Growth, Inflation, and Inequality in Brazil

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In no country has the academic debate on growth versus equality been sharper than in Brazil. In the 1970s, the core of the discussion was whether the poor benefitted from growth during the 1965-74 "miracle" and whether they might have done better under different policies.[1] Today we know that despite the growing inequality of the 1960s, growth in the 1970s benefited all income groups. With the stagnation of the 1980s inequality has increased further; in 1989 approximately 50 million people lived on less than a quarter of the minimum wage.[2]

I look at the broad picture, ask how to interpret it, and discuss the role of macroeconomics.

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[1] See for instance Camargo and Giambiagi (1991), Fields (1977), Fishlow (1980), Morley (1982), Pfefferman and Webb (1979), and Taylor et. al. (1980).

[2] The minimum wage varies around 50 dollars per month.

1. DISTRIBUTION AND POVERTY: THE PICTURE

The complexity of statistical problems surrounding income distribution data in Brazil are serious enough to provoke scepticism. There are however a few stylized facts which are widely accepted. They are:

• Brazil (with a Gini equal to 0.625 in 1989) has one of the most unequal income distributions in the world.[3] Social indicators look worse than in any other country with the same income per capita. Table 1 compares economic and social indicators in Brazil with those of Latin American countries with a population of more than 10 million people. Brazil does poorly. Despite the fact that in 1990 it had the highest dollar income per capita in the region, infant mortality was three times that of Chile, the illiteracy ratio was four times that of Argentina, and Brazilians could expect to live four years less than Mexicans.

• National averages of economic and social indicators hide extreme disparities. Regional inequality is severe.[4] For instance, the interstate range of income in Brazil is 7 to 1.[5] Table 2 shows the range of economic and social indicators for the poorest and richest

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[3] The 0.625 Gini is calculated from the distribution of economically active population with positive income in 1989 (Fiszbein and Psacharopoulos (1992)).

[4] See for instance Vinod (1987) and Maddison (1989).

[5] Interstate disparity is 2 to 1 in the United States where Mississipi's per capita income was half that of Connecticut's in 1991 (U.S. Department of Commerce, Survey of Current Business, Vol.72, n.4, Table A, April 1992).

regions and states. Cavalcanti de Albuquerque (1991) compares the index of human development for Brazilian states with indices of other nations. Rio Grande do Sul is as advanced as Portugal, South Korea, and Argentina, while Paraiba performs as badly as Kenya and more poorly than Bolivia.[6]

Destitution remains predominantly a rural phenomenon even if the gap between the urban and the rural living standards declined in the last twenty years (Table 3). In 1988, rural income was still 60 percent of urban income.

Inequality has roots in history. In the colonial economy, rents from abundant natural resources were monopolized by the state and by large landlords from Portugal. The labor force were slaves. After the abolition of slavery, there was no land reform. Official policy kept labor cheap and uneducated.

• Brazil spends as much as Korea on social programs, but it spends poorly. The Brazilian share of social service expenditure by government in GDP is as high as or even higher than that of other middle-income developing countries, but Brazilian social welfare indicators are strikingly low.

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[6]The index of human development, recommended by the United Nations, is calculated as:

$$I_j = 1 - (1/3)\sum_{i=1}^{3} I_{ij}$$

where: j stands for region, i for the indicator, and:

$$I_{ij} = (\max_j X_{ij} - X_{ij})/(\max_j X_{ij} - \min_j X_{ij})$$

X^{1j}-life expectancy
X^{2j}-literacy ratio
X^{3j}-GDP per capita

The reasons for such an unsatisfactory social performance are twofold: public resources are poorly managed and are not efficiently targeted. The poorest 19 percent of the population (with less than one quarter of a minimum wage per household member) receives 6 percent of social benefits. An estimated 78 percent of all spending on health is devoted to high-cost curative hospital services and only 22 percent to basic preventive health-care, such as immunization programs, malaria control, and maternal and child health. In education, the government supports free tuition in universities despite the fact that the cost of educating each university student is 18 times higher than government expenditure per student at the primary and secondary level combined.[7]

• Inequality increased in the 1960s, did not change much in the 1970s, and increased in the 1980s.

Growth in the 1970s contributed to income growth of all income groups, thus reducing poverty substantially.[8] In the 1980s the income of the poorest groups declined (Tables 4 and 5).

The next section offers a framework for exploring the reasons behind the evolution of inequality in Brazil between 1960 and 1990.

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[7] The World Bank (1988) and Barros et al (1992) offer analyses and critiques of social spending in Brazil.

[8] See for instance Pastore et al. (1983).

2. A FRAMEWORK FOR ANALYSIS

An income distribution has two components: the average income of each group and the inequality of their incomes. Inequality has many roots. We first consider the effect of different variables on inequality at full employment and then distinguish between the impact of the business cycle and of trend or full employment growth. To represent the relationship between income inequality and other variables we define:

I - Income Inequality

$A(\pi)$ - Inequality of the Distribution of Assets. We assume that the distribution of financial assets depends on inflation, π, because high inflation erodes the savings of the middle income groups while the high income groups have better access to both information and foreign assets.

E - Inequality of Education Distribution.

F - Incomes Policy.

Y - Income

$Y_f(e,a)$ - Potential Output which depends on the stock of education, e, and on the stock of physical capital, a.

