of finding a better job. In this sense, the insurance weakens employment relations, especially at the start of an economic recovery process. The presence of unemployment insurance makes workers less averse to the risks involved in searching for a better job than the one they currently hold. From this perspective, unemployment insurance represents a subsidy to job search, resulting in a more intensive and longer search process, leading to higher rates of unemployment and shorter-lived employment relations, with all the repeatedly cited consequences for investment in specific human capital, productivity and wages.

10.81. To summarize, unemployment insurance allows unemployed workers to be more choosy in their search for a new job; this results in better matching and therefore encourages investments in specific human capital. For employed workers, on the other hand, the insurance represents a subsidy in the search for a better job than would otherwise be available immediately following unfair dismissal. Unemployment insurance therefore encourages induced dismissal, especially during periods of economic recovery. Shorter-lasting employment relations have negative impacts on investment in specific human capital, productivity and wage levels. The positive impact of unemployment insurance on the duration of jobs can be expected to dominate, but ultimately this issue is more empirical than theoretical.<sup>4</sup> In any event, unemployment insurance clearly results in longer periods of unemployment and, probably, also in higher unemployment rates.

10.82. Unlike what happens in the American system, unemployment insurance does not represent a cost to the firm. In the United States it operates as an additional dismissal penalty, since each dismissal increases the firm's contribution to the unemployment insurance fund. The American system of unemployment insurance gives firms an additional incentive not to fire a worker. In the Brazilian case this incentive does not exist, as the contribution of the firm to the Workers Protection Fund (FAT) is independent of its contribution to the turnover rate.

10.83. Lastly, as receipt of the unemployment insurance benefit theoretically ends when the worker accepts a job in the formal segment of the economy, there is an incentive for both workers and firms to maintain informal employment relations while the worker is receiving the benefit. This incentive to informality is significant, since nearly 50% of those receiving the unemployment insurance claimed to be employed already, as mentioned earlier.

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<sup>4</sup> There is no evaluation of the relation between unemployment insurance and the durability of employment in Brazil. There are not even estimates of the effect of this mechanism on the duration of unemployment, although data exist and a methodology has been developed in studies for developed countries.

### III DISTRIBUTIVE POLICIES: THE MINIMUM WAGE

10.84. The most traditional distributive policy is the statutory minimum wage. The immediate objective of minimum wage laws is to raise the wage of the lowest paid workers, and thereby reduce wage inequality and poverty.

10.85. The statutory minimum wage has two immediate basic shortcomings. The first is the fact that it applies to employees only, and therefore is unable to directly influence the income of persons who are self-employed. Secondly, as the minimum wage generally does not even cover all employees, it directly affects only wages in the covered sector. This leaves a large fraction of low-paid workers in the informal sector without direct benefits. Nonetheless, persons who are self-employed and employees in the informal sector may benefit indirectly, since the wages and earnings of such workers tend to be unofficially indexed to the statutory minimum wage.

10.86. The main issue relating to the minimum wage as an employment and income and poverty reduction policy, is its potentially negative impact on the employment of unskilled workers. Increases in the minimum wage mean higher labor costs, leading to reduced demand labor and higher unemployment precisely among the least skilled whom the minimum wage is supposed to protect. For example, Foguel (1997) estimates that a 10% increase in the minimum wage would raise the unemployment rate by 0.5 of a percentage point. In brief, by trying to protect the wage of least skilled workers, an increase in the minimum wage ends up also raising the unemployment rate.

10.87. Nonetheless, this is not the major issue surrounding the statutory minimum wage. The central issue stems from the fact that an ideal minimum wage theoretically exists that would be high enough to guarantee a significant impact on wages, but not so high as to have a significant negative impact on employment. Yet this ideal is not observable, and it may vary substantially according to macroeconomic conditions. Thus, the basic problem with the minimum wage is how to design a mechanism to set its level at each point in time.

10.88. We now turn to two basic empirical issues relating to choosing the right level for the minimum wage. Firstly, we show that the current level of the minimum wage in Brazil is below international standards. In other words, if the international norm is appropriate, then the minimum wage in Brazil is currently below the recommended level. Secondly, we examine the effect of the minimum wage on poverty, and show that its impact is relatively small.

#### **The Level of the Minimum Wage in Brazil**

10.89. In this section, we make a series of comparisons between the level of the minimum wage in Brazil and typical values found elsewhere in the world. The aim is to assess whether the current level of the minimum wage in Brazil is appropriate. For such comparisons to serve this purpose, however, the choice of the minimum wage needs to have been adjusted to the set of countries used in the comparison. Otherwise, a relatively lower minimum wage in Brazil might merely indicate that it is too high in the other countries.

10.90. Comparisons are made using absolute and relative criteria. Firstly, we make international comparisons between absolute levels of the real minimum wage, independently of the economic possibilities of the countries being compared. Secondly, we compare real minimum wage levels taking into

account the possibilities of the economies concerned, by expressing the minimum wage either as a multiple of the economy's average industrial wage or as a multiple of its per-capita income.

10.91. Given the nature of available information, this analysis uses the value of the minimum wage in force at the beginning of the 1990s.<sup>5</sup> In all cases, the values are expressed in 1991 US dollars, corrected for purchasing power differences between the countries.<sup>6</sup>

10.92. If the minimum wage of 1991 is a good approximation to the current level for absolute comparisons, its level relative to per-capita national income is well below that of 1991. Consequently, the conclusions obtained can perfectly well be applied to the situation today.<sup>7</sup>

### ***Comparing minimum wages in absolute terms***

10.93. Figure III.1 shows minimum wage levels for a set of 29 countries for which the relevant information was available, including Brazil. The graph reveals a high concentration of values between US\$100 and US\$250, with nine countries in this interval or very close to it. The minimum wage is in this interval in practically all developing countries, except Paraguay where it is much higher (US\$360). Among industrialized countries there is greater variety: in Portugal, Spain and Japan, the statutory minimum wage is between US\$380 and US\$500; in the United States, Canada, Ireland and France, it is between US\$650 and US\$800, while countries such as Belgium and Holland have a minimum wage close to US\$1000.

10.94. Figure III.1 shows that Brazil's national minimum wage, at US\$113, is the third lowest among the countries analyzed; over 80% of countries studied have a higher minimum wage than Brazil. Only Botswana (US\$95), Peru (US\$99) and El Salvador (US\$106) report lower values.

10.95. This figure clearly shows that the minimum wage in Brazil is well below the international norm. For example, the minimum wage in the median country (Costa Rica - US\$236) is slightly more than twice the level in Brazil. Thus, for Brazil to attain the median value, it would have to double the current level of its minimum wage. If we take a more modest target, namely the median among developing countries, we obtain a minimum wage of US\$173, which is the value currently prevailing in Ecuador. Even in this case, it would be necessary to raise Brazil's minimum wage by 53% to reach the target. Restricting the median to Latin American countries gives the same result.

### ***Comparing minimum wages in relative terms***

10.96. Thus far we have compared minimum wage levels across countries without controlling for differences in the conditions of their respective economies or labor markets. Nonetheless, differences in general economic conditions can justify different levels for the minimum wage. In this section we compare

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<sup>5</sup> For most countries the basic information relates to a year in the period 1989-92. Exceptions are Costa Rica (1985) and Kenya (1987).

<sup>6</sup> In cases where the value of the minimum wage did not relate to 1991, this was further corrected for the inflation rate in order to express all values in 1991 US dollars.

<sup>7</sup> The use of 1991 figures stems from the availability of data in the selected countries. In addition, the minimum wage in Brazil in 1991 is equivalent to R\$ 164 today, and therefore below the minimum wage in 1999.

the level of the minimum wage in Brazil with those in other countries, while controlling for differences in their general economic situation, and particularly the labor market, in two ways.

10.97. Firstly, we compare minimum wages expressed as multiples of the average industrial wage in each country. Secondly, we compare minimum wages in relation to per-capita national income.

### **Using the average industrial wage as benchmark**

10.98. Figure III.2 shows minimum wage levels expressed as a fraction of the average industrial wage. The graph identifies Brazil and Chile as the two countries where the minimum wage represents the smallest fraction of the average industrial wage – just 15%-20%.

10.99. The international norm (median) in countries such as the United States, Botswana, Belgium, Hungary and Philippines, suggests a minimum wage level close to 40% of the average industrial wage. If this is taken as the ideal, then the minimum wage in Brazil should be nearly twice as high as it currently is.

10.100. This international standard assumes that the ideal ratio between the minimum wage and the average industrial wage should be the same for all countries, independently of their development level.

10.101. Nonetheless, it is possible that less industrialized countries might display a natural tendency for a relatively larger differential between the average industrial wage and the statutory minimum. In order to verify this hypothesis, figure III.3 presents international evidence on the relation between the average industrial wage and the minimum wage. Specifically, it estimates the international standard by regressing the logarithm of the minimum wage on the logarithm of the average industrial wage. The results suggest no evidence of a natural tendency for less industrialized countries to maintain a lower ratio between the minimum wage and the average industrial wage. On the contrary, the fact that the regression estimates a coefficient of less than one (0.85) for the logarithm of the average industrial wage, suggests that the “ideal” or “recommended” pattern would be for the minimum wage to grow about 15% more slowly than the average industrial wage, so it would tend to be a larger fraction of the average industrial wage in poorer countries.

10.102. Figure III.4 shows the deviation in each country from the international standard presented in figure III.3. In Brazil, Chile and Mexico, the minimum wage is substantially below the international norm, in relation to the average industrial wage in these countries. In the Brazilian case, where the shortfall is largest, the minimum wage would need to be raised by 120% to meet the international standard, in other words more than doubling its current level.

10.103. In short, evidence on the ratio between the minimum wage and the average industrial wage shows that the minimum wage in Brazil is well below international standards; it needs to be more than doubled to attain levels compatible with the international norm.

### **Using per-capita national income as benchmark**

10.104. Figure III.5 shows the minimum wage in a selected group of countries as a proportion of their respective per-capita national incomes. Like figure III.3, this graph shows that the minimum wage in Brazil, as in Mexico, Uruguay and Japan, is less than one-third of per-capita national income. While the minimum wage in Brazil is only about 27% of per-capita income, the median of the group of 29 countries analyzed is

equivalent to 49%, or about 80% higher. Using this criterion, therefore, Brazil would need to almost double its minimum wage to come into line with the international norm.

10.105. As in the previous section, this comparison implicitly assumes that the ideal ratio between the minimum wage and per-capita income is the same for all countries regardless of development level. In order to verify whether the international norm can in fact be adequately represented by direct proportionality between the minimum wage and per-capita national income, figure III.6 shows how the minimum wage varies with per-capita income for a selected group of countries. The figure also shows the international standard obtained by regressing the logarithm of the minimum wage on the logarithm of per-capita income.

10.106. Figure III.6 shows that there is no evidence that the minimum wage should represent a larger fraction of per-capita income in wealthier countries. On the contrary, the regression coefficient of well below one (0.64) obtained for the logarithm of per-capita income, suggests that the "ideal" or "recommended" pattern would be for the minimum wage to grow less than per-capita national income.

10.107. In relation to the international norm, minimum wage levels in Brazil, Uruguay and Mexico are well below what would be "ideal". This is shown in figure III.7, which indicates how much the minimum wage needs to be raised in each country to match the estimated international norm. In the Brazilian case, the minimum wage would need to be raised by nearly 120% to reach that target; in other words, it needs to more than double.

10.108. Despite their limitations, the international comparisons presented here suggest that the current minimum wage lags far behind the international standard. For the value of the minimum wage in Brazil to come in line with this standard, it would basically need to double its current value.

10.109. The existing evidence suggests that either (a) the level of the minimum wage in Brazil is very much out of step (it would need to be doubled to close the gap); or (b) on average the other countries of the world are tending to set minimum wages that are way above the ideal level; or (c) there are peculiarities in the Brazilian economy or in its labor market at the present time to justify the wide gap in comparison to the international norm.

### **Impact of the Minimum Wage on Poverty in Brazil**

10.110. The effect of the minimum wage on poverty has two components: (a) its impact on labor income; and (b) its impact on pension benefits.

10.111. There are basically three methods of estimating the effect of increases in the minimum wage on poverty levels. The first measures the direct effect of a higher minimum wage on poverty, without considering its impact on the level of employment and cost of living. The second method takes into account the fact that increases in the minimum wage are bound to have negative effects on the demand for labor, thereby reducing the level of employment. The final method uses computable general equilibrium (CGE) model techniques that make it possible to consider indirect effects on poverty, such as variations in the degree of informality of the labor market and increases in pension benefits.

10.112. As this study is only concerned with the minimum wage as a labor-market policy, we will ignore the impact on pension benefits.

***Direct impact of the minimum wage on poverty***

10.113. The impact of the minimum wage on other wages in the economy can be broken into three parts: (a) its impact on employees in the formal sector with wages below the new statutory minimum; (b) its impact on the wages of employees in the informal sector and on the earnings of persons who are self-employed with wages below the new minimum; and (c) its impact on the wages of employees and persons who are self-employed with incomes above the new minimum wage. Of these three components, only the first is unquestionable. The second depends on the degree to which the wages of employees in the informal sector and the income of persons who are self-employed are informally indexed to the minimum wage. The third component depends on the extent to which higher wages depend on the minimum wage.

10.114. In order to estimate the impact of increases in the minimum wage on poverty, a variety of alternative scenarios was created to describe the potential impact of the minimum wage on other wages in the economy. These scenarios differ in two respects: firstly, in relation to the groups affected by the increase in the minimum wage; secondly, in terms of the degree to which wages above the statutory minimum are affected by increases in the latter.

10.115. As regards the groups affected, three alternatives are investigated successively:

- Only workers with employment record cards and civil servants are affected;
- All workers are affected, including those not holding employment record cards;
- All workers are affected, including persons who are self-employed;

10.116. Two possibilities are considered for the way in which other wages are affected:

- i. Only those earning wages equal to or below the new statutory minimum are affected by the increase; workers earning no more than the old minimum will have their pay increased in the same proportion as the minimum wage; those earning between the old and new minima will have their pay raised up to the new minimum.
- ii. All wages are affected in some way – a phenomenon known in the minimum wage literature as a “beacon effect”. Workers earning no more than the old minimum wage have their pay increased in the same proportion as the minimum, as in the previous case. Those with incomes above the minimum wage receive wage hikes in diminishing proportion to their income level. More specifically, the new wage level,  $W_n$ , and the old one,  $W_a$ , are related as follows:

$$W_n = (1 + \alpha) \cdot W_a \quad \text{if } W_a \leq M$$

or

$$W_n = (1 + \alpha \cdot \exp(-\lambda(W_a - M)/M)) W_a \quad \text{if } W_a > M,$$

where  $M$  is the old level of the minimum wage. Two alternatives for the parameter  $\lambda$  are considered:  $\lambda=1$  and  $\lambda=2$ . The greater this parameter, the more rapidly the impact of the increase in the minimum wage on higher wages diminishes. For example, when  $\lambda=2$ , a 15% hike in the minimum wage will feed through as a 2.0% increase for a worker on twice the

minimum wage. When  $\lambda=1$ , a 15% increase in the minimum wage would produce a 5.5% increase for that worker.

10.117. The results of the simulations are shown in table III.1. In the absence of any degree of indexation – in other words, assuming that only wages below the new statutory minimum benefit from the increase – the effect of a higher minimum wage is quite limited. Thus, 20% hikes in the minimum wage would reduce poverty by less than one percentage point, even when the minimum wage influences the wages of employees not holding employment record cards and persons who are self-employed.

10.118. When some indexation is allowed for ( $\lambda=2$ ), the effect of a given increase in the minimum wage doubles. In this case, a 20% rise in the minimum wage leads to a 2.4 percentage point reduction in poverty.

10.119. Lastly, when there is a high degree of indexation ( $\lambda=1$ ), the impact of a given increase in the minimum wage doubles again. In this case, a 15% rise in the minimum wage leads to a reduction in poverty of 4.6 percentage points.

#### ***Minimum wage: impacts on poverty via wages and employment<sup>8</sup>***

10.120. In the previous section, we ignored the negative impacts that increases in the minimum wage could have on employment. In this case, the effect of increases in the minimum wage on poverty also depends on the price-elasticity of demand for unskilled labor in the formal sector.

10.121. As little is actually known about the price-elasticity of demand, simulations were carried out using elasticity estimates of between 0 and 1. Estimates made by Ramos and Reis (1995), which appear in table III.1, show that impacts on poverty are slight when the impact on employment is taken into consideration. Ignoring the “beacon effect”, a 20% increase in the minimum wage generates a reduction of 1.1 percentage points in the proportion of people living in poverty, assuming the demand for unskilled labor is inelastic. In the case where the elasticity of demand for labor is equal to 1 (i.e. every 1% rise in the wage causes a 1% fall in the level of employment), a 20% rise in the minimum wage reduces the proportion of people living in poverty by less than one percentage point.

#### ***Direct and indirect effects on poverty of an increase in the minimum wage, based on a computable general equilibrium (CGE) model***

10.122. In this section we estimate the effect of increases in the minimum wage on the level of poverty in Brazil, taking into consideration its various economic impacts apart from variations in wages. This exercise uses a CGE model (Barros, Corseuil and Cury 1999), which makes it possible to estimate what the level of poverty would be, if the minimum wage were the only parameter in the economy to be altered.

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<sup>8</sup> The analysis of this section is largely based on work by Lauro Ramos and José Guilherme Almeida Reis “Salário mínimo, distribuição de renda e pobreza no Brasil” in *Pesquisa e Planejamento Econômico*. Vol. 25 (1), 1995. IPEA.



10.123. The exercise consists of allowing wage increases for workers whose wages are tied to the minimum.<sup>9</sup> The adjustment in wages is obtained precisely as in the second alternative presented in section III.1. Here also, simulations are restricted to certain values for the model's "beacon effect" parameter,  $\lambda$ .

10.124. Several alternatives ways of running the simulations were considered. The results of each method appear in table III.1. Surprisingly, increases in the minimum wage seem to increase poverty levels.

