VI BRICS

Academic Forum

Editors
Renato Coelho Baumann das Neves
Tamara Gregol de Farias

ipea

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Federal Government of Brazil

Secretariat of Strategic Affairs of the Presidency of the Republic
Minister Marcelo Côrtes Neri

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FOREWORD

In 2010 the BRIC countries (the "S" for South Africa was added in 2011) had their second summit in Brasília. During that meeting the organization of an academic forum was officially approved, as a channel for civil society and academia with regard to issues related to these five countries.

Since then an academic forum has taken place systematically every year, usually in the days before each summit. The main outcomes of the debates are submitted to the heads of States at their meetings. Presumably, this should be a contribution in terms of identifying new dimensions and issues for further action by the group of countries.

Ipea was charged with organizing and coordinating the 2010 Forum, and since then this institution has actively participated in each and every one of the following five forums.

Ipea is the Brazilian government think-tank, directly linked to the Presidency of Brazil, via the Secretariat for Strategic Affairs (SAE). Its mandate covers a wide range of subjects, making it a multi-thematic as well as a multi-disciplinary institution. Its policy-oriented research is meant to support government action and policy design.

It was a most fortunate coincidence that the sixth forum corresponded once again to the Brazilian pro tempore Presidency of the BRICS. Being the official Brazilian think-tank to the BRICS, Ipea had the responsibility for organizing and coordinating the works of both the BRICS Think-Tank Council and the BRICS Academic Forum. Both took place in March 2014, in Rio de Janeiro.

It was also a fortunate coincidence because 2014 is also the golden jubilee of Ipea. These two activities were actually considered as an anticipation of the 50th Anniversary of Ipea, although the celebrations started in September, corresponding to the date of creation of this institution. For an economic research institute it was most fortunate to have the opportunity to contribute on its anniversary with the organization of these two important events.

For the organization of those two events Ipea could count with the support of SAE, FUNAG (Fundação Alexandre de Gusmão, linked to the Ministry of Foreign Affairs) and the city of Rio de Janeiro. We are grateful for their contribution.

This volume disseminates most of the works presented and debated during the VI BRICS Academic Forum. We had no less than fifty presentations, and most of them are reproduced here.

Our expectation is that this systematic presentation of analyses and proposals will contribute to a more decisive and solid approximation among the five BRICS countries. We also hope that it might also influence the design of the future agenda of the summits to come.

We consider the formation of this group an unprecedented exercise that has a significant potential for joint action with clear impact on the global governance and performance, as well as on the population of the five partners.

It is hoped that in disseminating the material in the present volume Ipea contributes to improve the relationship among these five countries in several different areas.

Sergei Suarez Dillon Soares
President of the Institute for Applied Economic Research (Ipea)

VI BRICS ACADEMIC FORUM PAPERS

The Alexandre de Gusmão Foundation (FUNAG) received with great satisfaction the invitation by the Institute for Applied Economic Research (Instituto de Pesquisa Econômica Aplicada – Ipea) to participate in the VI BRICS Academic Forum, which took place in Rio de Janeiro, on March 17 to 19, 2014. I also welcomed the opportunity to co-edit the compilation of the papers presented during the Forum and, as requested by Professor Renato Baumann, to write this brief introduction.

FUNAG is a Brazilian think-tank linked to the Ministry of External Relations with the objective of organizing and promoting cultural and educational activities in the areas of international relations and Brazilian Diplomatic History. It also undertakes studies and research initiatives on problems pertaining to those fields, having in mind generating widespread knowledge of Brazilian foreign policy. It contributes to a better public understanding of international issues and to the preservation of Brazil's diplomatic heritage.

FUNAG is the leading Brazilian institution in terms of the number of books published in the field of foreign policy, international relations and Brazilian diplomatic history. It has published over a thousand titles in the past ten years, in Portuguese, English and Spanish. The Foundation donates a percentage of its books to scholars, academic institutions and libraries in Brazil and abroad, and its bibliographic collection is available for free download. This has significantly increased its capacity to generate wide access to knowledge and promote understanding. One can say that it democratizes the access to literature necessary to the comprehension of international relations in a world of globalization and growing interdependence.

It is therefore with pleasure and enthusiasm that FUNAG collaborated to the meetings of the BRICS Think Tanks Council and the BRICS Academic Forum in Rio de Janeiro. The Foundation's goal was to cooperate with Ipea and the participants from the countries and entities represented in the Council and the Forum, so as to ensure the success of these meetings and the appreciation of their role as a means of reflection, research and debate on themes of common interest to the members of the BRICS.

FUNAG is also committed to contributing especially to the promotion of mutual knowledge regarding the BRICS countries through cooperation agreements with similar institutions within each one of them. These agreements seek to provide conditions for the joint study of relevant themes in the international agenda, as well as an increasing appreciation of their own perspectives in international relations

which would balance certain prevailing views in the analyses and studies carried out internationally.