At full employment, income inequality depends on the inequality of the distribution of assets and education. The more unequal the distribution of financial, physical, and human capital, the more unequal is the distribution of income derived from these assets. At full employment, income distribution is also affected by incomes policy, which affects prices and wages, and can thus smooth or worsen the income distribution.

A recession worsens the income distribution because of its effect on employment. In a recession unskilled workers are the first to lose their jobs as firms hoard the trained labor force. In the recovery, unskilled workers get back their jobs and inequality diminishes. We represent the relationships described in the last two paragraphs by:

$$(1) \qquad I = I(A(\pi),\ E,\ F,\ \bullet) \ - \alpha(Y - Y_f(e,\ a))$$

I use a simple diagram to represent the effects of recessions, economic booms, inflation, and trend growth. The advantage of this diagram is that it allows us to distinguish between the effects on inequality of transitory booms and of permanent growth. It is also relevant because even if we believe that education plays a major role in explaining inequality, we do not want to attribute the big deterioration of distribution which occurs in two years (as observed in Brazil between 1981 and 1983) as being the result of changes in the distribution of education. The poor do not lose their skills so fast, nor do the rich acquire in such a short period of time the education which transforms them into productivity prodigies.

In figure 1.a I show income on the horizontal axis and inequality on the vertical axis. The vertical schedule represents potential output. In figure 1.a, inequality falls during a boom. Inequality declines during a boom if it coincides with a boom in construction which makes intensive use of unskilled labor.

Inflation

Inflation can affect the shape of the II schedule. In figure 1.b inequality increases during the boom. Inequality increases during a boom if it is accompanied by increasing inflation rates. Inflation affects poverty mainly through its impact on real wages because nominal wages fail to increase as fast as prices in episodes of rising inflation rates. In the context of full employment, there is no satisfactory explanation for partial indexation, but the empirical evidence shows that perfect indexation does not exist and that wages increase more slowly than prices during episodes of high inflation. The inflation tax also increases inequality. Although the inflation tax does not affect those individuals below the poverty line due to their negligible average cash holdings, it may wipe out the savings of the middle class and increase the number of poor. In this sense it widens inequality of income and increases poverty.

Recessions

One must also take into account the fact that a recession has lasting effects on income distribution. During the recession the middle class groups are forced to sell their asstes to smooth consumption and they might not be able to earn them back during the recovery. That means that the II schedule is not stable but shifts with prolonged recessions that redistribute assets from the middle classes to the high income groups.

Education

Next consider the role of education. Economists agree that behind the extreme inequality of income distribution in Brazil lies an extremely

unequal education distribution. Barros et. al. (1992) show that if all wage differentials by education level were eliminated, the overall inequality would be reduced by almost 50 percent.[9] A reduction in the inequality of the distribution of education would shift the II schedule downwards and reduce inequality at full employment.

What is the role of education in explaining the change in inequality after 1960? Barros et. al. (1992) shows that two thirds of the increase in inequality between 1960 and 1970 can be attributed to education but it has a minor role in explaining what happened in the late 1970s and in the first half of the 1980s.

Growth

How does growth affect inequality? Consider first the case where potential output increases with an increase in the capital stock with no change in the inequality of its distribution. This would shift both schedules to the right and leave inequality unchanged, as in figure 2. In the case where potential output increases as a result of an increase in the education of the low income groups, the vertical schedule shifts to the right as a result of the increase in average education. The increase in potential output pushes the II schedule to the right but the reduction in education inequality pulls it to the left. Thus, the shift of the vertical schedule to the right exceeds the shift of the II schedule and inequality declines with growth.

If we compare two years such as 1960 and 1971 which are close to full employment, we must discover that changes in inequality

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[9] See also Paes de Barros and Reis (1989) and Sedlacek and Paes de Barros (1989).

are linked to variables such as education and incomes policy. Incomes policy, such as existed in Brazil between 1965-1969, shifts the II schedule up and worsens income distribution at full employment.

4. MACROECONOMICS MATTERS

Table 4 shows the evolution of Gini coefficients and poverty measures over time. Table 5 dramatizes facts reported in Barros et al. (1992). The benefits from Brazil's growth went disproportionately to the rich and the costs of the 1980s stagnation fell disproportionately on the poor.

Between 1960 and 1970, poverty in Brazil remained unchanged despite annual average income growth of nearly 6 percent. The lack of progress on the poverty front resulted from the worsening of income distribution in the 1960s. The Gini index jumped from 0.5 in 1960 to 0.6 in 1970, an unusually large deterioration in only ten years. In 1960, the wealthiest 10 percent of the economically active population earned 28 percent of total income. By 1970, they earned 48 percent. At the same time, the bottom half of the population saw its share drop from 18 percent to 15 percent.

One explanation for widening inequality during this period is the stabilization program adopted between 1964 and 1967. The concentration of income resulted not from growth, but from policies restraining nominal wages and adjusting government administered prices. Real wages of unskilled labor fell dramatically between 1964 and 1969. There is some controversy as to whether the income distribution

deterioration can be attributed to the government's wage policies. Minimum wage policies are arguably ineffective in modifying Brazil's income distribution. There are two reasons for this. First, low income groups do not receive the official minimum wage. Second, the evidence does not point to a clear positive correlation between the official minimum wage and the wages below it.[10] Despite these qualifications, the minimum wage squeeze did affect the real income of the lower middle income groups and it was an important factor behind the increase in inequality in the 1960s.