10.125. The first simulation, which will be taken as a benchmark, assumes the following:  $\lambda=1$ , the minimum wage is raised by 5%; and unskilled workers in the formal urban sector, low-skilled civil servants and workers in the formal rural sector are all directly affected by the minimum wage. The simulation in this case predicts a slight increase in the level of poverty.

10.126. We then modified the specification by setting  $\lambda=0$ . The result is an increase in poverty four times larger than before. Nonetheless, the increase is still negligible – on the order of 0.1 of a percentage point. It is worth clarifying that setting  $\lambda=0$  is equivalent to passing on the same increase for all workers in the group studied.

10.127. Next, the group of workers directly affected by the rise in the minimum wage was altered, with  $\lambda=1$  once again. Apart from those listed in the first simulation, unskilled workers in the informal sector were also considered. The result, as before, suggests no major impact on the level of poverty.

10.128. In the next simulation, all groups were assumed to be directly affected by the minimum wage. The results in this case still show a negligible impact, although there is a slight additional increase in the poverty level.

10.129. The next step consisted of altering the size of the minimum wage hike. Once again two exercises were carried out – the first merely replicating the original specification, with the increase altered from 5% to 20%.

10.130. The result shows that despite the larger increase in the minimum wage, increases in poverty remain negligible, on the order of 0.1 of a percentage point.

10.131. The second exercise replicated simulation (b), with  $\lambda=0$ , but now assuming a 20% rise in the minimum wage. Once again there is a very small increase in poverty, although more than that recorded in the previous simulation.

10.132. The conclusion is, therefore, that increases in the minimum wage have insignificant effects on the level of poverty.

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<sup>9</sup> In this model there are eight types of workers: low-skilled informal; skilled informal; formal rural; low-skilled formal urban; medium-skilled formal urban; high-skilled formal urban; low-skilled civil servant; and high-skilled civil servant.



## **IV DIRECT STRUCTURAL POLICIES**

10.133. As stated in the introduction, direct structural policies aim to alter the characteristics of workers or jobs, by increasing the number of existing jobs, improving their quality or enhancing labor-force skills. Policies in this group include productive credit programs (such as PRONAF and PROGER) for microenterprises and small businesses, professional training programs (such as PLANFOR and those offered by "Sistema S"), and labor-market intermediation programs (such as those run by SINE). In other words, these are policies that aim to guarantee a given clientele subsidized access to three basic types of service: (a) credit, (b) skill training, and (c) labor intermediation.

10.134. We begin this section by discussing how to select the population according to program types. We then investigate the rationale and importance of these policies in combating poverty, for which it is first necessary to classify the various types of unemployment and the main reasons why labor productivity may be low. These issues are discussed in subsections IV.2 through IV.4. Once the significance of these services has been clearly defined, in the fifth subsection we analyze the role of the State in their provision. The two final subsections assess the effective impact of existing programs and try to identify operational reasons why their real impact is below potential.

### **Targeting of Structural Policies**

10.135. Unlike compensatory policies, structural policies, even when aimed at poverty reduction, do not necessarily have to be targeted on the most poor or on those that suffer most from a given change in the structure of the economy. As structural policies are ultimately social investments, they should always be targeted on segments where increases in the number of jobs, or improvements to the quality of existing jobs or workers skills, are most effective.

10.136. Accordingly, credit should not necessarily go to the poorest of the poor, but to low-income segments that have projects of high economic return. Equally, professional training should not necessarily give priority to the very poorest, but to those segments that imply lower training costs and, because of other personal characteristics or situation in the labor market, derive greatest benefit from such training. Similarly, labor intermediation services also should not necessarily be aimed at the poorest but at those whose skill gives them the best chance of finding work, given prevailing conditions in the labor market.

### **The Nature of Unemployment**

10.137. There is a variety of public policies that aim to bring about a structural reduction in unemployment and a structural increase in productivity. Diversity stems partly from the fact that there are various means to achieve a given end; but mostly it is because there are several types of unemployment and reasons for low productivity. The appropriateness and effectiveness of a given policy will depend particularly on the nature of the unemployment and the basic reason for low labor productivity in each context. In this section we describe the main forms of unemployment, the reasons for low productivity and the most suitable structural policies in each case.

10.138. There are essentially three types of unemployment: (a) frictional unemployment; (b) unemployment arising from skill mismatch; and (c) structural unemployment. Frictional and skill-mismatch unemployment are not caused by a shortage of jobs. In these cases, unemployment stems from problems in filling existing vacancies. In the frictional case, jobs are not filled because of information asymmetries.

Workers have limited information on the availability and nature of existing vacancies, while firms have limited information on the availability, skills and characteristics of workers looking for jobs. In this case the most important structural policy would be to subsidize the provision of labor-market intermediation services.

10.139. In the case of unemployment arising from skill mismatch, the situation is different; the difficulty of filling job vacancies stems not from asymmetric information, but from a mismatch between the skills possessed by unemployed workers and those required by the firms offering jobs. In this case, filling the vacancies requires unemployed workers to be retrained in accordance with the skills needed by the job vacancies on offer. To combat this type of unemployment, therefore, professional training is the key policy.

10.140. Nonetheless, there are cases where unemployment does not result from difficulties in filling existing jobs, but from a shortage of vacancies. This is structural unemployment. In this case the shortage of jobs is ultimately always the result of a lack or insufficiency of economic growth. If the economically active population grows at a rate of  $\alpha$ , and labor productivity grows at a rate of  $\beta$ , then given constant returns to scale, production would need to grow at a rate of  $\alpha + \beta$  to keep the unemployment rate constant and for wage increases to keep pace with productivity. If output growth is less than this, wages would have to grow more slowly than productivity, for the unemployment rate not to rise. Slow economic growth is therefore not sufficient to generate an increase in the rate of unemployment; there also needs to be some form of wage rigidity.

10.141. In other words, structural unemployment arises when economic growth is insufficient and the level of wages does not adjust appropriately, thereby causing labor demand to be insufficient to fully absorb supply. Correction in this case could come either from an acceleration of growth or from cuts in wages. Clearly, the growth solution is always more desirable, since it guarantees the adjustment without loss of wages; the problem is that it is not always possible to speed up economic growth. In such cases, wage cuts are needed to fight unemployment.

10.142. It might be thought that combating unemployment through cuts in wages would do nothing to reduce poverty. Nonetheless, this in fact depends on who the unemployed are, which workers will have their wages cut, and how far wages will have to be cut to prevent the unemployment rate from rising. Generally speaking, higher unemployment has a greater impact on poverty than the wage cuts needed to prevent it.

10.143. The main reason for this is that allowing insufficient growth to generate unemployment concentrates the entire burden of adjustment on a small group of unemployed workers, whereas the solution via wages spreads the burden throughout the labor force. Thus, if the negative impact on total worker income is the same in both cases, the solution based on lowering wage rates distributes the costs more evenly and has less effect on poverty.

10.144. Thus, structural unemployment should be addressed preferably through economic growth, or failing this through wage flexibility. Economic growth is not greatly affected by what we have classified as direct structural policies, but more so by indirect structural policies. Nonetheless, certain direct policies can have also major impacts on job creation, such as credit programs for microenterprises and small businesses (e.g. PRONAF and PROGER).

### **Reasons for Low Productivity**

10.145. There are also various reasons for low worker productivity, and hence for low wages, and each requires a specific policy. Although the reasons for low productivity can be classified in several ways, the alternative adopted here is to divide them into three groups according to their origin: (a) low worker skill; (b) low job quality; and (c) mismatch between the worker's characteristics and those of the job concerned.

10.146. In the first case, low productivity stems from low worker skills; so correcting this requires the worker to undergo a professional skill or retraining program.

10.147. In the second case, low skill requires additional investments on the job, either by upgrading the technology being used, or by expanding and modernizing the available physical capital. In this case, overcoming low productivity requires investments in physical capital and technological upgrading. Programs of technical assistance and credit for microenterprises and small businesses can be very important here, although macroeconomic policy will likely have an even greater effect, particularly in terms of interest rates.

10.148. The third reason for low productivity stems from inappropriate matching between workers' characteristics and those required by the job. In fact, both workers and jobs are extremely heterogeneous entities, so the productivity of each match depends on the characteristics of both worker and job. It is the function of the labor market not only to determine the wages paid to different types of workers, but also to assign workers to jobs. Incorrect allocation could result in worker A, who would be highly productive in job X, being assigned to job Y, where worker B, who has been incorrectly assigned to job X, would have been more productive. In this case, switching workers A and B would raise total productivity, thereby revealing the current allocation as inefficient. In other words, given the heterogeneity of workers and jobs, low productivity can result from the labor market failing to allocate workers to jobs optimally – in other words such that there is no reallocation of workers and jobs that would increase the general level of output. If there is, at least one group of workers must be producing below their potential.

10.149. If there were perfect information in the labor market, there would be no major difficulty in achieving an efficient matching of workers to jobs. In the absence of full information, however, there are no guarantees that an efficient allocation will be achieved. One way to facilitate this is to make information on workers and jobs more available – a task that can be achieved by intensifying labor intermediation services.

### **Types of Structural Policy and Their Rationale**

10.150. Now that the types of unemployment and reasons for low productivity have been made explicit, we can describe the rationale for the main structural employment and income policies (a) microcredit; (b) professional training; and (c) labor-market intermediation.

10.151. The aim of microcredit is to reduce unemployment and raise labor productivity. Microcredit acts as a weapon against structural unemployment, since it leads to an expansion of output, and hence greater demand for labor. As it has no impact on workers' skills or on available information, microcredit is unable to tackle frictional or mismatch unemployment. In terms of increasing productivity, microcredit is a useful tool for improving the quality of jobs, since it leads to investment in physical capital and encourages the incorporation of new technologies. On the other hand, it is of little relevance in raising productivity if this is limited either by workers' skills or by the quality of matching.

10.152. Job training also aims to combat both unemployment and labor-force productivity. It reduces mismatch unemployment, to the extent that expanding the capacity of some workers gives them access to a set of jobs that would not be available to them without additional training. Training cannot combat frictional unemployment, however, and as it does not generate jobs directly, its impact on structural employment, should this exist, is clearly small and indirect. Nonetheless, training programs could indirectly create jobs, because the areas of highest labor force skill tend to attract most investment.

10.153. Job training clearly impacts productivity mostly through increases in workers' skills, whereas its impacts on job quality and matching are minor and indirect. Indirect impacts can occur because, firstly, a more highly skilled labor force leads firms to invest in physical capital and adopt new technologies; and, secondly, because higher worker skill levels facilitate matching in the labor market.

10.154. Labor intermediation services aim to reduce information imperfections in the labor market. Consequently, such services are bound to have a major effect on unemployment if this is frictional, and also on productivity insofar as low quality matching is a major factor in explaining low productivity. To the extent that intermediation increases the information available to workers and firms, it shortens the period of unemployment and improves the quality of matching.

10.155. Labor intermediation does not have a direct impact on workers' skills or on the quantity and quality of jobs available. Nor is it effective for tackling structural unemployment. Labor intermediation policies will not be effective in raising productivity when this is limited either by workers' skills or by the low quality of the jobs concerned.

### **The Role of the State**

10.156. The fact that credit, professional skills and labor intermediation are important for reducing unemployment and increasing productivity – and consequently for tackling poverty – does not mean such services have to be provided publicly and in a subsidized fashion; and even less so that they should be produced by the State. In this section, we consider why the State should intervene in this area, and how such services should be provided – in a subsidized form, or possibly as the object of direct State action.

10.157. It should firstly be made clear that some government intervention in these three areas is certainly necessary, as they are three services of crucial importance for income generation among the poorest families, whose markets generally tend to be extremely imperfect. There is therefore no doubt that the State should intervene, in order to guarantee access at least for poor families to these markets.

10.158. If it were possible to achieve this without the need for subsidies and direct State involvement in the production of these services, would there still be a need for subsidies and intervention in production? There are at least three arguments justifying the existence of subsidies, but direct State intervention in production is hard to justify.

10.159. The factors justifying the existence of subsidies are as follows: firstly, given the importance of these services to the incomes of poor families, it is important for the latter to use them intensively. This makes such services merit goods, which justifies a compensatory policy to subsidize their provision to low-income population segments. The arguments for subsidizing this type of program are the same as for providing subsidized access for the population to a basic food basket.

10.160. Secondly, as these services are fundamental in helping workers displaced by structural changes to rejoin the labor market, their subsidized provision can be seen as a social contract to compensate those made worse off by such changes. The existence of this social safety net could be crucial to ensure that changes, which on aggregate represent improvements but do not benefit everyone, become politically viable, since the safety net guarantees some compensation to the losers.

10.161. Lastly, there are reasons to believe that there are positive externalities in both professional training and labor intermediation. In the former, there is a knowledge diffusion process that occurs outside the classroom, whereby a worker who follows a given training course tends to pass on at least part of the training to his or her work colleagues, at no cost. In the labor-intermediation case, the more intensively workers search, the lower are firms' recruitment costs. In the presence of positive externalities, the private demand for such services will be below what is socially desirable, so subsidies of some form are needed to raise demand to the socially optimal level.

10.162. All these arguments merely confirm that, in the fight against poverty, it is vital for poor families to have access to productive credit, professional skill training, and labor intermediation services. We have also put forward arguments for these services to be supplied at least partly on a subsidized basis.

10.163. The only justification for direct State intervention in the production of these services, arises from technical or logistic reasons involved in ensuring access to the poor. It is not clear though what technical or logistic reasons there might be for direct government intervention in their production.

### **Evaluating impact**

10.164. So far, all the justification and importance given to access to credit, professional training and labor intermediation in combating poverty has been theoretical and conceptual. In this section we discuss whether these programs do in fact have an impact on unemployment and productivity, and hence on poverty. As impact assessments only exist for professional training and labor intermediation, we will limit ourselves to evaluating these two programs alone, basing the analysis on a number of recent empirical studies.

10.165. In the case of professional training, there have been numerous evaluations of PLANFOR, including a series that track the subsequent development of course graduates. A small group of these, apart from tracking course graduates, also includes information on the performance of a comparison group. The results of all the analyses with a comparison group, except for the Pernambuco evaluation (Barros, 1999), suggest the impact of the program on unemployment and the level of income is quite small. In order to illustrate the results typically encountered in these studies, we will present and comment on the results of the IPEA-CEDEPLAR study tracking a group of graduates and a control group.

10.166. This study was carried out only in the metropolitan regions of Rio de Janeiro and Fortaleza, and the results obtained are presented in table IV.1. These show that the program had a positive and statistically significant impact on unemployment, but not on the income of those already employed. Quantitatively, the proportion of those with access to professional training that were employed six to 12 months afterwards, increased or ceased to decline by three to four percentage points more than those that did not have access. No impact was perceived on the wages of those employed already.

10.167. Nonetheless, the lack of impact on the incomes of those already employed does not mean the program had no impact on income whatsoever. The higher proportion of people employed means that workers previously without labor income now have some, so the program does have an impact there. In fact, the table shows that the average monthly income of all those with access to the program, including here those originally without work, rose by about R\$ 10 more than among those that did not have access. As the program costs about R\$ 170 per person, the new jobs for program participants need to last more than 17 months for the program to have had a net positive benefit. Unfortunately it proved impossible to evaluate the duration of these new jobs with the information collected, given the limited timescale of longitudinal data available.

10.168. Evaluations of labor intermediation services are less common. The results presented here come from a recent assessment by IPEA and FIPE based on PME longitudinal data; the results are shown in table IV.2. The figures were obtained by tracking for two months the labor market performance of previously unemployed workers, in two groups: (a) unemployed workers who sought labor intermediation in the week of the interview; and (b) those who did not do so.

10.169. This table shows that those who sought labor intermediation services performed better than those who did not, in just two of the six Metropolitan regions investigated (Belo Horizonte and Salvador). Even in these regions, the impact was such that those who sought work ended with a employment rate between two and three percentage points higher, and also an employment rate in the formal sector three to six percentage points higher than those that did not use intermediation services. As the impact on the proportion of employed workers is small and not statistically significant, these results suggest that labor intermediation services are ultimately more important in defining the quality of employment obtained, particularly in terms of greater access to the formal sector, than in taking a person out of unemployment.

10.170. On the whole, these evaluations of the real impact of such policies on unemployment and productivity are far below theoretical expectations, thereby limiting their capacity to fight poverty. These limited impacts may partly reflect intrinsic shortcomings in the policies as instruments for combating unemployment, low labor productivity and poverty, but they may also be a result of shortcomings and imperfections in their implementation. In the next section we describe some of the operational factors that could be undermining the impact of these programs.

### **Operational issues**

10.171. Although there is a wide range of factors that could explain why the impact of PLANFOR on unemployment and productivity is below its potential, the most important one seems to concern the selection of courses and clientele. At the present time, course selection is made on the basis of assessments of demand in local labor markets made by municipal and State employment commissions. These are consolidated by the State Employment Commission and the State Labor Secretariat into a State Skill Training Plan (PEQ). The selected courses are then contracted out to a set of executing agencies. Once supply has been defined, trainees are then sought to fill the available vacancies. As widespread publicity for the courses on offer and their corresponding requirements is seldom made, it is generally left to the executing agency to fill class vacancies from among its own clientele.

10.172. This procedure may suffer from two fundamental problems. Firstly, the failure to use the workers' own professional training preferences as a key basic input in the course selection process, may result in the process incurring serious errors, since labor-market conditions are highly volatile and difficult to predict.

As regards choice of clientele, the current system does not ensure equality opportunities in terms of access to the program. Given the limited dissemination of the program's courses, workers with the same needs and capacities may face different conditions of access.

10.173. One way to avoid these two problems would involve setting up the following sequential four-step procedure: (a) construct a cadastre of courses that could potentially be offered, and evaluate the quality of courses and executing agencies; (b) select the program's clientele; (c) request each program client, in the light of the existing cadastre and advice received, to choose the course and entity where he or she would like to obtain training, and the time when they would like the course to be held; and (d) direct executing agencies towards the existing demand for skill training, to enable them to program their supply. On the basis of this system it could be possible simultaneously to guarantee equal opportunities to the program and to incorporate workers' preferences in the selection of courses.

10.174. In the case of labor intermediation services, the main operational constraint seems to be direct intervention by the State in production. While this may guarantee equal opportunities to the service, it may also be generating inefficient provision. In order to verify the extent to which less State involvement in service production could lead to efficiency gains, it needs to be considered that the service is also produced in four phases: (a) registration of vacancies; (b) registration of unemployed workers; (c) matching of vacancies and unemployed workers; and (d) sending workers to the selected jobs.

10.175. The key problem in public provision arises in the last of these stages. As a vacancy is a highly perishable good, once a potential vacancy has been found for a given worker, it is essential for the latter to be sent there as quickly as possible. If the vacancy is registered after registration of the worker, he or she has either to be called in or required to return periodically to the entity providing the intermediation service. In either case the costs are high, and there is no guarantee that the process will be quick enough.

10.176. An alternative way of resolving the labor intermediation problem, with less public intervention, would be to limit State action to registering unemployed workers and developing a computer program to match them to the available jobs. In this approach, all registered firms could freely use the computer program and the cadastre in their search for workers, with the possibility of developing their own selection criteria. In this case, workers would be called directly by the firm, although part of the costs of calling them might be subsidized by the State. As the firm itself would be selecting workers by calling them, it would also be financing part of the costs. This would give stronger guarantees that the cost would be less and a larger proportion of the candidates called would actually be hired.

## V SUMMARY AND CONCLUSIONS

10.177. In this study we have investigated the relationship between poverty and public policies on income and employment. We classified policies in three groups: (a) compensatory; (b) distributive; and (c) structural.

10.178. Compensatory policies were defined as those based on transfers to ensure a minimum level of income for unemployed or low paid workers. The most important examples of such policies are unemployment insurance, FGTS and the wage supplement.

10.179. The analysis of Brazilian policies in this group revealed two problems. Firstly, the policies are badly focused, generally catering to employed workers or those with per-capita family incomes above the

poverty line. Secondly, we attempted to show that the incentives generated by the presence of these programs may be seriously undermining labor market performance. In particular, we argued that these programs could be major factors behind the high turnover rate and resulting low investment in human capital, low productivity and very low wage levels characteristic of the Brazilian labor force. Whether due to bad targeting or the perverse incentives they generate, these programs end up having much less of an impact on poverty than would be possible if they were better designed.

10.180. Distributive policies were defined as those intended to raise the wages of less skilled workers and thereby reduce poverty, by regulating prices. This group includes all wage policies, especially the minimum wage.

10.181. The analysis of the minimum wage showed firstly that its current level in Brazil is well below the international norm. More specifically, international comparisons suggest that the minimum wage in Brazil needs to be doubled to come into line with international standards. In addition, estimates of the poverty impact of increases in the minimum wage prove to be very small. In fact, even assuming that changes in the minimum wage influence the incomes of workers in the informal sector, as well as those earned by workers with wages above the minimum, a 20% hike in the minimum wage reduces poverty by just two percentage points.

10.182. Lastly we investigated the role of structural policies, which were defined as those aimed at reducing unemployment and enhancing labor productivity. Such policies may have one of the following four immediate objectives: (a) creation of a new job; (b) improvements to the quality of pre-existing jobs; (c) improvement of workers' skills; or (d) better matching between workers and jobs.

10.183. Analysis of these objectives shows that they depend both on macroeconomic policy – particularly in setting interest rates – and specific policies to ensure access for poor people to three services that are essential to income generation: (a) credit; (b) professional skill training; and (c) labor intermediation.

10.184. We investigated the effectiveness of worker skill-training policies and labor intermediation. The results obtained show that while there is evidence that these policies have some impact, this is very small. An analysis of the way these programs operate shows that impacts can be limited by the way they are implemented. In the case of professional skill training, we identified problems such as the process used to select courses and clientele. In the case of labor intermediation, we believe excessive State involvement in the production of this service could at least partly explain the program's lack of effectiveness.

10.185. On the whole, our analysis of employment and income protection policies suggests that structural policies are designed adequately in theory, but have shortcomings in their implementation.

10.186. As regards distributive policies, the evidence shows that they have not been used, and that this is probably a correct decision. Lastly, and more worryingly, the design of compensatory policies is based on an inappropriate conceptual view, which results in these policies being badly targeted and generating incentives that keep labor productivity below what it otherwise might be. Accordingly, redesigning compensatory policies would seem to be the priority goal for obtaining a set of employment and income policies that are effective in combating poverty in the country.



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**Tabela II.2: Trabalhadores desempregados que retiraram o FGTS**

(em porcentagem)

**Pesquisa Mensal de Emprego (PME) - 1998**

São Paulo	85	64	89
Rio de Janeiro	84	66	88
Belo Horizonte	81	70	85
Porto Alegre	81	68	84
Salvador	82	74	83
Recife	81	65	84

**Pesquisa Nacional por Amostra de Domicílios (PNAD) - 1990**

Brasil	79	62	88
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Fontes: Pesquisa Mensal de Emprego (PME) de 1998.  
Pesquisa Nacional por Amostra de Domicílios (PNAD)  
1990.

**Tabela II.3: Diferenças em diferenças de Hazard Rates Tratamento - Controle**

Base de dados	Controle		
	0-3 meses	Informal	Saídas voluntárias
<b>RAIS e CAGED</b>			
3-6 meses	-0.9	-	-2.7
6-12 meses	1.5	-	-0.3
12-24 meses	1.5	-	-0.3
<b>PME (setor formal)</b>			
3-6 meses	-0.5	-0.9	-1.7
6-12 meses	0.6	-0.4	-0.7
12-24 meses	1.2	0.0	-0.1

Fonte: Relação Anual de Informações Sociais (RAIS), Cadastro Geral de Empregados e Desempregados (CAGED) e Pesquisa Mensal de Emprego (PME).

**Tabela III.1: Impacto de um aumento de 20% no salário mínimo sobre a pobreza**

Impacto	Impacto sobre a pobreza (%)
<b>Impacto Directo</b>	
<b>Sem qualquer indexação</b>	
Com carteira e funcionário público	-0.3
Sem carteira	-0.8
Conta própria	-1.0
<b>Baixa indexação (<math>\lambda = 2</math>)</b>	<b>-2.4</b>
<b>Alta indexação (<math>\lambda = 1</math>)</b>	<b>-4.6</b>
<b>Impacto direto e indireto</b>	
<b>Elasticidade emprego-salário</b>	
e=0	-1.1
e=0,2	-1.0
e=0,5	-0.9
e=1	-0.7
<b>Impacto em equilíbrio geral</b>	
<b>Sem indexação</b>	<b>0.0</b>
<b>Com indexação</b>	<b>0.2</b>

Fonte: Pesquisa Nacional por Amostra de Domicílios (PNAD) de 1997.

**Tabela IV.2: Estimativas do impacto da intermediação de mão-de-obra sobre a ocupação e a renda**

**(1 mês após a intervenção)**

Região metropolitana	Variável dependente					
	Ocupado no mês		Renda do trabalho positiva no mês		Empregado formal no mês	
	Coefficiente	P-valor (%)	Coefficiente	P-valor (%)	Coefficiente	P-valor (%)
Belo Horizonte	2.079	14	0.967	42	2.798	0
Porto alegre	-1.211	30	-0.843	40	-0.795	33
Recife	-1.033	46	-0.820	49	0.415	53
Rio de Janeiro	-1.597	38	0.117	94	1.364	21
Salvador	2.559	27	-0.307	89	5.475	0
São Paulo	0.204	84	0.347	69	0.522	39

**Tabela IV.1: Avaliação do impacto da qualificação profissional sobre a inserção no mercado de trabalho e a renda**

**(Diferença das médias 6 meses antes, e entre 6 a 12 meses depois)**

Momento da avaliação	Variáveis dependentes											
	Taxa de participação		Taxa de desemprego		Taxa de ocupação da população economicamente ativa		Rendimento médio da população em idade ativa		Rendimento médio dos ocupados		Logaritmo do rendimento médio dos ocupados	
	Coefficiente	P-valor (%)	Coefficiente	P-valor (%)	Coefficiente	P-valor (%)	Coefficiente	P-valor (%)	Coefficiente	P-valor (%)	Coefficiente	P-valor (%)
Rio de Janeiro	0.11	96	-3.48	37	3.60	36	10.17	16	-2.38	92	0.03	72
Fortaleza	3.32	13	-3.06	43	3.20	41	12.54	6	-11.00	66	-0.01	91

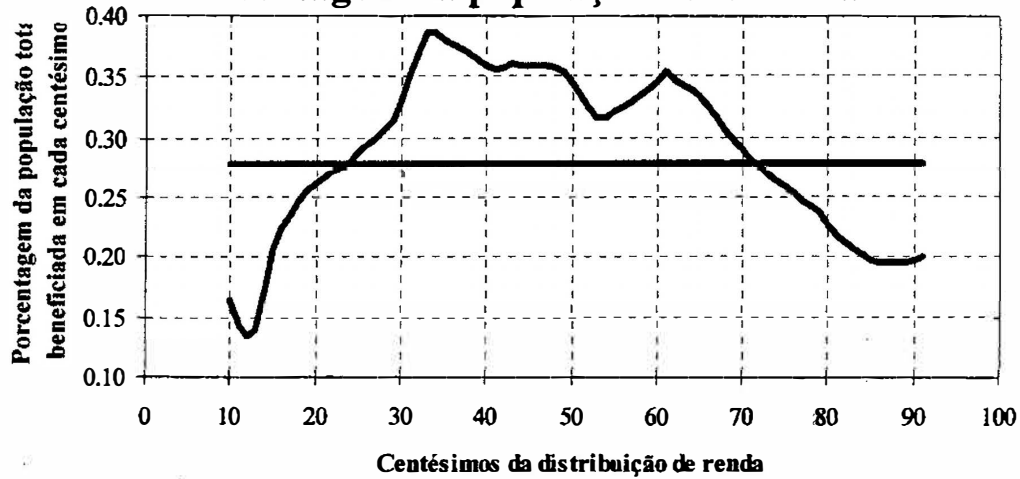
Fonte: Planos Estaduais de Qualificação (PEQ) da Secretaria de Formação e Desenvolvimento (SEFOR/MTE) 1996 a 1998.

Fonte: Pesquisa Mensal do Emprego (PME) de 1990 a 1998.

Nota:

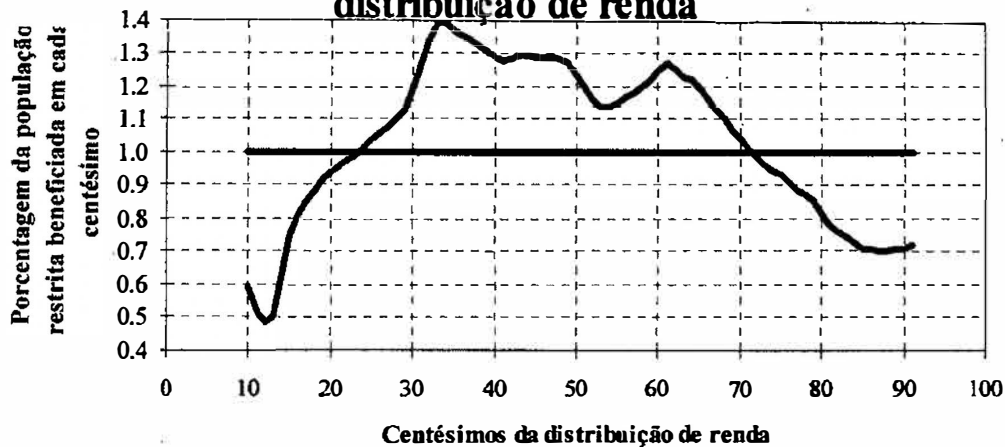
- 1 - Utilizou-se regressão linear.
- 2 - Os dados da tabela foram obtidos a partir de uma concatenação aonde se acompanha um mesmo indivíduo ou grupo de indivíduos por um período de dois meses, com o intuito de captar a evolução de sua situação.
- 3 - Essa regressão inclui controles para as variáveis que estão na tabela.

**Gráfico II.1: Acesso ao Seguro Desemprego**  
**Porcentagem da população beneficiada**



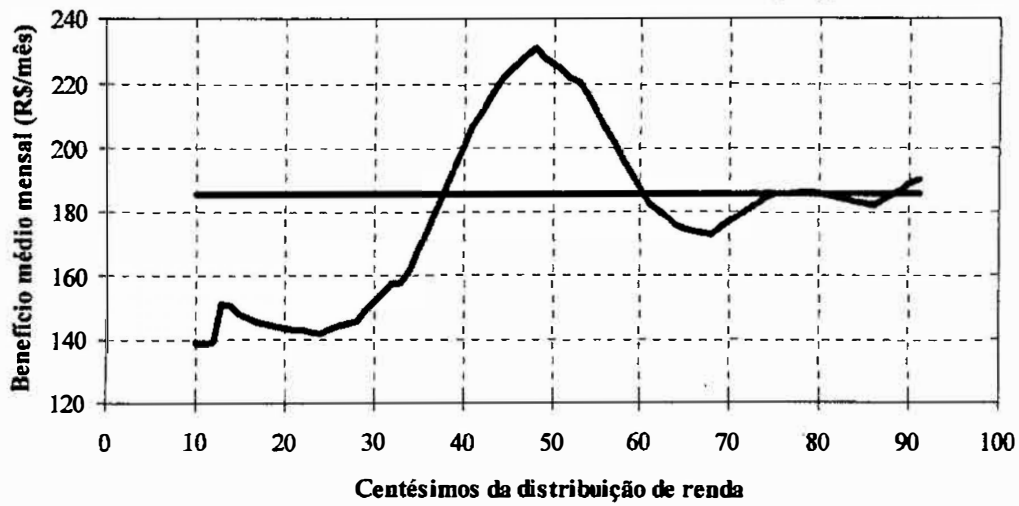
Fonte: Pesquisa sobre Padrões de Vida (PPV) 1996/1997.

**Gráfico II.2: Acesso ao Seguro Desemprego**  
**Distribuição dos beneficiários por centésimos da distribuição de renda**



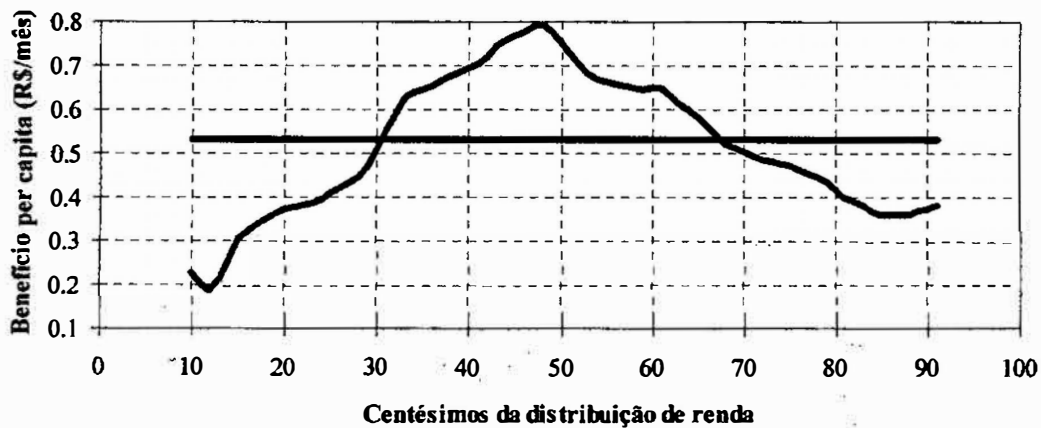
Fonte: Pesquisa sobre Padrões de Vida (PPV) 1996/1997.

**Gráfico IL3: O Gasto com Seguro Desemprego**  
**Benefício médio mensal por beneficiário**



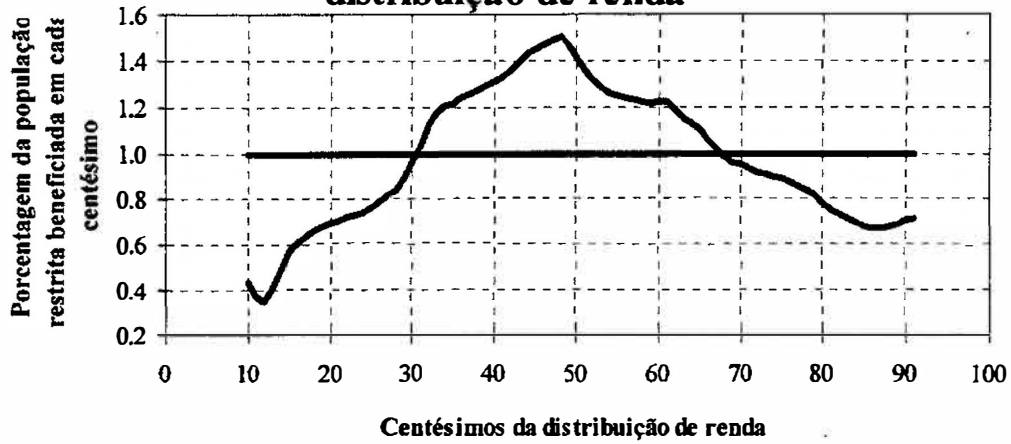
Fonte: Pesquisa sobre Padrões de Vida (PPV) 1996/1997.