While Fishlow (1972) has emphasized the role of government policy in squeezing real wages, Langoni (1973) stressed non-policy forces inherent in a situation of fast growth with a shortage of educated labor. Langoni (1973) and his followers argue that rising inequality was the result of skill-intensive growth in a labor surplus economy. Job creation more than kept pace with the growth of the labor force and most jobs created were good ones.

Despite the political debate which surrounded the two studies, there is no necessary conflict between the two views. There is room for complementary explanations. The gap between rich and poor increased not only as a result of the increase of the real wage of skilled labor but also because the real wage of unskilled labor fell. The decline in the real wages of the poor resulted in part from the rise in inflation before 1964 and from the mid-1960s recession, which validated the incomes policy of imperfect indexation.

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[10] See Almeida (1989).

There is no data for the mid-1960s, but it is possible that income distribution in 1967 was even worse than in 1970. Comparing years for which we have empirical information, 1960 and 1970, we must first observe that in these years the economy was close to potential output (see Figure 3) and we must look for structural changes. Barros et al. (1992) convincingly argue that education played a major role in the explanation of the increase in inequality between 1960 and 1970. But education alone does not explain all the increase in inequality. We must remember that during the recession the middle income groups had to sell their assets to smooth consumption. The redistribution of assets produces lasting effects on income distribution.

During the 1970s, a period of rapid economic growth, the percentage of the poor in the total population was reduced by nearly half. From 1981 to 1983, a deep recession increased all poverty indices in Brazil. Barros et al. show that education played a less important role in explaining the decline in inequality in late 1970s and the increase in inequality in the 1980s.

The 1980s

Recession and inflation generated the increase in poverty and inequality in the 1980s.

Figure 3 shows the dramatic stagnation of the Brazilian economy during the 1980s. Add to the recession all the failed stabilization programs and observe that the poor have less room to cope with the radical policy moves which produce sectoral dislocation of

resources and employment. There is nothing worse for poverty than failed stabilization programs that lead to rising inflation.

Figure 4 shows inflation during the 1980s. Inflation increases poverty and inequality in three ways. First, if nominal wages increase less than the price of goods consumed by wage earners, workers' real income will decline. Second, the inflation tax reduced disposable income. Third, inflation will redistribute assets in favor of the group better trained to play the financial markets. How important are these factors in Brazil?

Cardoso (1992) argues that in Latin American countries, inflation affects the poor mainly through its impact on real wages because nominal wages fail to increase as fast as prices in episodes of rising inflation rates. In the context of full employment there is no satisfactory explanation for partial indexation, but the empirical evidence shows that perfect indexation does not exist and that wages increase more slowly than prices during episodes of high inflation. Periods of increasing inflation in Argentina, Costa Rica, Chile, Mexico, Peru, and Uruguay, all coincide with declining real wages. But the evidence for Brazil is not clear. Consider the case of average industrial wages in Rio de Janeiro and Sao Paulo. Between 1977 and 1980, average real wages and inflation are positively correlated because of strong growth and adequate indexation. But between 1986 and 1990, when inflation speeds up, the average industrial real wage in Rio fall. In Sao Paulo they oscillate with industrial employment.

The costs of inflation for wage earners also include oscillations in their real income. Figure 5 shows the real minimum wage

in Brazil, between 1975 and 1991, and it illustrates the shortcomings of indexation. For individuals who are liquidity constrained, the significant oscillation in their real wages means that they cannot smooth consumption or that their real disposable income will be eroded if they try to carry cash from one month to the next.

Consider next the inflation tax. The inflation tax is regressive because it wipes out the savings of the middle-income classes. But those who were already poor before inflation started pay an insignificant amount of their income as an inflation tax. How much income does the poorest quintile of the population lose in the form of an inflation tax? Almost nothing. The lowest quintile of the population has no savings and as long as they get paid weekly and the inflation rate remains below 100 percent per year, the inflation tax is negligible.

Table 6 shows the inflation tax at different inflation rates assuming that wage earners spend half their income on the day they are paid and the other half evenly during the rest of the period. If they are paid weekly, which is true for very low wage earners, even at 1,000 percent per year, the inflation tax amounts to 1 percent of wages. For the lower middle income groups who are paid monthly and do not have access to overnight deposits the situation can be dramatic. At current inflation rates anyone who carries 2 percent of his annual income in the form of cash or non-interest demand deposits is losing 5 percent of his income because of the inflation tax.

Inflation is difficult to predict and nominal interest rates will fail to reflect changing inflation rates because the estimates

of the course of future prices are biased, not because of market imperfections. As a result there will be transfers of wealth between creditors and debtors. This will be true of all debtors and creditors linked by indebtness in the form of bonds, mortgages, sales contracts, and will also be reflected in the stock market.

When inflation reaches 1,000 percent, big gains and losses can be made overnight. The middle income groups will certainly lose compared to the groups who have better information and access to expensive technical advice. The income of the richest ten percent of the active population divided by the income of the poorest ten percent of the population increased from a factor of 22 in 1960, to 40 in 1970, 41 in 1980, and 80 in 1989. Inflation has impoverished the middle income groups.

5. CONCLUSIONS

For policy purposes, I want to focus on three issues: macropolicy, population growth, and basic education.