**Gráfico IL4: O Gasto com Seguro Desemprego**  
**Benefício Mensal per capita**



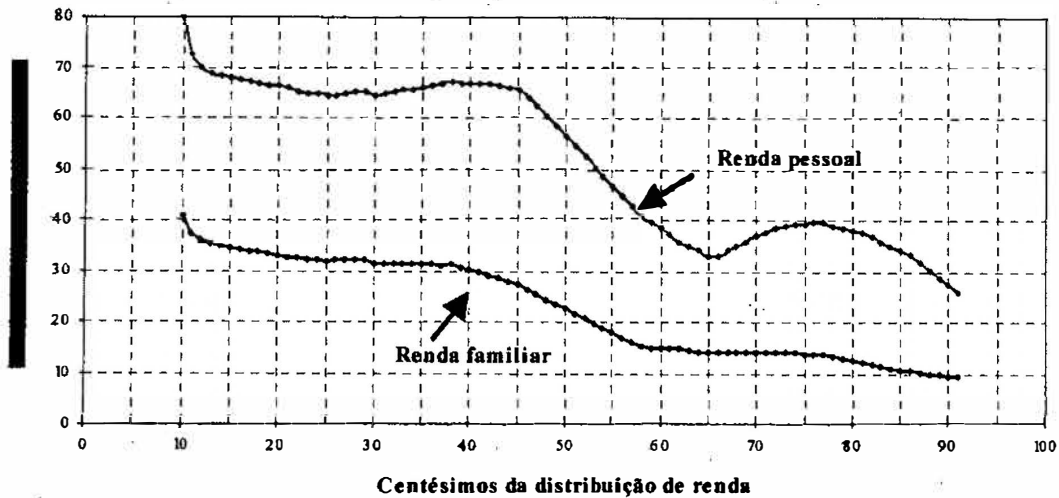
Fonte: Pesquisa sobre Padrões de Vida (PPV) 1996/1997.

**Gráfico IL5: O Gasto com Seguro Desemprego  
Distribuição dos benefícios por centésimos da  
distribuição de renda**



Fonte: Pesquisa sobre Padrões de Vida (ppv) 1996/1997.

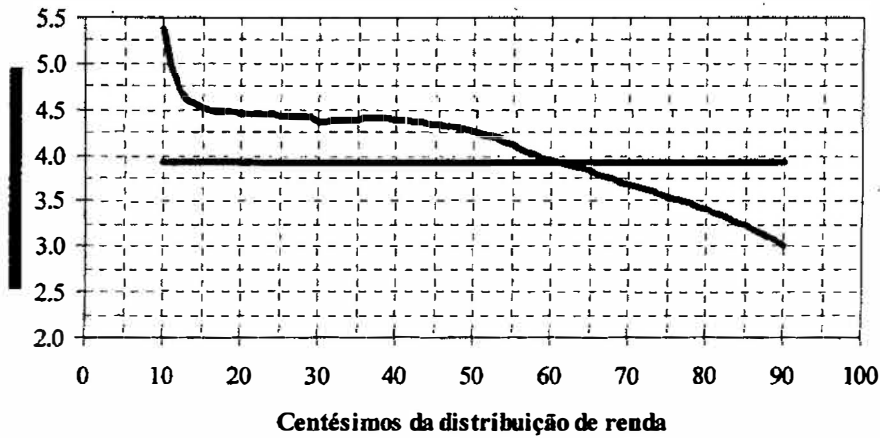
**Gráfico IL6: Benefício do Seguro Desemprego como porcentagem  
da renda pessoal e familiar**



Fonte: Pesquisa sobre Padrões de Vida (PPV) de 1996/1997.

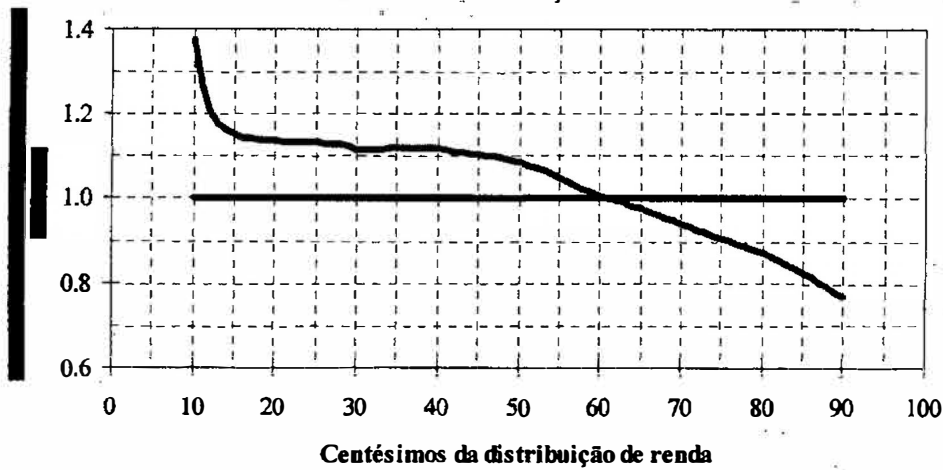


**Gráfico II.7: Porcentagem da população desempregada**



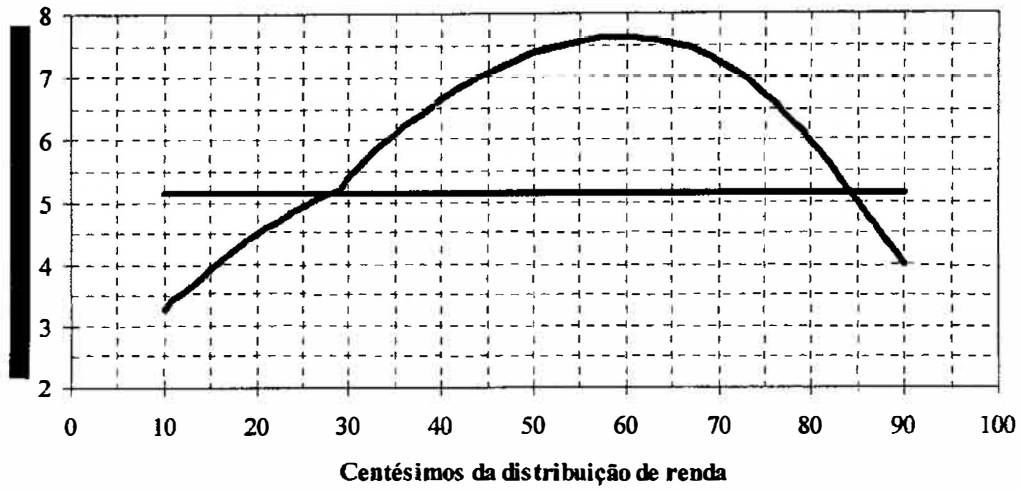
Fonte: Pesquisa Nacional por Amostra de Domicílios (PNAD) de 1997.

**Gráfico II.8: Distribuição da população desempregada por centésimos da distribuição de renda**



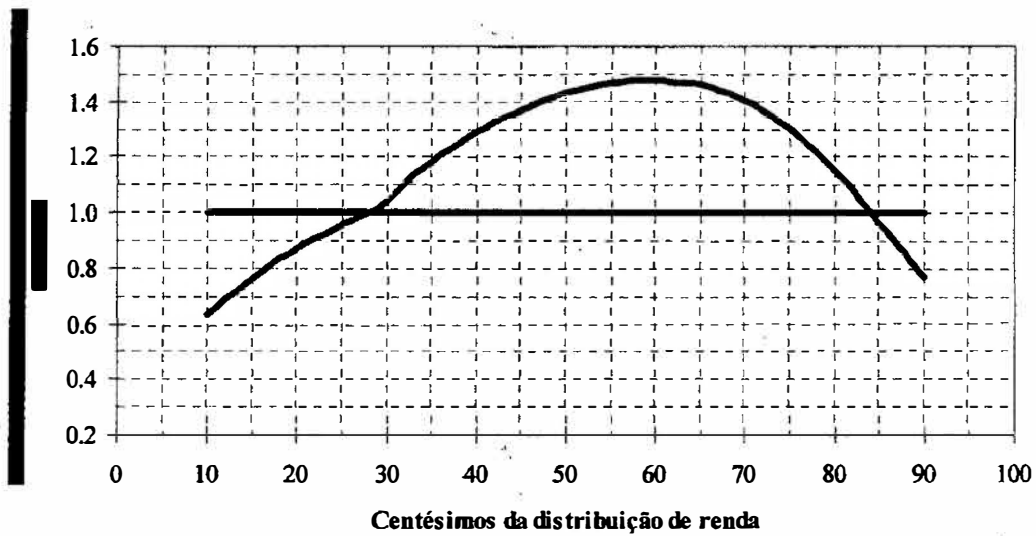
Fonte: Pesquisa Nacional por Amostra de Domicílios (PNAD) de 1997.

**Gráfico IL9: Porcentagem da população beneficiada com o Abono Salarial**



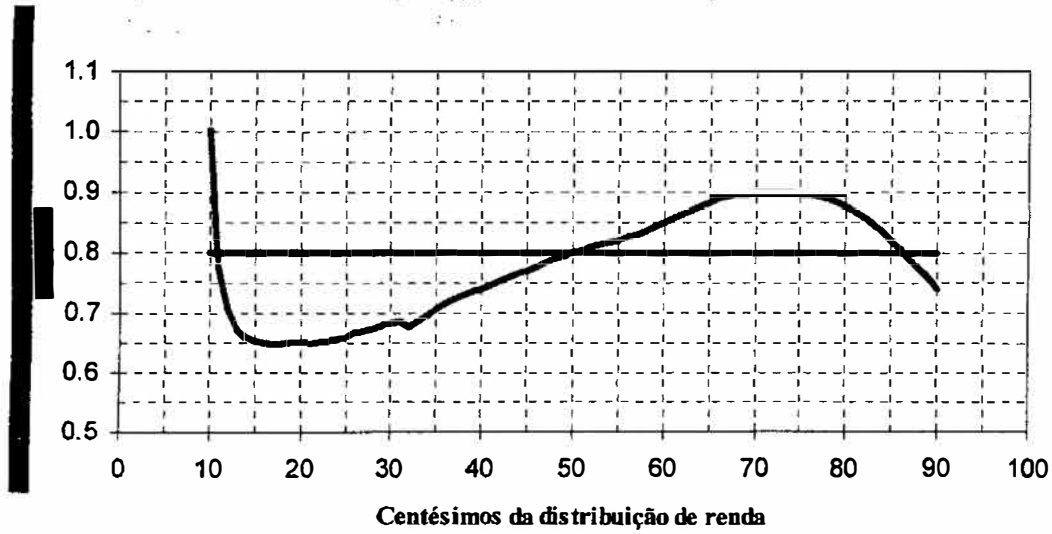
Fonte: Pesquisa Nacional por Amostra de Domicílios (PNAD) de 1997.

**Gráfico IL10: Distribuição da população beneficiada com o Abono Salarial por centésimos da distribuição de renda**



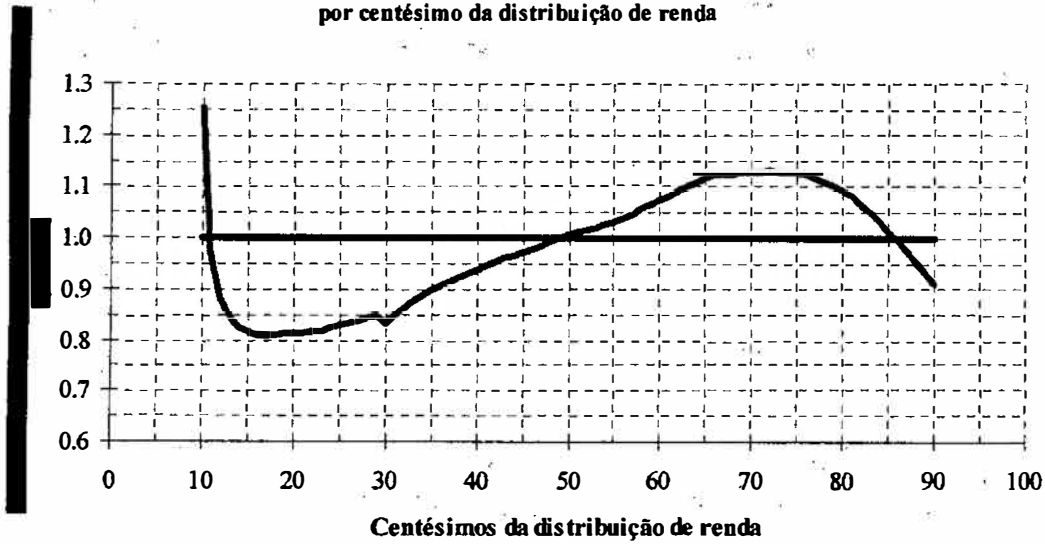
Fonte: Pesquisa Nacional por Amostra de Domicílios (PNAD) 1997.

**Gráfico IL11: Porcentagem da população beneficiada pelo FGTS**



Fonte: Pesquisa Nacional por Amostra de Domicílios (PNAD) de 1990.

**Gráfico IL12: Distribuição da população beneficiada pelo FGTS por centésimo da distribuição de renda**



Fonte: Pesquisa Nacional por Amostra de Domicílios (PNAD) de 1990.

Gráfico III.1: Nível do salário mínimo para

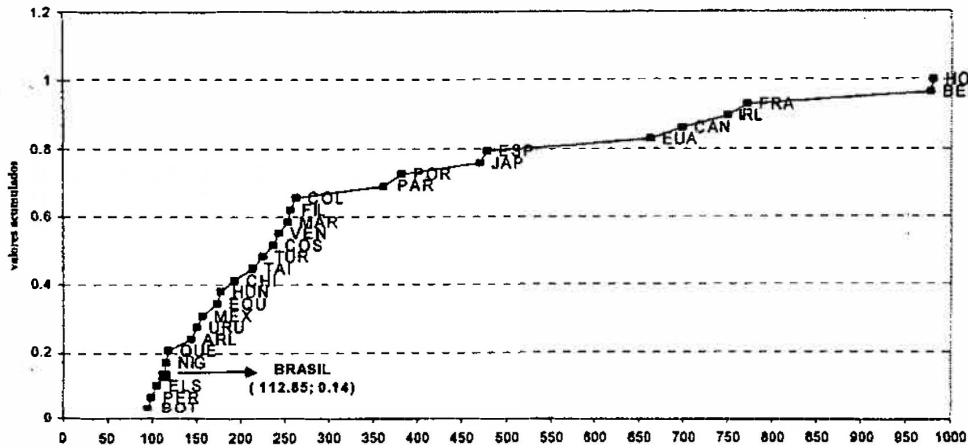


Gráfico III.2: Salário mínimo expresso como fração do salário médio industrial

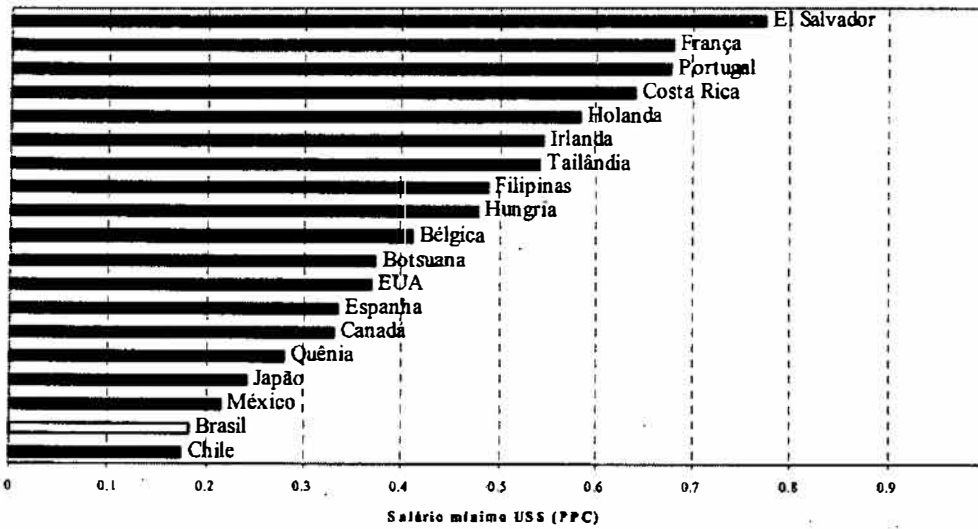


Gráfico III.3: Relação entre o salário mínimo e o salário médio na indústria

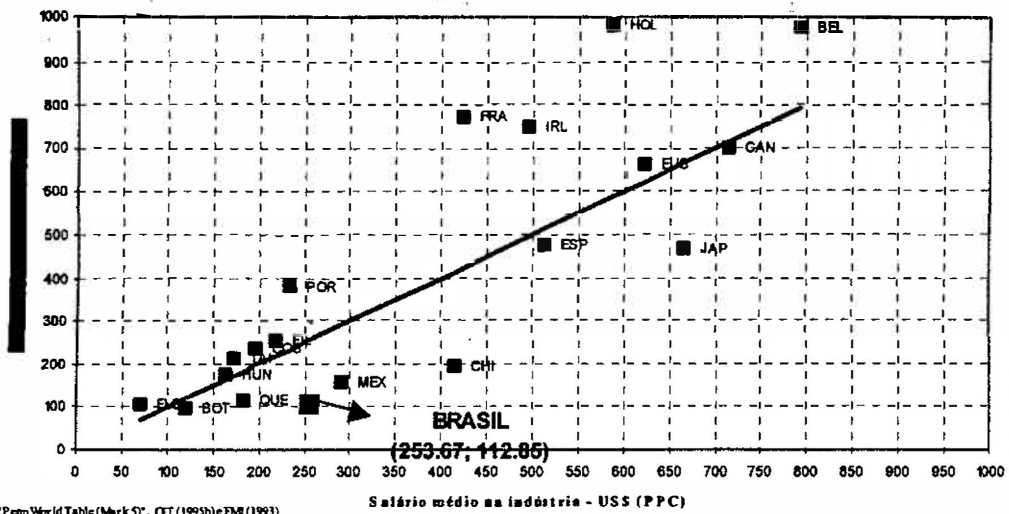
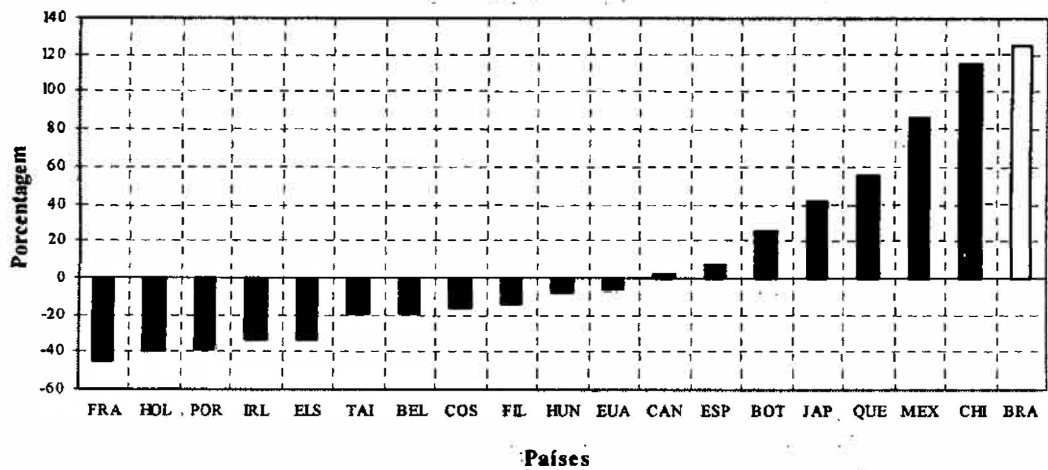
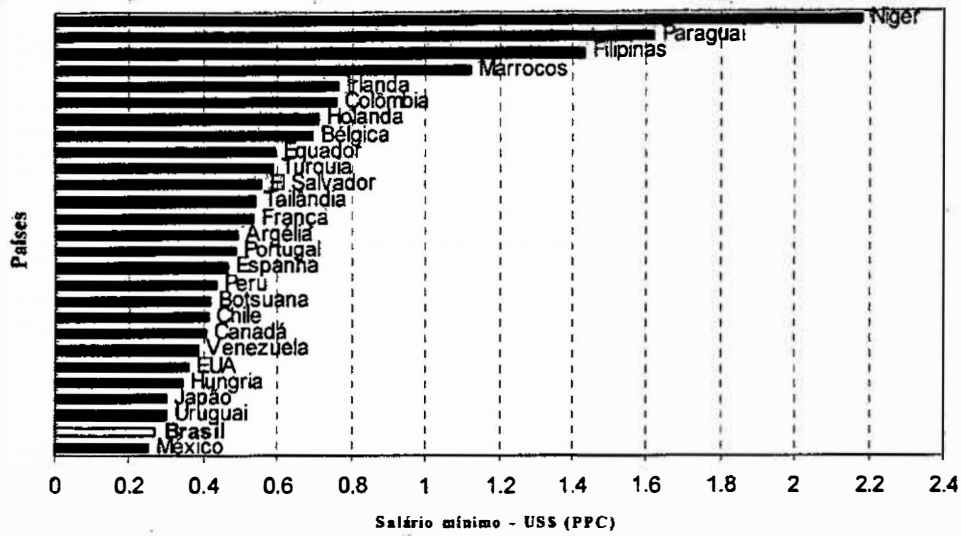


Gráfico III.4: Desvio do salário mínimo em relação à norma internacional, segundo a relação com o salário da indústria

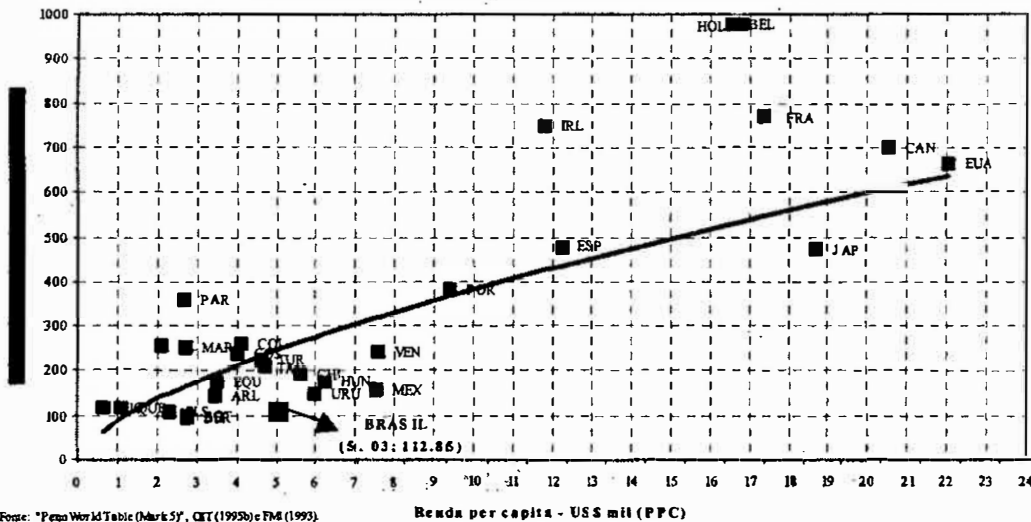


**Gráfico III.5: Salário mínimo expresso como fração da renda nacional per capita**



Fonte: "Penn World Table (Mark 5)", CIT (1995b) e FMI (1993).

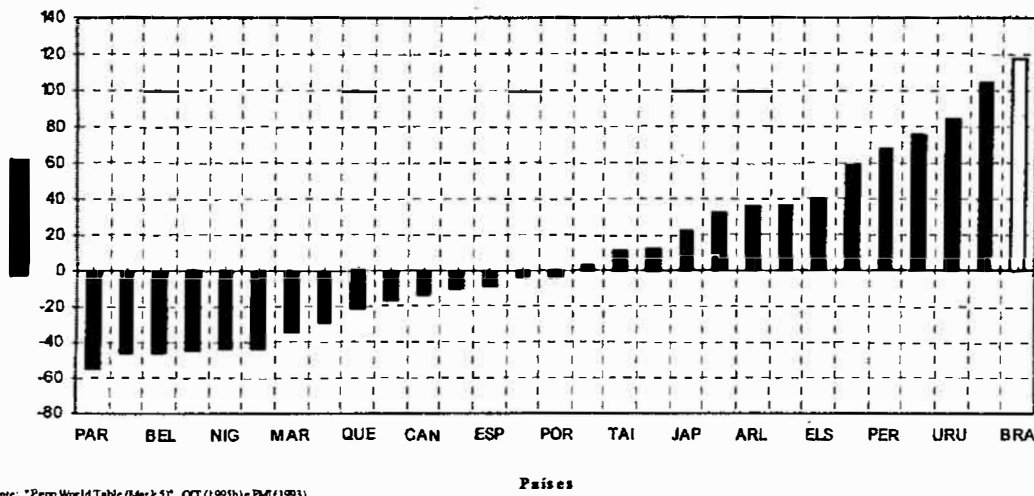
**Gráfico III.6: Relação entre o salário mínimo e a renda per capita**



Fonte: "Penn World Table (Mark 5)", CIT (1995b) e FMI (1993).

Nota: ARL: Argélia; BEL: Bélgica; BOT: Botswana; BRA: Brasil; CAN: Canadá; CHI: Chile; COL: Colômbia; COS: Costa Rica; ELS: El Salvador; EQU: Equador; ESP: Espanha; EUA: Estados Unidos da América; FIL: Filipinas; Níger: PAR: Paraguai; PER: Peru; POR: Portugal; QUE: Quênia; TAI: Tailândia; TUR: Turquia; URU: Uruguai e VEN: Venezuela.

**Gráfico III.7: Desvio do salário mínimo em relação à norma internacional,  
segundo a relação com a renda per capita**



Fonte: "Pera World Table (Mar 85)", OIT (1995) e PME (1993).  
Nota: ARL: Argélia; BEL: Bélgica; BOT: Botswana; BRA: Brasil; CAN: Canadá; CHL: Chile; COL: Colômbia; COS: Costa Rica; ELS: El Salvador; ECU: Equador; ESP: Espanha; EUA: Estados Unidos da América; FIL: Filipinas; NIG: Níger; PAR: Paraguai; PER: Peru; POR: Portugal; QUE: Qênia; TAI: Tailândia; TUR: Turquia; URU: Uruguai e VEN: Venezuela.

## 11. ACTIVE LABOR MARKET POLICIES: EVALUATIVE EVIDENCE

Prepared by Amit Dar

### I INTRODUCTION

11.1. Over the past several decades, “active” labor market policies (ALMPs) have emerged as an important employment policy tool, particularly in developed countries. ALMPs include a wide range of activities, intended to increase the quality of labor supply (e.g., through retraining); to increase labor demand (e.g., through direct job creation); or to improve the matching of workers and jobs (e.g., through job search assistance). The objective of these measures is primarily economic – to increase the probability that the unemployed will find jobs or that the underemployed will increase their productivity and earnings.<sup>1</sup> However, more recently the case for active labor market policies has also emphasized the potential social benefits in the form of the inclusion and participation that comes from productive employment.

11.2. ALMPs are usually regarded as a useful alternative to “passive” (e.g. unemployment insurance, safety net) type of programs, especially in cases of high unemployment. Aside from the political attractiveness of these programs for the government as “seen to be doing something” to mitigate unemployment, it also makes sense at a conceptual level for these programs (specifically retraining) to have heightened importance as technological change increases both skill requirements and the pace of obsolescence. However, as the experience of the past few decades has repeatedly demonstrated, actually implementing an active labor market policy poses many different types of challenges.

11.3. The immediate question is whether these programs have any impact. Evaluations of their impacts are mixed, with many programs assessed to have little or no impact on the employability or earnings of participants. Even where policy-makers judge the evidence more favorably, or where they feel compelled to introduce ALMPs for political reasons, they must confront a host of complex design and implementation issues in order to maximize the probability for success. Not surprisingly, most experience with ALMPs has been in developed countries although that is changing to some degree now. It is clear though, that the role and nature of active programming will vary at different stages of development. And, as the experience in OECD countries has shown, culture and institutions matter a great deal as well.

11.4. The purpose of this paper is to review the international experience with active labor market policies and to discuss their applicability in more developing countries. The empirical literature on evaluations of ALMPs is vast and often provides contradictory conclusions depending on country, time period and specific program characteristics under consideration. The aim of this review is to provide a summary of these evaluations and attempt to draw some lessons. Most of the evaluations come from industrialized countries, though some evidence presented also comes from developing economies.

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<sup>1</sup> Objectives can focus on the needs of employers as well, for example, to ensure a supply of appropriate workers. This may assume priority in times of rapid expansion when vacant jobs rather than unemployed workers are the predominant form of labor market imbalance. In fact, this was at least partly the case in the 1960s when active labor market programs were first introduced on a significant scale.



11.5. This paper is structured as follows. In the next section, we provide a brief overview of active labor market programs and the level of expenditures on these programs. Section 3 briefly discusses the techniques used when evaluating ALMPs. The evaluation evidence on the impacts of ALMPs is reviewed in section 4 and the key variables associated with successful outcomes are identified. Finally, in section 6, we discuss the applicability of ALMPs to these countries and we assess the key considerations involved in balancing active and passive policies.

## II ACTIVE LABOR MARKET PROGRAMS: AN OVERVIEW

11.6. Active Labor Market Programs include three main elements (OECD, 1993):

- Mobilizing labor supply with job creation schemes, job subsidies and so on;
- Developing employment-related skills with measures such as retraining;
- Promoting efficient labor markets with employment services, job-matching and counseling.

Within this framework, the more common ALMPs are:<sup>2</sup>

- Direct job creation (public works schemes/public service employment)<sup>3</sup>;
- public employment services/job search assistance agencies;
- training/retraining for unemployed adults and those at risk of unemployment;
- support to unemployed persons in starting up small businesses (micro-enterprise development);
- wage/employment subsidies to firms to hire unemployed individuals.

11.7. In theory, ALMPs policies can lower structural unemployment two ways: by promoting more efficient matching between job-seekers and vacancies, and bringing discouraged and socially excluded workers (such as the long-term unemployed or women workers who dropped out of the labor force) back into the labor market. Targeted retraining and employment services would enhance their ability to re-enter the labor force and compete effectively for jobs. However, while ALMPs can positively affect employment and incomes their potential benefits may be diminished because of substitution, deadweight or displacement effects. These issues will be addressed in more detail in the next section.

### Expenditures on Active Programs in OECD Countries

11.8. The OECD has collected expenditure data by member countries on active labor market programs since the mid-1980s. Figure 11.2 illustrates trends spending over time on ALMPs by showing average national expenditures throughout the OECD region as a percentage of national GDP between 1985 and 1998. The overall picture shows that the relative spending level increased early in the 1990s and has continued at that new and higher level through the decade. This increase likely reflects both an increasing preference on the part of governments for active programming and the higher unemployment in most

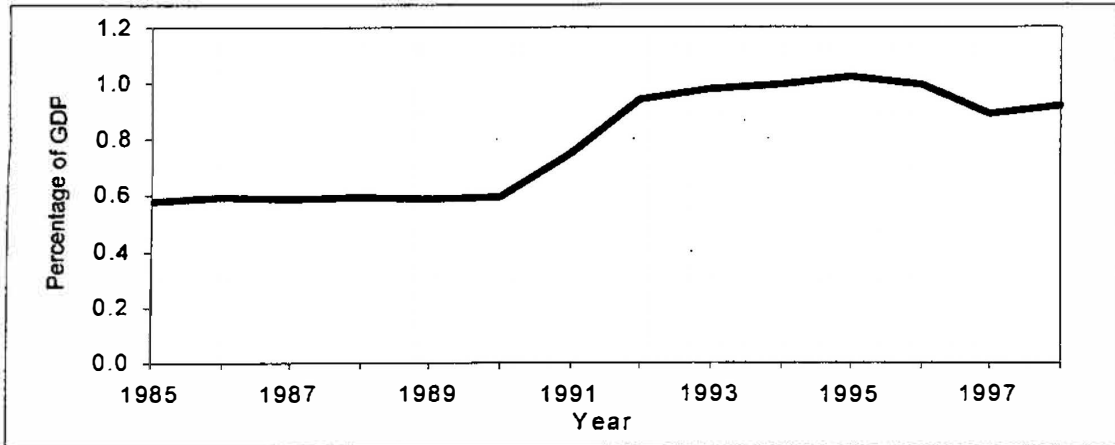
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<sup>2</sup> A short description of each of these programs is provided in Annex I.

<sup>3</sup> While we use the terms public works and public service employment interchangeably, public works usually refer to physical/civil works to develop infrastructure usually carried out in developing countries. In OECD countries, similar programs are denoted as public service employment and may be used to employ individuals as, for examples, nurse aids and teachers aids.

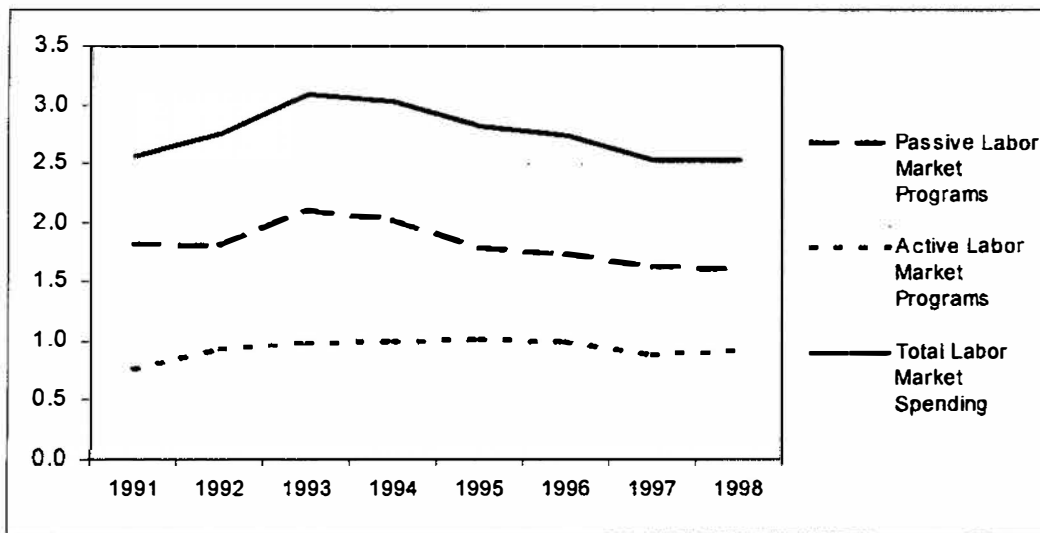
countries in the 1990s compared to the 1980s. Analysis by the OECD (1993) confirms that spending on active programs increases when unemployment rises. In 1990, for example, a one percent increase in the unemployment rate was associated with a 0.6 percent increase in expenditures on ALMPs as a percentage of GDP.

Figure 11.1 OECD Average ALMP Expenditures



11.9. A second point emerging from the OECD expenditure data is that countries generally see active and passive programming as complements rather than substitutes. Where spending is relatively high in the former area – expenditures on passive programs usually being at least 50 percent greater than on active programs in the OECD - it is also likely to be relatively high in the latter. In 1990, the correlation coefficient between national spending on active and passive programs was .60 (OECD, 1993). After diverging in the early nineties when income support jumped to accommodate workers laid off in the recession, the strong correlation resumed in 1993, with spending on active programs slightly increasing relative to passive (Figure 11.2).

Figure 11.2 Labor Market Expenditures (measured in percentage of GDP)



11.10. Thirdly, it should be pointed out that while they still remain relatively high, expenditures on labor market programs have declined since the early 1990s. The general trend among most OECD countries has been either consistent decline in total labor market spending or considerable variances from year to year with no apparent long run trajectory.