Having argued that inflation and recessions are costly, I must accept that the only consistent macro alternative open to governments is the maintainance of conservative macroeconomic policies. But we must keep in mind that the very poor cannot gain much from neutral growth because they start from a very small base.

Population growth

Figure 6 shows a positive correlation between inequality (measured as the ratio between the income share of the top quintile and the income share

of the bottom quintile) and population growth rates for 41 countries (all countries for which data on income distribution is available in the The World Development Report).[11] The regression line (t-statistics in parentheses) is:

$$R = 1.56 + \underset{(2.88)}{5.67}\, g + \underset{(0.90)}{0.95}\, y$$

$R^2 = 0.22$, 41 observations

where: R = Ratio of the Share of Income of Top Quintile/ Share of Income of the Bottom Quintile, g = Average Population Growth Rate between 1965 and 1980, y = Per Capita Dollar Income in 1990.

Population growth is faster among the poor where mothers do not have access to family planning and jobs. To reduce poverty and inequality, resources must go to educate women.

Moreover, moving the poor out of poverty pockets and bad jobs is the best alternative to reduce poverty. The example of Malaysia is instructive. Between 1973 and 1987 the percentage of the population living below the poverty line in Peninsular Malaysia fell from 40 percent to 15 percent. Table 7 show that the number of the poor declined mainly because people left their positions as paddy farmers and rubber smallholders to become workers in other sectors. Industrial growth is central to poverty reduction and the poor need basic education and skills to grab new opportunities. They need poverty programs which must necessarily include basic education. Increased taxation might prove indispensable in financing such programs, unless government can rely on revenues from privatization.

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[11] Source: The World Bank, World Development Report, 1992, Oxford Press, 1992.

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Table 1: Economic and Social Indicators
Latin American Countries with more than 10 million people

Country	Population (Millions) (1990)	GDP per Head (Dollars) (1990)	Gini (Index) (1989)	Population Growth (%)[a]	Life Expectancy (Years) (1990)	Adult Illiteracy Rate (%)[b]	Mean Years in School [c]	Infant Mortality Rate [d]
Brazil	150.4	2,680	0.625	2.2	66	19	3.9	60
Mexico	86.2	2,490		2.0	70	13	4.7	40
Argentina	32.3	2,370	0.461	1.3	71	5	8.7	31
Colombia	32.3	1,260	0.515	2.0	69	13	5.7	39
Peru	21.7	1,160		2.3	63	15	6.4	82
Venezuela	19.7	2,560	0.498	2.7	70	12	6.3	35
Chile	13.2	1,940		1.7	72	7	7.5	20
Ecuador	10.3	980		2.4	66			

Notes: [a] Percent per year between 1980 and 1989.
[b] As a percentage of the total population which is 15 years old or older.
[c] For individuals 25 years old or older.
[d] For 1,000 live births.
Sources: The World Bank, World Development Report 1992, Oxford University Press, 1992; Ariel Fiszbein and George Psacharopoulos, "Income Inequality Trends in Latin America in the Eighties," Paper presented at the Brookings Institution Conference July 15-17, 1992, Washington D.C.; Ricardo Barros et. al., "Welfare, Inequality, Poverty, and Social Conditions in Brazil in the last Three Decades," Paper presented at the Brookings Institution Conference July 15-17, 1992, Washington D.C.

Table 2: Economic and Social Indicators
Brazil, Poorest and Richest Regions and States
1988

	GDP per Head Dollars of 1988	Life Expectancy Years	Literacy Ratio Percent
Poorest States:			
Piaui	594	62.6	55.9
Paraiba	718	51.9	63.1
Richest States:			
Sao Paulo	3,503	67.0	90.5
Distrito Federal	4,215	68.9	89.5
Poorest Region: Northeast	1,005	58.8	63.5
Richest Region: Southeast	2,989	67.1	88.2
Brazil	2,241	64.9	81.1

Source: Roberto Cavalcanti de Albuquerque, "A Situacao Social: O Que Diz o Passado e o Que Promete o Futuro," in Instituto de Pesquisa Economica Aplicada, Perspectivas da Economia Brasileira, 1992, Brasilia: IPEA, 1991.

Table 3: Indices of Urban-Rural Disparity
Brazil, 1970-1988

	Income Index Urban Income = 100			Human Development Index[a] Urban Index = 100		
	Rural Northeast	Rural South	Rural Brazil	Rural Northeast	Rural South	Rural Brazil
1970	30	53	37	39	71	52
1980	47	70	53	55	83	64
1988	52	78	60	64	84	69

Source: Roberto Cavalcanti de Albuquerque, "A Situacao Social: O Que Diz o Passado e o Que Promete o Futuro," in Instituto de Pesquisa Economica Aplicada, Perspectivas da Economia Brasileira, 1992, Brasilia: IPEA, 1991.