**Table 11.1 Expenditures on Labor Market Programs (Selected OECD Countries)**

Labor Market Program	Australia {1997/8}	Denmark {1998}	France {1997}	Germany {1998}	Japan {1997/8}	Italy {1996}	Spain {1998}	Sweden {1998}	U. S. {1997/8}
<b>Public Employment Services &amp; Administration</b>	<b>0.21</b>	<b>0.14</b>	<b>0.16</b>	<b>0.23</b>	<b>0.03</b>	<b>0.04</b>	<b>0.07</b>	<b>0.30</b>	<b>0.06</b>
<b>Labor Market Training</b>	<b>0.07</b>	<b>1.07</b>	<b>0.35</b>	<b>0.34</b>	<b>0.03</b>	<b>0.01</b>	<b>0.21</b>	<b>0.48</b>	<b>0.04</b>
a. Training unemployed adults and those at risk	0.06	0.73	0.31	0.35	0.03	-	0.10	0.47	0.04
b. Training employed adults	-	0.34	0.04	-	-	0.01	0.11	0.01	-
<b>Youth Measures</b>	<b>0.06</b>	<b>0.08</b>	<b>0.26</b>	<b>0.07</b>	<b>-</b>	<b>0.42</b>	<b>0.07</b>	<b>0.03</b>	<b>0.03</b>
a. Measures for unemployed & disadvantaged youth	-	0.08	0.07	0.06	-	0.04	0.07	0.03	0.03
b. Apprenticeship and related forms of general youth training	0.05	-	0.19	0.01	-	0.38	-	-	-
<b>Subsidized Employment</b>	<b>0.13</b>	<b>0.30</b>	<b>0.52</b>	<b>0.39</b>	<b>0.02</b>	<b>0.61</b>	<b>0.35</b>	<b>0.58</b>	<b>0.01</b>
a. Subsidies to employment in the private sector	0.04	0.03	0.32	0.03	0.02	0.56	0.24	0.15	-
b. Support of unemployed persons starting enterprises	0.02	0.04	-	0.03	-	-	0.03	0.09	-
c. Direct job creation (public or non-profit)	0.07	0.23	0.20	0.32	-	0.04	0.07	0.35	0.01
<b>Measures for the Disabled</b>	<b>0.06</b>	<b>0.30</b>	<b>0.08</b>	<b>0.25</b>	<b>-</b>	<b>-</b>	<b>0.02</b>	<b>0.62</b>	<b>0.04</b>
a. Vocational rehabilitation	0.02	0.30	0.02	0.10	-	-	-	0.04	0.04
b. Work for the disabled	0.04	-	0.06	0.15	-	-	0.02	0.58	-
<b>Unemployment Compensation</b>	<b>1.17</b>	<b>1.86</b>	<b>4.50</b>	<b>2.29</b>	<b>0.43</b>	<b>0.68</b>	<b>1.64</b>	<b>1.91</b>	<b>0.25</b>
<b>Early retirement for labor market reasons</b>	<b>-</b>	<b>1.88</b>	<b>0.35</b>	<b>-</b>	<b>-</b>	<b>0.20</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL</b>	<b>1.69</b>	<b>5.63</b>	<b>3.22</b>	<b>3.56</b>	<b>0.52</b>	<b>1.96</b>	<b>2.36</b>	<b>3.93</b>	<b>0.43</b>
Active Measures	0.52	1.89	1.37	1.27	0.09	1.08	0.72	2.01	0.18
Passive Measures	1.17	3.74	1.85	2.29	0.43	0.88	1.64	1.91	0.25

11.11. Finally, there are major differences across OECD countries in terms of the level and composition of spending on ALMPs (as well as passive programs). Table 11.1 highlights these differences for a subset of countries using the latest expenditure data available.

### III THE IMPORTANCE OF GOOD EVALUATIONS

11.12. In spite of the large public expenditures on active labor market programs, rigorous evaluations of ALMPs have been relatively uncommon. In the continuing effort to improve the targeting and efficiency of social programs, policymakers are now increasingly realizing the importance of rigorous evaluations. They

want to know what programs accomplish, what they cost, and how they should be designed to achieve maximum efficiency and cost-effectiveness. As we shall see in the next section, the evaluations we have reviewed in this paper are almost exclusively "impact" evaluations. Here we discuss some of the techniques used in performing an impact evaluation.

### **Impact Evaluation Techniques<sup>4</sup>**

11.13. Techniques for evaluating the effectiveness of labor programs can be either scientific and non-scientific. The scientific evaluations are of two types: experimental and quasi-experimental. Experimental or classically designed evaluations require selection of both the "control" and "treatment" groups - those who receive the assistance and those who do not - prior to the intervention. Quasi-experimental studies, select treatment and control groups after the intervention.

11.14. Non-scientific techniques do not use control groups in evaluating the impact of interventions, relying instead on statistics compiled by program administrators. These evaluations are of little use in determining whether program participants are doing better: without a control group, it is difficult to attribute success or failure of participants to the intervention, since these effects are contaminated by other factors, such as worker-specific attributes. However, in some cases, these evaluations (e.g. interviews with employers and employees) can provide some information on deadweight loss, as well as substitution and displacement effects (Box 11.1 lists some of the commonly used terms in the impact evaluation literature.)

#### ***Classically Designed (Randomized) Experiments***

11.15. This technique was originally developed to test drug-effectiveness, with program participants and those excluded from treatment randomly selected prior to the intervention. If large samples are randomly assigned to treatment and control groups, observable and unobservable characteristics of the two groups should not differ on average, and so any difference in outcomes can be attributed to program participation. The main appeal here lies in the simplicity of interpreting results - the program impact is the simple difference between the means of the samples of program participants and control group members on the outcome of interest.

11.16. However, there are some problems with randomization (Benus and Orr, 2000; Baker, 1999). Some of the main ones are: (i) failure to assign randomly. This could be simply because of nepotism or could involve excluding high risk groups in order for the program administrators to show better results; (ii) ethical questions about excluding some people from the intervention. This is somewhat related to the issue above. Program administrators may often resist implementing the programs on the ground that services are denied to the control group; (iii) changed behavior upon learning of assignment to either group. For example, individuals who are denied entry into the program may end up enrolling in a similar private program or may intensify their job search - this will lead to biases in the data; and (iv) these techniques require extensive data collection before the project begins. Other than being very costly, this can often be impractical as in

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<sup>4</sup> This section draws from Dar and Gill (1998) and Dar and Tzannatos (1999).

many countries – particularly developing countries - rigorous evaluations are only emphasized and designed after the program is in place.<sup>5</sup>

#### Box 11.1 Some Commonly Used Terms in the Impact Evaluation Literature

Some of the commonly used terms in the evaluation literature are defined below.

- **Deadweight Loss:** Program outcomes are not different from what would have happened in the absence of the program. For example, wage subsidies place a worker in a firm which would have hired the worker in the absence of the subsidy.
- **Substitution Effect:** A worker hired in a subsidized job is substituted for an unsubsidized worker who would otherwise have been hired. The net employment effect is thus zero.
- **Displacement Effect:** This usually refers to displacement in the product market. A firm with subsidized workers increases output, but displaces/reduces output among firms who do not have subsidized workers. This can also occur in helping individuals start up enterprises.
- **Treatment and Control Group:** Program beneficiaries are the “treatment” group. In a scientific evaluation, their outcomes are compared with a “control” group of individuals who did not participate in this program. The treatment and control groups could be assigned at random ex-ante (before the program) or chosen ex-post. This will be discussed in detail in Section III.
- **Selection Bias:** Program outcomes are influenced by unobservable factors not controlled for in an evaluation (e.g. individual ability, willingness to work). Such factors can also arise as a by-product of the selection process into programs where individuals “most likely to succeed” are selected into programs (“creaming”).
- **Randomization Bias:** This refers to bias in random-assignment experiments. In essence, this says that the behavior of individuals in an experiment will be different because of the experiment itself and not because of the goal of the experiment. Individuals in an experiment know that they are part of a treatment group and may act differently, and the same could hold true of individuals in the control group. The potential change in behavior is referred to as the Hawthorne effect.

While randomization is thought to ensure the absence of selection bias among participants, proponents of randomized experimentation make a controversial assumption: that randomization does not alter the program behavior being studied. This may not be the case, and in fact the bias induced by randomization may be quite strong (Heckman, 1992). For example, individuals who might have enrolled in a nonrandomized regime may make plans anticipating enrollment in training. With randomization they may alter their decision to apply or undertake activities complementary to training (the Hawthorne effect). Thus risk-averse persons will tend to be eliminated from the program.

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<sup>5</sup> Heckman (1992) documents other limitations of this technique when applied to social experiments that arise due to selectivity biases, as randomization may differentially affect the decision of people to participate in such programs. For example, relatively risk-averse persons may decide not to enroll for randomized experiments, preferring instead to enroll in private training.

### ***Quasi-Experimental Techniques***

11.17. In these techniques, the treatment and control groups are selected *after* the intervention. In order to get unbiased estimates of program impact, the comparison group must be similar to the treatment group in characteristics that affect the outcome of interest. While some of these characteristics, such as age, gender and level of education are observable, others, such as innate ability and motivation are not. To get the effect of the program, econometric techniques have to be used that will correct for the differences in characteristics between the two groups.

11.18. The main appeal of these techniques lie in the fact that they can use existing data sources and are hence relatively low cost, and that these evaluations can be done at any point in time after the program has commenced. However, there are several disadvantages of these programs. The main disadvantage is these techniques - if done properly - are often statistically complex. The attributes of individuals in treatment and control groups are different; techniques for adjusting for differences in observable attributes (e.g., sex, education, age, region) are relatively straightforward but subject to specification errors; correcting for unobservable characteristics (e.g., motivation, family connections) requires a convoluted procedure that can yield significantly different results depending upon specification. Quasi-experimental evaluations are of different types - regression-adjusted for observables, selectivity-corrected (regression-adjusted for both observables and unobservables), and matched pairs:

11.19. ***Regression-adjusted for observables.*** This technique assesses the impact of participation in a program when the observable characteristics (e.g. sex, age, education) of the participant and comparison groups differ. This method is appropriate for computing program impact estimates when the difference between the participant and comparison samples can be explained by observable characteristics.

11.20. ***Regression-adjusted for observed and unobservable variables (selectivity-corrected).*** When selection into programs is not random, and participation in a program is due to both observable and unobservable characteristics, program impacts computed using the technique in (i) above are likely to be biased. The concern is that even if participants and non-participants have similar observable characteristics, there are some unobservable characteristics (e.g. innate ability) which would cause non-participants to have different responses to the program if they had participated. This technique uses the Heckman selectivity method to try to control for these unobservables.

11.21. ***Instrumental variables.*** This approach can be applied if selection into the program can be expressed as a function of variables that do not affect the outcome in the absence of the program. Hence, this technique can be used if there is a variable that affect an individual's participation in the program but do not affect program outcomes. For example, the distance between a training center and an individual's home may impact on his/her ability to participate in the program, but should have no impact on earnings, given the individual participates in the program.

11.22. ***Matched pairs.*** As observable characteristics of the individuals chosen in the control and treatment groups are bound to be different, these groups are likely to have different success rates in finding employment, even in the absence of active labor market programs. To control for these spurious differences, synthetic control groups are constructed using a matched pairs approach. The synthetic control group, a subset of the entire control group, is composed of individuals whose observable characteristics most closely match those of the treatment group. An alternative approach is to use the "propensity score" approach which computes the predicted probability of participation in a program given

observed characteristics – the closer the propensity score, the better the match (Baker, 1999) (see Annex 2).

### Relative Strengths of Techniques

11.23. It is clear from the above that non-scientific techniques present the least reliable picture of program impacts. As they give no explicit estimate of what would have happened in the absence of the program, they provide little indication of the effects of the program. While these techniques may be useful to get some indication of the gross outcomes of programs, policymakers should not rely on them to make comparisons across programs or decisions relating to the allocation of resources.

11.24. Hence randomized and quasi-experimental techniques are preferable.<sup>6</sup> As specified above, there are pros and cons to both experimental and quasi-experimental techniques. While randomized experimentation is theoretically the best technique to estimate the effects of interventions,<sup>7</sup> using the dual criteria of rigor and feasibility, randomized experiments are not necessarily superior to quasi-experimental techniques. Factoring in the high costs of setting up such experiments, and the fact that the labor market programs which need to be evaluated are often already in place, randomized evaluations should not necessarily be the chosen alternative, especially in developing countries.

11.25. Within quasi-experimental techniques, selectivity-correction may not add much, especially when information is available for a considerable number of observable individual and labor market characteristics (education, age, sex, household wealth, and region of residence). Besides being cumbersome and somewhat unintuitive, this method often gives arbitrary results depending on the selectivity-correction specification used. Similarly, while the instrumental variable approach is appealing in theory, it is often difficult to identify variables that meet the requirement for being a good instrument. Even when such variables exist, the precision of the resulting estimates tends to be somewhat low (Benus and Orr, 2000).

11.26. This leaves the matched pairs and the regression-adjusted techniques. Between the two, the matched pairs technique is preferred for the following reasons: First, the procedure is less arbitrary because, since the observable differences between the treatment and comparison group are minimized, functional form assumptions become less important. Second, because program impact measures are a simple difference of means of the variables of interest (re-employment probabilities and wages) between the control and treatment groups, they are easier to interpret by non-statisticians. However, the technique is dependent on having adequate data on both the control and treatment group.

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<sup>6</sup> A weakness shared by both the experimental as well as non-experimental evaluations is that they do not take into account displacement effects of the retraining program. Thus, for example, in countries where demand for labor is constrained, retrainees may simply "bump" or displace previously employed workers so that aggregate unemployment may not change despite the size of the program. In general, displacement implies that the social benefits - from higher re-employment probabilities due to the retraining program - are lower than indicated by the evaluation, however well done.

<sup>7</sup> Estimating the effect of trainee earnings on an employment program using randomized and quasi-experimental techniques, Lalonde (1986) has shown that randomized experimentation yields significantly different results from quasi-experimental techniques. Policymakers should be aware that some non-experimental evaluations, especially those that rely on functional specifications, of training programs may contain large biases.



## The Importance of Costs

11.27. For the purposes of informing policy decisions, an evaluation is not complete until one considers the costs of both the ALMP and its alternatives. Cost-benefit analysis is the standard method of aggregating benefits and costs across outcome categories and across time. A program may be effective, in the sense of creating benefits for participants (e.g. higher earnings, lower recidivism) but these effects may not be worthwhile if they are less than the costs involved. Hence a program may be effective in the sense of creating net benefits for participants but not efficient if costs outweigh benefits (Ryan and Grubb, 1999). Similarly, when comparing active labor market programs, if, for example, training is shown to be twice as costly as job search assistance to the unemployed, but only as effective as job search assistance in facilitating access to jobs and wage gains, then job search assistance is twice as cost-effective as retraining even though the two are equally effective. At least at the margin, this would constitute a case for reallocating resources from training to job search assistance.

11.28. Unfortunately, costs appear to be the least analyzed aspect of active labor market programs and hence policymakers cannot make informed decisions about the cost-effectiveness of one program with respect to another. Hence it is important to get a good idea about the costs of a program. The main steps involved in estimating costs can be thought of as follows (Valadez and Bamberger, 1994):

- Identify all costs, whether or not they will be charged to the project (e.g. even if premises for a training project are provided free of charge by the government, a cost should be imputed for these premises).
- Estimate the accounting costs. This is the actual amount paid for the goods and services (e.g. salaries and benefits for staff, cost of equipment, rent of buildings etc.).
- When costs are being paid over a number of years, prepare a separate cost stream for each year.

11.29. Even the most careful impact evaluations of ALMP's cannot be used for *social* cost-benefit analysis. The main reason is that retraining programs may simply result in displacement of previously employed workers by the retrainees, so that aggregate unemployment rates remain unaffected by the intervention. But when done correctly, evaluations are good guides for *private* cost-benefit analysis, which policymakers can use to institute cost-recovery in public programs and to promote private provision. Evaluations may also help in deciding whether ALMPs programs contribute to reduced budgetary expenditures by moving people off unemployment benefits into productive employment, or whether? are a net drain in spite of being effective in doing so.

## IV. AN INTERPRETATION OF EVALUATION RESULTS<sup>8</sup>

11.30. This section presents *our reading* of the evaluative evidence - mainly from OECD countries but also some from developing and transition countries - of active labor market programs.<sup>9</sup> These programs have been evaluated using a variety of techniques that have been described in Section 3 above.

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<sup>8</sup> This section is based substantially on Dar and Tzannatos (1999).

<sup>9</sup> Appendices which summarize the studies upon which our synthesis is based are available separately. The reader is encouraged to refer to them for a more objective presentation of individual studies.



## **Public Works Programs/Public Service Employment**

11.31. Public works programs are one of the most heavily funded ALMPs in OECD countries. We summarize the results of 18 evaluations of public works programs, 14 of which are quasi-experimental and four of which are non-scientific. The evaluations point to some general conclusions.

11.32. While non-experimental evaluations show some desirable short-run effects in the form of employment increase/unemployment decline, some scientific evaluations suggest displacement effects which can reach 100 percent (as they did in Sweden; Skedinger, 1995). Participants have a smaller probability of being employed in a non-assisted job after participation in the program, and are likely to earn less than their counterparts in the control group. Finally, these programs do not seem to have a significant impact on reducing long-term unemployment in the economy – and whatever small short-run impacts that exist tend to dissipate over time (Webster, 1998).

11.33. These conclusions are to a large extent predictable: unlike other ALMPs, such as training, retraining and support program for self-employment, public works provide mainly current benefits (temporary safety net) and are only temporary escape routes from unemployment. Irrespective of the merits of public works, an economist's first impression is that public works can be generally expensive and are not an effective instrument if the objective is to get people into long-term gainful employment.

11.34. However, public works can be a short-run anti-poverty intervention. That's why some developing countries have used them extensively in periods of hardship, such as in Botswana, where 21 percent of the labor force was employed in public works in 1985-6, in Chile (13 percent in 1983) and Honduras (5 percent between 1990-3). In Argentina's Trabajar program, the average gain in earnings was about half the gross wage. Even allowing for forgone income, the distribution of gains was decidedly pro-poor as more than half the beneficiaries were in the poorest decile nationally and 80- percent were in the poorest quintile (Jalan and Ravallion, 1999). In other cases, such as the Maharashtra Employment Guarantee Scheme in India, year-round employment is guaranteed. However, the wage rates have been set very low, so that only the poorest are targeted.<sup>10</sup> In East Asia, public works were extensively used during the crisis as anti-poverty measures. While rigorous evaluations of the program are not currently available, initial evidence suggests that these programs were not highly successful in reaching their target population as wage rates were set too high which may, in fact, have led to some distortions in the labor market (Betcherman and Islam, 2001).

## **Job Search Assistance/Employment Services**

11.35. Expenditures on these programs range anywhere from five percent of active labor market program budgets (in Denmark) to over 70 percent (in the Czech Republic). On average, OECD countries spend about a quarter of their active labor market program budgets on these programs. It should be noted here that this expenditure is often not used solely to finance job search assistance programs, but also to finance the administration of the unemployment benefit system, as well as the administration and costs of the other active labor market programs.

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<sup>10</sup> Recent evaluations of this scheme have showed that, due to a significant increase in the wages, the self-targeting nature of the program has been somewhat compromised.

11.36. 20 evaluations were examined, all except two are scientific. Six of the scientific evaluations are experimental and 12 are quasi-experimental. The evaluations suggest that job-search assistance is in some sense one of the most successful active labor market programs: in the general case, it costs little to provide and the program is not any less effective than alternative ALMPs. It is, therefore, the low cost that drives this conclusion. However, as argued below, much depends on whether the economy is growing or in a recession (as far as effectiveness is concerned).

11.37. More specifically, while some evaluations yield “negative” results, most studies indicate positive results, and in a few cases large ones.<sup>11</sup> Less successful programs are generally associated with periods of recessions and rising unemployment rates. For example, job search assistance to those laid off *en masse* in Canada in the late 1980s did not raise their probability of employment or earnings (as compared to a control group) at a time when unemployment was rising. In fact, participants who had been laid off *en masse* spent a significantly greater amount of time searching for jobs than their counterparts who did not use this service (Fay, 1996). Similarly, these services were not very successful in Korea during the East Asian crisis –less than eight percent of job seekers found jobs through these services in 1998<sup>12</sup> (Betcherman, Dar, Luinstra and Ogawa, 2001). On the other hand, the effectiveness of job search assistance seems to increase when economic conditions improve; that is, when new jobs are generated. During the decline in unemployment rates in the Netherlands in the mid-to-late 1980s, program participants were more likely to be employed than those in the control group (OECD, 1993). Evaluations in Hungary and Poland also show that while the overall effectiveness of this intervention is not significant in terms of increasing probability of employment, if the economy is improving, some subgroups of program participants - particularly women - fare significantly better than non-participants (O’ Leary, 1998(a), 1998(b)).

11.38. Studies which examine both cost and effectiveness data conclude that job search assistance is also supposed to be one of the most-cost effective of the active interventions. Leigh (1995) summarizes his findings of selected programs: job search assistance measures cost less than training and retraining (two to four times less), but appear at least as effective. This of course does not mean that job-search assistance is a substitute for training - it is possible, for example, that those who use job search assistance are more “employment-ready” than individuals who get training. However it does mean that if job search assistance and training programs cater to roughly the same clientele, policymakers can substitute one program for the other. Similar results were also found in experimental demonstrations carried out in the U.S. during the 1970s and the 1980s (Meyer, 1995).<sup>13</sup>

11.39. Overall, the evidence suggests that job search assistance can have some positive effects and is usually cost-effective (relative to other ALMPs). There does seem to be a positive correlation between the likelihood of success of a program and local labor market conditions. Programs that have not yielded positive results are generally associated with rising unemployment rates, while economic conditions have been generally favorable in the case where programs have succeeded.

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<sup>11</sup> Deadweight loss is rarely measured in these evaluations. It may happen that those who benefit from these services are those who would have got jobs anyway because they were the most motivated in looking for jobs.

<sup>12</sup> This low rate of effectiveness is also partly attributed to low personnel and technological capacity in employment offices. Other countries in East Asia which expanded their job search assistance programs during the crisis faced similar problems.

<sup>13</sup> In a study by White and Lakey (1992) the duration of search of non-participants was on average 8 weeks longer than those of program beneficiaries.

## Training and Retraining Programs

11.40. Training (and re-training) generally accounts for a significant share of expenditures on ALMPs ranging between 40-60 percent in many countries and reaching 77 percent in Denmark in the early 1990s. Spending on training can reach many different groups, and in our review, we concentrate on retraining programs geared towards those laid off *en masse*; training and re-training programs for the long-term unemployed; and training programs geared towards youth.

11.41. We have reviewed close to 50 studies - 11 experimental, 30 quasi-experimental and nine non-scientific. A few of these studies are longitudinal, so it is also possible to study the long term impact of the programs.

11.42. Compared to scientific evaluations, nonscientific evaluations usually provide an inflated picture of the effects of training and retraining programs on the long-term unemployed. Scientific evaluations suggest that the programs for the long-term unemployed can have a positive impact but this is not always the case, and the impact is usually small.

11.43. The success of programs tends to be heavily dependent on the business cycle: programs have performed better when they were instituted at times when the economy was expanding. A good example of this is Hungary, where training outcomes seem to have improved over time as the economy started to grow (O' Leary (1995, 1998(a)). In general, programs seem to be more effective for women (Puhani, 1998; Friedlander et. al., 1997; Goss, Gilroy et. al., 1989, Keum, 2001). For example, in Korea the probability of employment for women after training was significantly higher than that for women who did not undertake training, while the impact for males was insignificant. However in some cases, training has little overall impact – for example Mexico's Probecat program was ineffective in reducing the duration of unemployment or increasing wages post training (De Ferranti, Perry, Gill and Serven et. al., 2000).

11.44. Longitudinal studies indicate mixed results - while in some cases the positive effects dissipated within a year or two after program completion, in a couple of cases the impacts persisted. For example, in Sweden, labor market training provided to the unemployed raised their earnings in the short-term but the long-term impact (over two years) was somewhat negative (Meager and Evans, 1998). Conversely, unemployed provided training as part of the New Jersey Reemployment Demonstration project in the mid 1980's were earning more than the control group more than two and a half years after program completion (Anderson, Corson and Decker, 1991). In most cases, training programs are generally no more effective than job search assistance in increasing either re-employment probabilities or post-intervention earnings. For example, evaluations of the Texas Worker Adjustment Demonstration (WAD) program indicate that participants were likely to be employed more quickly than non-participants. However, by the end of the first year after program completion, employment opportunities for male participants were no better than those for non-participants, or for those who only got job search assistance (Bloom, 1990).

11.45. Evaluations results for youth training are the most discouraging of all (that is, compared to training programs for the long-term unemployed and those laid-off *en masse*), even though the programs examined here were often introduced in periods of relatively stable or declining youth unemployment. They show that training rarely has an effect on earnings or employment probabilities of program beneficiaries compared to their counterparts in some control groups. In almost all cases, participants did no better than the control group either in enhancing their post-training employment probability or their earnings (Fay, 1996; DOL, 1995). A more mixed, and more promising, picture arises from the evaluation of the Canadian Job Entry

Program. Though a quasi-experimental evaluation of the program showed that youth who only undertook classroom training did no better than their comparators, those who undertook enterprise training did significantly better than the control group (OECD, 1993). This positive effect was attributed to youngsters staying-on with the training firms.

11.46. Costs, when known, vary significantly between \$900 and \$25,000 per person. This makes training programs between two and four times more expensive than, say, job search assistance (JSA). Combined with the finding that retraining and JSA have roughly similar impact, this implies that JSA can be more cost-effective in assisting displaced workers than retraining. However, it again needs to be stressed here that these programs may be serving different groups of the unemployed and hence may not be direct substitutes for one another.

11.47. In *most* cases the costs are found to be so high compared to the benefits of the program that, even if the effects persisted for 10 years, the social return of the program could remain negative (especially for males) (Friedlander et. al., 1997).<sup>14</sup> The U.S. JTPA program appears to be a rare exception - both male and female participants were doing significantly better than the control group and the training program was relatively inexpensive. However, in spite of the positive results, evaluators caution that the aggregate effects of JTPA are likely to be modest, both on the target population and on the labor force as a whole.

11.48. One of the major implications emerging from the analysis is that training should not be seen as a panacea for reducing unemployment - it usually does not work, especially if the economy is not growing. The evidence shows that programs aimed at the long-term unemployed, usually established in periods when the economy is doing better, are somewhat more effective (at least in the short-run). Evaluations also show that tightly targeted on-the-job training programs, usually aimed at women and other disadvantaged groups among the long-term unemployed, often offer the best returns. For youth, the evidence suggests that it is very difficult to correct what appears to be a failure of the education system during the previous 5-10 years of the youth's life with some kind of training which is usually short in duration and takes place relatively late in life. While rigorous cost-benefit analyses of these programs are seldom carried out, where done, the evidence shows that these programs are not usually cost-effective.

### **Wage/Employment Subsidies (WES)**

11.49. We examine 22 evaluations - six of which were experimental, eight quasi-experimental, and eight non-scientific. WES programs are among the least funded active labor market programs in OECD countries. In most OECD countries, they attract less than 10 percent of expenditure on active labor market programs - in fact, in both the U.S. and the U.K., funding for this program is negligible.

11.50. Both non-scientific and scientific evaluations tend to agree that WES have high deadweight loss and substitution effects. In the extreme case of Ireland's wage subsidy program, the deadweight and substitution losses combined totaled over 95 percent - alternatively, the net incrementality of the program was a meager four percent (OECD, 1993). Evaluations of programs in Australia, Holland and the U.K. also

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<sup>14</sup> The social return is based on a comparison of measurable economic costs and benefits and does not take into account possible externalities associated with the reintegration of the long-term unemployed into the labor force or of reducing high levels of unemployment in specific regions.

indicate high deadweight and/or substitution effects. Similarly, initial indications on programs instituted in Korea during the

Table 11.2 East Asian crisis in the late 1990s point to deadweight losses of around 70 percent ( ).

11.51. Equally disappointing are evaluations which compared wages and employment outcomes of participants with those of a control group. For example, the U.S. Targeted Job Tax Credit program, which is a longitudinal study, saw earnings of participants significantly higher than those of individuals in the control group in the first year. This effect declined in the second year and disappeared after that (OECD, 1993). Similarly, evaluation results for Hungary show that participants were significantly less likely to be employed and did not earn any more than those in the control group (O' Leary, 1998(a)). There is also some anecdotal evidence that employers use these programs as a permanent subsidy program - hiring workers as cheap labor and laying them off once the subsidy period ends and then hiring another subsidized workers in their place.

11.52. However, a few exceptions exist. One seems to be the U.S. Job Training Partnership act program, where employers were provided subsidies to hire workers in conjunction with on-the-job training. Evaluations of this program show that single mothers who are AFDC recipients benefit significantly from these subsidies, and males also benefited to some extent (Bloom, 1994). In Australia, even though the deadweight loss associated with these programs is around 30%, they have a significant positive impact on post-program employment – participants are 15% more likely to be employed than the control group (Webster, 1998).

11.53. While very few studies carried out a direct cost-benefit analysis, the high deadweight losses and substitution effects associated with this program strongly suggest that WES are unlikely to have positive social returns in the way measured by economists, though they may contribute to some reduction in social exclusion among older workers and single mothers.

**Table 11.2 Effectiveness of Wage Subsidy Programs**

Country	Deadweight and Substitution Effects (%)	Additionality (%)
Australia in mid 1980s (Jobstart Program)	Deadweight=65%	35%
Belgium in the early 1990s (Recruitment Subsidy)	Deadweight=53% Substitution=36%	11%
England 1986-1990 (Training and Employment Grant)	Deadweight=69%	31%
England late 1980s (Workstart I)	Deadweight=45% Substitution=30%	25%
England mid 1970s (Small Firms Employment Subsidy)	Deadweight=70%	30%
England early 1980s	Deadweight=63% Substitution=10%	27%
Germany in mid 1970s (Wage Subsidy Scheme)	Deadweight=75%	25%
Ireland in the 1980's (Employment Incentive Scheme)	Deadweight= 70% Substitution=21% Displacement=4%	4%
Korea in the late 1990s (Subsidy Schemes)	Deadweight=70%	30%
Netherlands during early 1980s (Vermeend-Moor Act)	Deadweight=25% Substitution=50%	25%
Netherlands during the late 1980s (JOB scheme)	Substitution =80%.	20%
U.S. in mid 1980s (Targeted Job Tax Credit)	Deadweight=70% Substitution=10%	20%

*Note: Additionality is the employment effect after accounting for deadweight, displacement and substitution effects.*

11.54. In summary, evidence indicates that these programs are not likely to be effective; substantial deadweight and substitution effects are associated with them. Wage and employment outcomes of participants are also generally no better than that for a control group. Careful targeting can reduce, but not eliminate, substitution and deadweight effects, and further controls may be necessary to ensure that firms do not misuse this program as a permanent subsidy program.

### **Micro-Enterprise Development (Self-employment Schemes)**

11.55. We have summarized the results of 15 evaluations of programs aimed at helping unemployed individuals start up their own businesses: two of the evaluations are experimental, seven are quasi-experimental, five are non-scientific and one evaluation is of various types. These programs come under a variety of names such as micro-enterprise schemes or self-employment schemes but below we generically refer to them as "micro-enterprise development assistance" (MEDA).



11.56. As usual, non-scientific evaluations provide more encouraging results than scientific evaluations. Still, there is general agreement that take-up rates of MEDA programs is low – below 5 percent<sup>15</sup> - and that they have high deadweight loss. Estimates of deadweight losses vary from about 30 percent in the self-employment experiments in Massachusetts and Washington State in the late 1980's and early 1990's (Fay, 1996) to over 50 percent in Canada's self-employment assistance program in 1992-93 (Graves and Gauthier, 1995) and Denmark's enterprise startup grant in the late 1980's (Balakrishnan, 1998).

11.57. Evaluations show that businesses are short-lived – typically one-third to half of MEDA created businesses close down in the first year of their operation. For example, the failure rate of businesses is over 50 percent in various schemes in the U.K. (Taylor, 1999), 60 percent in the first year in Denmark, and in Australia it is more than 70 percent in the first two years. In France the failure rate is 50 percent but over a period of five years (Table 11.3). Evidence seems to show that businesses assisted through mentoring and business counseling are more likely to succeed, and even though a majority of businesses may close – individuals are likely to move to employment in another industry rather than into unemployment.

**Table 11.3 Failure Rates of MEDA Business**

<b>Program</b>	<b>Failure Rate of Businesses</b>
<i>Australia (New Enterprise Initiative, late 1980s)</i>	<i>58% failed in first year and 71% in two years.</i>
<i>Canada (Self-Employment Assistance Program, early 1990s)</i>	<i>20% failed within first year</i>
<i>Denmark (Enterprise Allowance Schemes, late 1980s)</i>	<i>60% failed within first 12 months</i>
<i>France (Micro-Enterprise Development, early 1980s)</i>	<i>50% failed within 4.5 years.</i>
<i>Hungary (MEDA, mid-1990s)</i>	<i>20% failed within first 15 months.</i>
<i>Netherlands in the early 1990's</i>	<i>50% failed within four years.</i>
<i>Poland (MEDA, mid 1990s)</i>	<i>15% failed within first two years.</i>
<i>U.S. in Washington (Self-Employment Experiment, 1990)</i>	<i>37% failed within the first 15 months</i>

11.58. While there are high deadweight losses and high rates of business failures, MEDA participants seem to fare reasonably well in terms of employment outcomes as compared to a control group. Scientific evaluations show that participants are more likely to be employed than individuals in the control group. However, this does not necessarily translate into higher earnings. For example, in the Washington self-employment experiment, while participants are more likely to be employed than the control group, they earn significantly less (Fay, 1996). In Hungary and the Czech Republic, participants were more to be employed compared to individuals in the control group, but earned \$30/month less (Fretwell, Benus and O'Leary, 1999). In the case of Poland, on the other hand, participants were 25 percent more likely to be employed than the control group and earned significantly more. In the Hungarian and Polish programs, women and older workers generally had better outcomes than individuals in other sub-groups

11.59. Even in cases of businesses that survive, there is only a small multiplier effect. Most surviving businesses create, on average, half an additional job. In Hungary, each surviving enterprise created 0.3 additional jobs, in France, 0.5, and in Australia, during a period of declining unemployment, 0.7 (OECD, 1993; Wilson and Adams, 1994).

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<sup>15</sup> In Korea, a somewhat different type of scheme is used – existing small businesses are given subsidies to assist in their development. However less than two percent of firms with less than 100 workers availed of these subsidies in 1998 during the crisis (OECD, 2000).



11.60. While there is some scattered data on costs, the cost-benefit issue has rarely been addressed. Where available, data indicate that the cost of starting up a small business vary from \$4500 (in France) to \$13,000-\$14,000 (in Canada and Denmark). The Canadian evaluation states that the long-term cost-effectiveness of these programs is uncertain, while preliminary analysis from Poland and Hungary indicate a loss to the unemployment insurance system with both the average duration and level of unemployment benefits paid to participants being greater than those paid to individuals in the control group. However, it would be premature to draw any conclusions on the cost-effectiveness of these programs on the basis of so little evidence.

11.61. In all, evaluations suggest that these programs work for only a small subset of the unemployed population (generally below five percent) and are associated with high deadweight and displacement effects rendering the "net" effects of these programs to be quite low. The failure rate of these businesses are quite high in most cases (though businesses assisted through mentoring and business counseling are more likely to succeed). As in the case of training, assistance targeted at particular groups - in this case women and older individuals - seems to have a greater likelihood of success.

### **Summary of Evaluative Evidence**

11.62. In this section we have examined over 120 impact evaluations (some of which are summaries of a group of evaluations) - both non-scientific as well as scientific - of active labor market programs in an attempt to draw some lessons about the efficiency and cost-effectiveness of these schemes. While the evidence covered is probably not exhaustive, this study has managed to look at most of the evidence available on different issues for these programs.

11.63. While the paucity of rigorous evidence on the costs and effectiveness of active labor market programs does not allow a definitive conclusion as to whether such interventions can be justified economically, the general conclusion is that large scale application of these programs should be avoided without knowledge of their effects.

Table 11.4 summarizes the lessons for each program.