Table 4: Gini and Household Poverty Indices
Brazil, 1960-1988
Poverty Line: Approximately One Minimum Wage per Household*

	Gini	Headcount			Normalized Income Gap	Foster Index	Sen Index
		a	b	c	c	c	b
1960	0.50	0.414					
1970	0.57	0.393	0.422				0.265
1980		0.244	0.219				0.128
1981				0.265	0.101	0.050	
1983	0.59	0.419		0.321	0.131	0.068	
1985	0.60			0.262	0.099	0.048	
1986	0.59	0.284					
1987	0.60	0.359		0.242	0.095	0.048	
1988	0.61	0.393		0.265	0.107	0.056	

Sources:
Gini of economically active population with positive income: Camargo, ed., pp.33 and 58-61.
a Mauricio Costa Romao, "Distribuicao de Renda, Pobreza e Desigualdades Regionais no Brasil," in Jose Camargo and Fabio Giambiagi, editors, Distribuicao de Renda no Brasil, Paz e Terra, Rio de Janeiro: 1991, Table 8, p.115.
b Helga Hoffmann, "Poverty and Prosperity in Brazil," in Edmar Bacha and Hebert Klein, editors, Social Change in Brazil, 1945-1985, University of New Mexico Press, Albuquerque: 1989, tables 6.8 and 6.9, p. 217.
c Ravallion, Martin and Gaurav Datt, Growth and Redistribution Components of Changes in Poverty Measures, LSMS Working Paper No.83, World Bank, Washington D.C., 1991.
*Notes: The three sources use approximately one fourth of one minimum wage per capita corrected for inflation as the poverty line for a household:
a Romao (1991) specifies the cost of a food basket for different regions of the country (approximately half the minimum wage) and uses a different multiplier for each region ranging between 1.5 and 2.05. The poverty line for the country is equivalent in 1986 prices to 0.885 of the minimum wage of September 1986.
b In Hoffmann (1989), the poverty line is equivalent to the minimum wage in August 1980.
c In Ravallion (1991), the poverty line is a household income per head of one quarter of the minimum wage (one minimum wage for family of four) adjusted for inflation using the consumer's price index for a low-income consumption bundle.

Table 5: Income Gains of Average Income by Income Group
Brazil, 1960-1989
Percent Per Year During the Period

	Poorest 10%	Richest 10%
1960-1989	0.4	5.0
1960-1970	0.8	7.3
1970-1980	4.2	4.3
1980-1989	-4.2	3.3
1980-1984	-12.0	-4.5
1984-1989	2.6	10.1

Source: Barros et al. "Welfare, Inequality, Poverty, and Social Conditions in Brazil in the Last Three Decades: An Overview," Paper presented at the Brookings Institution Conference July 15-17, 1992, Washington D.C.

Table 6: Inflation Rates and Corresponding Inflation Tax as Share of Income for a Person Holding One Fourth of his Monthly (or Weekly) Income as Cash
(Percent)

Inflation Per Year z	Inflation Per Month z_m	Inflation Per Week z_w	Inflation Tax/Income Monthly Regime $0.25[(\pi_m/(1+\pi_m)]$*	Inflation Tax/Income Weekly Regime $0.25[(\pi_w/(1+\pi_w)]$**
3	0.25	0.06	0.06	0.01
5	0.41	0.09	0.10	0.02
20	1.53	0.35	0.38	0.09
30	2.21	0.51	0.54	0.13
50	3.44	0.78	0.83	0.19
100	5.94	1.34	1.40	0.33
500	16.10	3.51	3.47	0.85
1,000	22.10	4.72	4.53	1.13
10,000	46.90	9.28	8.00	2.12

* $\pi_m = z_m/100$
** $\pi_w = z_w/100$

Table 7: Absolute Poverty in Malaysia
1973-1987

	1973		1987	
	Households as % of Total Households	Percent of Households Below the Poverty Line	Households as % of Total Households	Percent of Households Below the Poverty Line
Paddy Farmers	8.8	72.6	3.1	57.8
Rubber smallholder	9.1	65.8	6.6	42.9
Coconut smallholder	0.2	47.4	0.2	38.5
Fisherman	2.3	79.3	1.3	30.2
Estate Workers	5.0	38.2	2.7	18.5
Urban	3.8	30.5	3.4	8.9
Other	70.8	32.5	82.7	10.9
Peninsular Malaysia	100.0	40.4	100.0	14.9

Source: Homi Kharas, World Bank.

FIGURE 1.a.

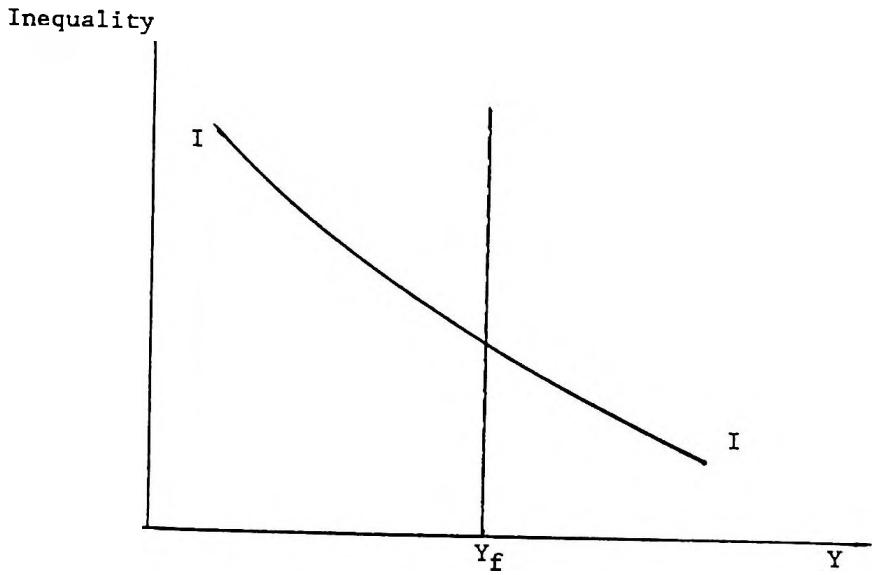


FIGURE 1.b.