**Table 11.4 Overview of Active Labor Programs**

Program	Appear to Help	Comments
1. Public Works Programs (17 evaluations)	Severely disadvantaged groups in providing temporary employment and a safety net.	Long-term employment prospects not helped: program participants are less likely to be employed in a normal job and earn less than do individuals in the control group. Not cost-effective if objective is to get people into gainful employment.
2. Job-search assistance/ Emp. Services (19 evaluations)	Adult unemployed generally when economic conditions are improving; women may benefit more.	Relatively more cost-effective than other labor market interventions (e.g. training) -- mainly due to the lower cost, youth do not benefit usually. Difficulty lies in deciding who needs help in order to minimize deadweight loss.
3. Training of long-term unemployed, those laid-off <i>en masse</i> , and youth (47 evaluations)	Women and other disadvantaged groups generally when economy is improving. However, little positive impact on youth.	No more effective than job-search assistance in increasing re-employment probabilities and post-intervention earnings and are 2-4 times more costly. For youth, employment/earnings prospects not improved as a result of going through the training. Taking costs into account - the real rate of return of these programs is negative for youth.
4. Employment/ Wage subsidies (22 evaluations)	Long-term unemployed in providing an entry into the labor force.	High deadweight and substitution effects. Impact analysis shows treatment group does not do well as compared to control. Sometimes used by firms as a permanent subsidy program.
5. Micro-enterprise Development Programs (15 evaluations)	Relatively older groups, the more educated.	Very low take-up rate among unemployed. Significant failure rate of small businesses. High deadweight and displacement effects. High costs -- cost-benefit analysis rarely conducted but sometime show costs to UI budget higher than for control group.

## V CONCLUSION

11.64. What can policy-makers conclude from our review of active labor market programs? While there are various types of interventions addressing different policy objectives, our review of the evaluation evidence in section 4 certainly sends out cautionary signals. Ultimately ALMPs are judged by their performance in improving the employability and earnings of workers and the evaluations indicate that the investments made often not had an appreciable impact on these outcomes.

11.65. There are polar positions on the effectiveness of active labor market programs. On one hand, proponents of these programs argue that active labor market programs are both necessary and useful, short only of a panacea for reducing unemployment and protecting workers. Opponents of the programs tend to summarily dismiss these programs as a waste of public money with high opportunity costs to other social programs and labor market efficiency as a whole. Based on a thorough evaluation of evidence, this paper shows that some programs can be useful to some workers in some cases. There are also good design features for each program, but external (to the programs) conditions need to be taken into account (a good program in one country can prove to be a bad one for another; a program found to be useful in the past may no longer be the case). This calls for realism in setting the objectives of ALMP and also setting standards against which active labor market programs should be evaluated. However, due to lack of evaluative evidence, the conditions under which programs will succeed have not been fully identified. A very *broad generalization* on the effectiveness of these programs leads to the conclusions that:

- Some of these programs - such as wage subsidies or training for youth - are unlikely to be cost-effective instruments in reducing unemployment.

- Some programs - such as job search assistance - are likely to have positive impacts on the probability of finding employment if they are well-designed and implemented.
- However, the impact and cost-effectiveness of most of the active labor market programs depends on their design, and also on the overall macro and labor market framework in which they are designed.

11.66. However, in putting forward this evaluation evidence, we are not arguing that policy-makers in countries without major ALMP investments should avoid this area in the future. First, active labor market programs can serve social objectives, as well as economic. Researchers have not addressed the question of these social impacts, which may be more positive. Second, workforce development, the social and economic integration of marginalized and at-risk groups, and the situation of unemployed workers are central concerns for policy-makers and ALMPs are obvious instruments to address these. Third, the disappointing performance of these programs in the aggregate masks the fact that some program designs do seem to lead to positive outcomes for some types of workers. The challenge is to learn from existing experiences and to direct future programming along lines that appear to work.

11.67. But the evaluation evidence does suggest that policy-makers should be realistic about what ALMPs can do and that investments in this area should be made carefully and modestly. As policy-makers in Brazil look down the road, we recommend that they carefully consider the following issues relating to the formulation of an active labor market policy:

11.68. *Priority setting.* As we have noted, active labor market programs can have various policy objectives including reducing unemployment in cyclical downturns, correcting structural imbalances, improving labor market functioning, and assisting disadvantaged groups of workers. In designing an overall strategy, it is important to identify which of these are the priority objectives since it is the objectives that should determine program choices and program design.

11.69. *The roles of the public and private sectors.* This is a key consideration both in developing an overall strategy and in designing and implementing programs. At one time, governments in the OECD region developed and delivered virtually all ALMPs but, increasingly, governments have reconsidered the respective roles of the public and private (and non-profit) sectors. In many countries, possibilities have opened up for the other sectors to play important roles, at least in the delivery of services. This can lead to more diverse, innovative, and cost-efficient services and to programs that are more closely oriented to labor demand. However, even where the scope for private sector involvement is considerable, governments retain the central role. They must be responsible for the overall system, ensuring that it remains focused on public priorities. They must also address distributional issues (e.g., adequate service for all types of workers) and provide critical public goods.

11.70. *Promoting partnerships and dialogue.* The identification of priorities for active labor market policy and program choices can benefit from ongoing dialogue between government, business, labor, and other relevant organizations (e.g., service providers). Where this dialogue is conducted effectively, policy-makers can maintain a close connection with the needs of the labor market and can maximize support for ALMPs. The dialogue needs to be carried out both at the level where priorities are set (e.g., nationally) and where programs are delivered (e.g., locally). Governments typically must be the leaders and catalysts for ensuring this process.

11.71. *"Infrastructure" for the labor market.* Infrastructure services are critical if ALMPs are to be a useful policy instrument. By "infrastructure," we mean labor market information, a viable and complete network of

employment service offices, and certification and accreditation systems. These services are the cornerstones of an effective system: They inform the program choices that should be made. They provide the bridge between the labor market, service deliverers, workers, and employers. And they are necessary for ensuring quality throughout the system. As largely public goods, these are inevitably the responsibility of governments. In countries where the development of an active labor market policy is at an early stage, these infrastructure services should be the first priority.

11.72. *Coordination within government.* In many countries, ALMPs are complicated by the fact that many government agencies are involved and that coordination among them is insufficient. There are two problems associated with this coordination issue. First, multiple departments often are responsible for various aspects of active labor market programming and mechanisms are not in place to ensure that they are working together in an efficient manner which often leads to a duplication of effort. Second, priority-setting and programming in the ALMP area are often not sufficiently coordinated with overall economic planning. Both of these problems need to be addressed through intra-government coordination to ensure the relevance and efficiency of active labor market programming.

11.73. *Policy and administrative/operational capacity.* Designing and implementing ALMPs requires considerable capacity within government. In many ways, this is a more complicated area than passive income support programming. Capacity needs do differ significantly by program. For example, public works can be relatively straightforward to design and implement; as a consequence, these are often the major active labor market interventions in many developing countries. On the other hand, employment services require a network of facilities with extensive geographic coverage, the resources (technological and know-how) to generate and disseminate accurate and timely labor market information, skilled counselors, and reliable connections with the employer and educational communities. Training programs also require labor market information plus training and occupational standards, monitoring and evaluation capabilities, and capacity (increasingly in the private or non-profit sectors) to deliver good programs. Governments must recognize that capacity building is a slow but essential process.

11.74. *Monitoring and evaluation.* This is a key part of capacity and deserves special mention. In spite of the large public expenditures on ALMPs in OECD countries, rigorous evaluations of these programs have been relatively uncommon. In an effort to improve the targeting and efficiency of social programs, sound impact evaluation techniques should be used to evaluate active labor market programs. A good evaluation compares labor market outcomes for individuals who have gone through a particular program with those of a control group of their peers, and also utilizes data on program costs to attempt to answer questions such as: what are the impact estimates of the program on the individual; are the impacts large enough to yield net social gains; and is this the best outcome that could have been achieved for the money spent.

11.75. There are clearly many considerations involved in developing a strong active labor market policy. And the experience of the OECD countries, plus the resources required, suggest that countries should move slowly to build on what already exists. Nevertheless, over the long run, building ALMP capacity will be important as formal labor markets grow and as a skilled workforce becomes more important. Nations now need to think about priorities, the role of government, and a range of issues related to how ALMPs should be carried out. Given its foundation role, "infrastructure" needs to get immediate attention.

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## **Annex I: Description of ALMPs**

### **I. Direct employment/public works and public employment**

Some governments attempt to alleviate cases of severe and continued mass unemployment by creating jobs and hiring the unemployed directly. In other arrangements, the government contracts with non-profit organizations or private businesses to provide jobs. Participants are provided jobs in various sectors of the economy, e.g. construction, health and municipal government. Although most programs target the displaced and the long-term unemployed ("the hardest to place groups"), youth in some countries also participate as a way to introduce them to the world of work. For example, unemployed youth have been provided temporary employment through public works projects in Angola, Ecuador and Zambia, among other countries, while long-term unemployed have been employed in similar programs in many OECD and developing countries during the 1980s and 1990s.

These programs may assist disadvantaged and the long-term unemployed groups to regain contact with the labor market and can lead to the production of public goods and develop basic infrastructure. Another advantage is that these programs can be self-targeting, particularly when the wages are set at an appropriate level. Conversely, if wages are set too high, public works jobs may end up crowding out jobs in the private sector. There is usually a stigma attached to such jobs which decreases individual's employability in a non-subsidized job.

### **II. Employment Services/Job Search Assistance**

The main objective of employment services is brokerage - matching jobs with job seekers. Job-search assistance comprises many different types of services; for example, initial interviews at employment offices, in-depth counseling during the unemployment spell, job clubs etc. They assist a varied group of unemployed and job seekers - including the long-term unemployed in the U.K., women on welfare in the U.S., individuals laid off as a result of industrial restructuring in Canada, and the youth in Holland. As mentioned above, job seekers are usually provided a wide range of services. In Hungary and Poland in the mid 1990s, for example, they were provided with job referrals, job counseling, skills assessment, job search training, resume preparation and job clubs (O' Leary, 1998(a), 1998(b)). In New Zealand they were assisted through a job screening interview, workshops, follow-up interviews and personal case management (NZ DOL, 1995). In Australia they were helped in resume writing and interviewing techniques (Fay, 1996).

These services are relatively inexpensive and by providing job seekers with better information on jobs, they can also help in shortening unemployment spells. On the negative side, opponents of these interventions argue that they usually have deadweight losses - individuals who get jobs through employment services are generally the most qualified and would have also gotten jobs in the absence of these services.

### **Labor Market Training**

This includes training where there is some form of public support. That support can come in the form of direct provision of training (e.g. through public training institutes), financial support for trainees (e.g., funding direct costs of training and/or subsidizing trainees), and providing "infrastructure" services (e.g.,



labor market information, licensing and other quality monitoring, certification and credential services). In this paper, we focus on three types of training programs:

- Programs aimed at the long term-unemployed. Though there is no generally agreed definition of what constitutes long-term unemployment, the term usually refers to those who have been unemployed for more than 12 months (OECD, 1993). Overrepresented in this group are “older” workers who used to be employed in what turned out to be a declining industry or region.
- (b) Retraining programs aimed at those displaced. This group generally tends to be more homogenous than the long-term unemployed. Retraining programs are usually offered when individuals are laid-off *en masse* (e.g. in the automobile, shipbuilding, mining, steel and pulp industries). Generally, these losses occur during periods of contraction of a particular sector; and
- (c) Training programs aimed at youth. These programs usually aim at assisting school dropouts (often paying special attention to youngsters who drop out prior to completing upper secondary education) or youth who come from severely disadvantaged families. The assisted individuals are typically below the age of 20.

While publicly provided training programs can lead to increases in productivity and enhance the skills of the unemployed, youth and those at risk, they have a number of limitations. Firstly, they are relatively costly. Secondly, they tend to have little impact when the economy is not performing well (i.e. when growth is slow). Unfortunately, this is usually the situation during which they are likely to be instituted. Finally, training programs can also result in deadweight loss – i.e. those who benefit from the programs may have more skills to begin with and who would have gotten jobs anyway.

#### **IV. Micro-Enterprise Development Assistance/Self-Employment Creation Measures (MEDA)**

However, technical assistance, credit and other support can contribute to the creation and promotion of small-scale new businesses and self-employment. In countries with embryonic financial infrastructure, private banks are often unable to conduct comprehensive risk assessment and offer credit to unemployed workers who want to create their own business. Small business loans can contribute to the removal of this distortion arising from credit rationing.

In general, MEDA programs are not targeted at any particular group. For example, such assistance has been given to the newly unemployed (such as in Massachusetts, U.S., in the early 1990s), to those who have been unemployed for at least five months (such as in Denmark in the 1980's) and those who were laid-off in Hungary and Poland in the 1990's. Similarly, they are available under varied economic conditions. In Ireland, for example, these programs were instituted in the mid 1980s at a time when unemployment rates were high (around 15 percent) and rising. In Australia, on the other hand, they became more common in the late 1980s when unemployment rates fell from eight to six percent.

Program conditions also vary. For example; participants may receive assistance to set up their businesses as a lump-sum payment or periodic allowances. Often there is “screening”, that is, potential beneficiaries undergo a rigorous assessment which evaluates their likelihood of success (for example, in Germany) but in other countries, such as the US, screening is more cursory (Wilson and Adams, 1994). In most cases participants may also receive post-startup business advisory services and business counseling.

Though theoretically the idea that someone who cannot get a job as an employee will be inclined to become self-employed makes sense, very few among the unemployed – usually less than five percent - are tempted to take up opportunities for self-employment (Wilson and Adams, 1994). One explanation for this may be that individuals are generally risk averse, and given a choice between getting unemployment benefits or money to start up a - possibly unsuccessful - venture, prefer to get the unemployment benefits. Furthermore there is some danger of displacement of small businesses who do not get this assistance.

#### **V. Wage/employment Subsidies (WES)**

These programs have been used for the long-term unemployed, those coming from severely disadvantaged areas (e.g. areas with high unemployment), and youth. They aim to reduce social exclusion, that is, to help these individuals regain contact with the world of work. They are instituted under varying economic conditions (though usually during slack periods) - in Australia during periods of falling unemployment in the mid 1980s (Mangan, 1988) as compared to Scotland where unemployment rates rose from six to 10 percent while the program was underway between 1989-1992 (NERA, 1995).

Subsidy programs can assist the unemployed, particularly the long-term unemployed to maintain contact with the labor market and they may lead to permanent employment by helping individuals develop some work-related skills. However, opponents argue that these programs are associated with deadweight losses - those that are provided subsidies would be hired anyway in the absence of these subsidies. They can also have low net employment effect as workers taken by firms in a subsidized job substitute for unsubsidized workers who would have otherwise been hired. Furthermore, employers may end up abusing the system by hiring workers as cheap labor and laying them off once the subsidy period ends.

## Annex II: Alternative Matching Techniques

The aim of the matching technique is to create a “synthetic” control group that closely matches the characteristics of the treatment group. Characteristics should be based on the following criteria: (i) they should be observable (e.g. education, gender, age, education); and (ii) they should be relevant – i.e. these attributes should be correlated with the outcomes of interest (e.g. earnings and employment probability). The control (and treatment) group samples can come from a representative sample survey. The larger the sample of eligible non-participants the better, to facilitate good matching. If the two samples come from different surveys, then they should be highly comparable surveys. The synthetic cohort can be created in one of two ways:

### Method I

For each treatment group observation, a distance measure is computed for each control group observation using the Mahalanobis distance measure:

$$D_{ij} = \sum_k (Z_{ik} - Z_{jk})^2$$

where the index  $i$  represents observations in the treatment group and the index  $j$  represents observations in the comparison group. The index  $k$  runs over the exogenous characteristics on which the observations are matched, and  $Z$  represents the standardized value of a characteristic where the mean and standard deviation of the characteristic is computed on the pooled sample of treatment and control group observations. Thus for each individual in the treatment group, a  $D_{ij}$  is computed for every control group member. The control group observation for which the  $D_{ij}$  is the smallest is chosen as the “matched” observation. It is possible that a single control group observation can be a match for more than one treatment group observations.

The impact of the program is measured as the difference in outcome sample means for the treatment and synthetic control groups.

### Method II

This method is known as the propensity score method and works as follows:

- Pool the treatment and control group samples and estimate a logit regression of program participation as a function of all the variables in the data that are likely to determine participation in the program.
- Create the predicted values of the probability of participation from the logit regression; these are called the “propensity scores.” There will thus be a propensity score for every sampled participant and non-participant. The range of propensity scores estimated for the treatment group should correspond closely to that for the retained subsample of non-participants.
- For each individual in the treatment sample, an observation is found in the non-participant sample that has the closest propensity score, as measured by the absolute difference in scores. This is called the “nearest neighbor.”
- Calculate the mean value of the outcome indicator (or each of the indicators if there is more than one) for the five nearest neighbors. The difference between that mean and the actual value for the treated observation is the estimate of the impact due to the program for that observation.
- Calculate the mean of these individual gains to obtain the average overall impact.

This is the simplest form of propensity score matching.

the  $\mathbb{R}^n$  is a linear space over  $\mathbb{R}$  with the usual addition and scalar multiplication. The inner product is defined by

$$(x, y) = x_1 y_1 + x_2 y_2 + \dots + x_n y_n \quad (1)$$

where  $x = (x_1, x_2, \dots, x_n)$  and  $y = (y_1, y_2, \dots, y_n)$  are vectors in  $\mathbb{R}^n$ .

The norm of a vector  $x$  is defined by

$$\|x\| = \sqrt{(x, x)} = \sqrt{x_1^2 + x_2^2 + \dots + x_n^2} \quad (2)$$

The distance between two vectors  $x$  and  $y$  is defined by

$$\|x - y\| = \sqrt{(x - y, x - y)} = \sqrt{(x_1 - y_1)^2 + (x_2 - y_2)^2 + \dots + (x_n - y_n)^2} \quad (3)$$

The angle between two vectors  $x$  and  $y$  is defined by

$$\cos \theta = \frac{(x, y)}{\|x\| \|y\|} \quad (4)$$

The orthogonal projection of a vector  $x$  onto a vector  $y$  is defined by

$$\text{proj}_y x = \frac{(x, y)}{(y, y)} y \quad (5)$$

The orthogonal complement of a subspace  $W$  is defined by

$$W^\perp = \{x \in \mathbb{R}^n \mid (x, y) = 0 \text{ for all } y \in W\} \quad (6)$$

The orthogonal decomposition theorem states that any vector  $x$  in  $\mathbb{R}^n$  can be written as the sum of a vector in  $W$  and a vector in  $W^\perp$ .

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