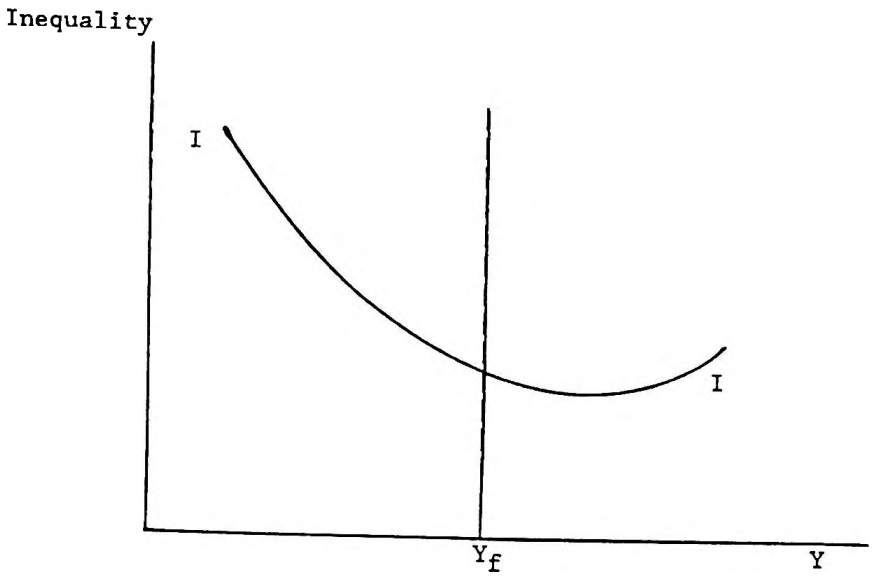
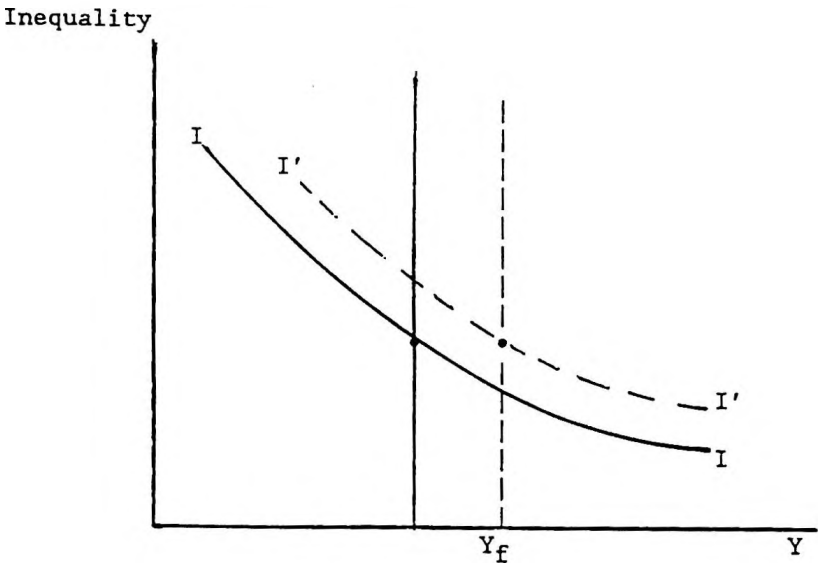


FIGURE 2



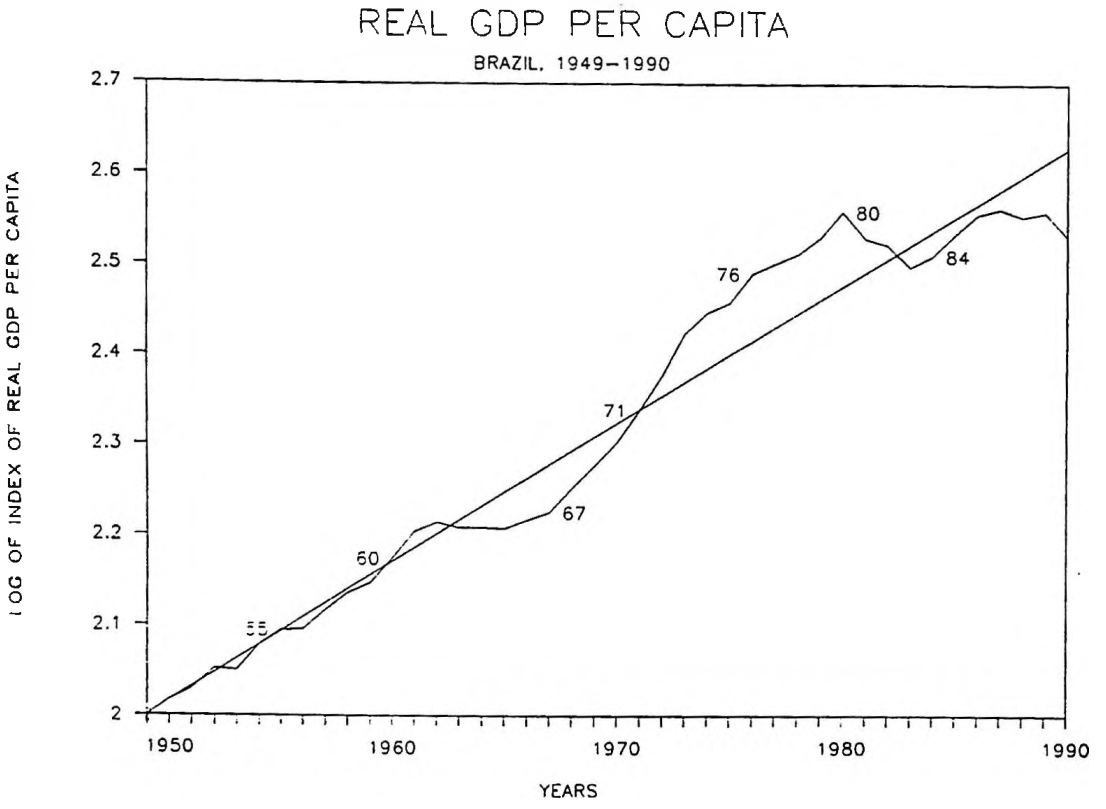

REAL GDP PER CAPITA
BRAZIL, 1949–1990
LOG OF INDEX OF REAL GDP PER CAPITA
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
55
60
67
71
76
80
84
1950
1960
1970
1980
1990
YEARS

FIGURE 3

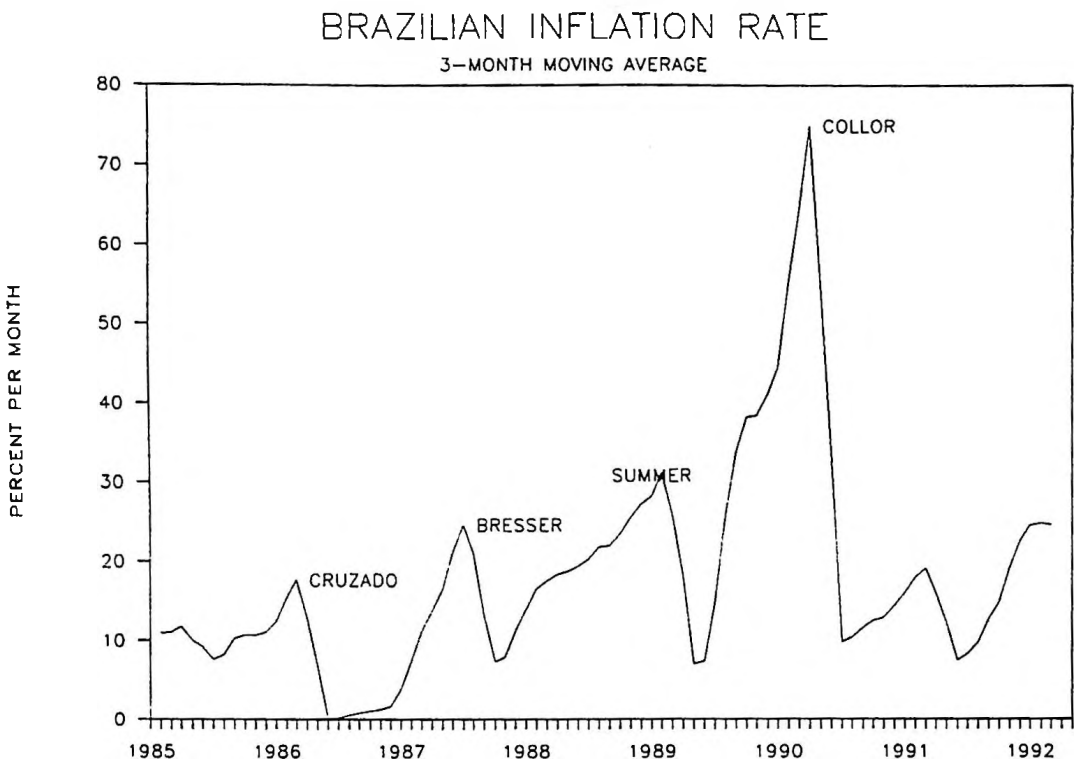

BRAZILIAN INFLATION RATE
3-MONTH MOVING AVERAGE
PERCENT PER MONTH
80
70
60
50
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
1992
CRUZADO
BRESSER
SUMMER
COLLOR

FIGURE 4

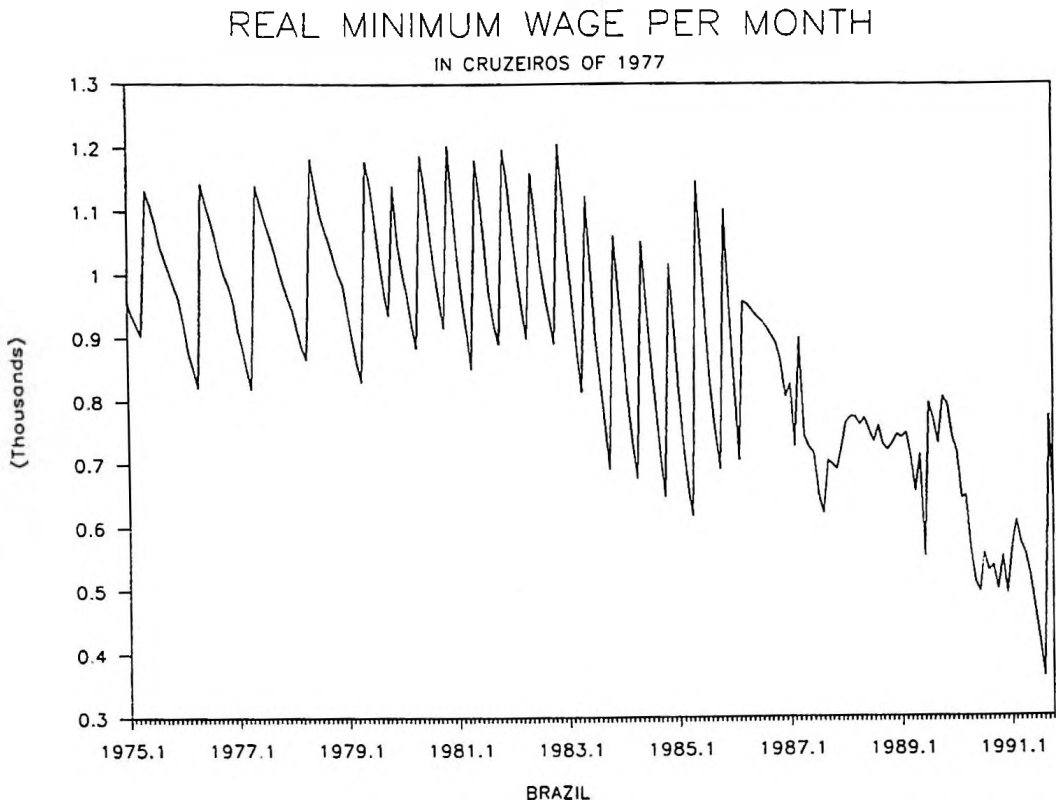

REAL MINIMUM WAGE PER MONTH
IN CRUZEIROS OF 1977
(Thousands)
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
1975.1
1977.1
1979.1
1981.1
1983.1
1985.1
1987.1
1989.1
1991.1
BRAZIL

FIGURE 5

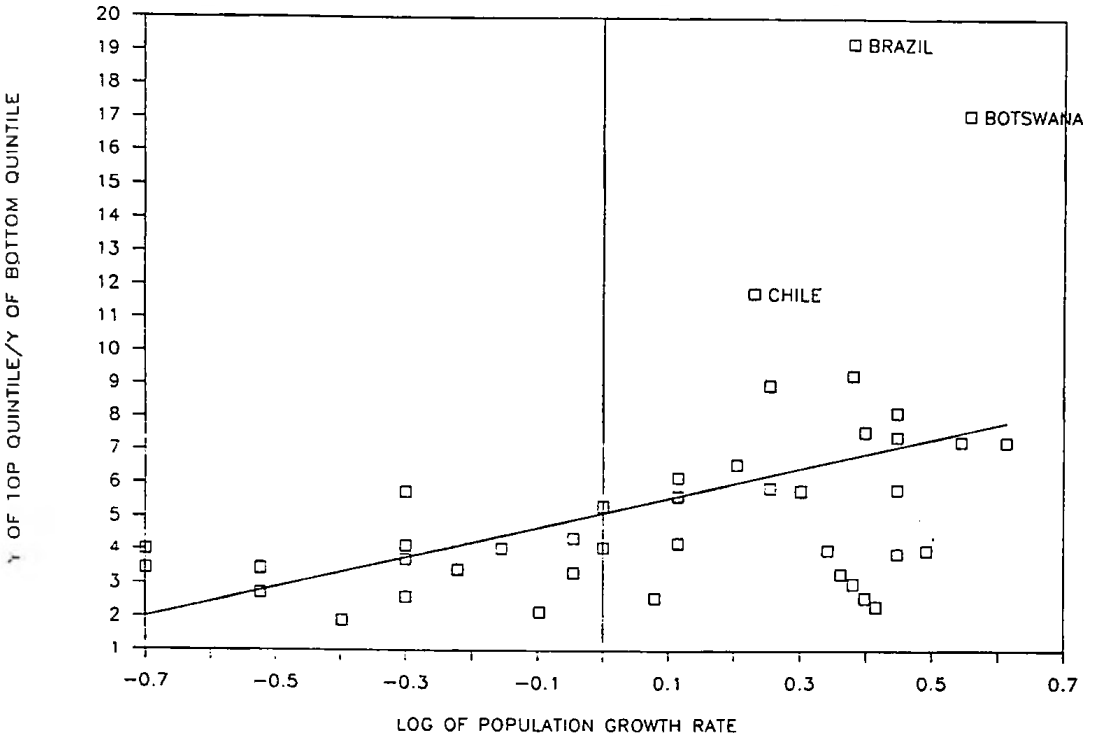

Y OF TOP QUINTILE/Y OF BOTTOM QUINTILE
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
BRAZIL
BOTSWANA
CHILE
−0.7
−0.5
−0.3
−0.1
0.1
0.3
0.5
0.7
LOG OF POPULATION GROWTH RATE

FIGURE 6