Based on reciprocity, those agreements will also be credited with encouraging the translation of works of common interest into Portuguese, Russian, English and Mandarin, so as to facilitate their presence in our editorial markets and in other countries where those languages are spoken, especially the opinion-making powers.

Brazil, Russia, India, China and South Africa share interests concerning the development of our peoples and the vision of a more inclusive and fair international order that can advance these common goals. For such, it is still necessary to overcome the cultural and geographical distance between our countries. Due to the importance attached to the BRICS by the Brazilian foreign policy, we must promote and expand mutual exchanges and knowledge as well as to project our values, ideals and perceptions into the international scene.

The Academic Forum is becoming increasingly relevant not only for civil society, but also within the governments involved, to deepen the discussion on the promotion and facilitation of partnership and cooperation between our countries.

The VI BRICS Academic Forum papers will add to the common goal of providing analyses and insights as a result of debates and research initiatives on issues of specific interest to the development of the BRICS countries and the improvement of their societies and of the role of the BRICS within global governance.

No doubt, these papers will be of great use in deepening the assessment by different countries on topics of common interest. They will also have the merit of enabling readers of international relations to have something else upon which to base their opinions when researching the BRICS and their collective goals, needs and aspirations.

Sergio Eduardo Moreira Lima
President, Alexandre de Gusmão Foundation

INTRODUCTION

The BRICS Academic Forum is an important initiative, as it provides one of the channels through which the civil society can make explicit its views about relevant issues regarding the process of approximation of the five countries, as well as their joint action in the international scenario.

This is not a minor task. The five countries involved in this process have different historical trajectories, different economic potential and at least two of them are geographically distant from the others, thus facing quite different realities. The initial approximation of the five was clearly meant to become an instrumental tool that would allow them to increase their influence on the global governance.

Over time it has become increasingly clear that the margin for success would require a good degree of homogeneity, so as to reinforce their common position. This has led to efforts to intensify the process of approximation, by identifying common interests and potential areas for cooperation. The agenda became gradually more diversified. A diversified agenda, on its turn, calls for the identification of specific issues to be dealt with jointly. This is where a mechanism like the Academic Forum can be an important source of systematized information, suggestions and analysis.

The first meeting of BRIC think-tanks (the "S" for South Africa was only added in 2011) took place in 2009 in New Delhi, as a preparatory event for the first BRIC Summit, in Yekaterinburg, Russia.

In the following year Brasilia hosted the second meeting. In the 2010 Summit it was formally decided that these meetings would be called Academic Forums and they should take place every single year, preceding the meeting of the Heads of State, and hosted by the country that hosts the Leaders' Summit.

Each Foreign Affairs Ministry has designated an institution that should be responsible for forming a group of researchers to participate as a country delegation to the meeting. In Brazil the formal think-tank for the BRICS is Ipea, a government institution dealing with applied economic research and directly linked to the country's Presidency through SAE, the Secretariat for Strategic Affairs.

The outcome of the presentations and the debates is formally submitted to the BRICS heads of state, as a means to raise issues and dimensions of analysis that might be helpful in determining the agenda for the following summits.

In 2012 the Heads of State have formally created the BRICS Think-Tank Council. Its first meeting took place in 2013, previous to the Durban Summit. This Council is responsible for to coordinating the organization of the Academic Forum.

In 2014 the BRICS Summit took place in Fortaleza, Brazil. This implied that the pro tempore presidency during this year corresponds to Brazil, the hosting country. This procedure that associates the yearly presidency with the hosting country is mirrored in the various councils and other joint BRICS initiatives. The Think-Tank Council and the Academic Forum both follow this same principle.

Ipea is the official Brazilian think-tank for the BRICS. In this condition it was responsible for the organization and the coordination of the two events, which took place in March, 2014 in Rio de Janeiro, Brazil. In this process Ipea could count on the support of SAE, FUNAG (Fundação Alexandre de Gusmão, linked to the Ministry of Foreign Affairs) and the mayor of Rio de Janeiro. The Think-Tank Council meeting took place at the Ministry of Foreign Affairs building and the Academic Forum at the mayor's palace.

By a fortunate coincidence, these events corresponded to the beginning of the celebrations of Ipea's golden jubilee. It is very adequate for a research institution to celebrate its anniversary with the organization of substantive debates.

In the process of designing the agenda we adopted as a clear principle that the academic dimension of the two events should be their most important characteristic. This meant free debate, with as much divulgation as possible, and the participants should not be constrained by the official positions of their respective governments, but feel free to exchange ideas and proposals.

We have also decided that, given this academic character, there should be no final statement in the end. Instead, the representatives of the five countries have jointly prepared a document summarizing the main issues discussed during the Academic Forum. The *Report on the proceedings of the 6th BRICS Academic Forum* is available since March, 2014 at <http://www.ipea.gov.br/forumbrics/>.

It is hoped that this model of free exchange of ideas will be adopted in the next editions of the Forum.

The fact that the VI Academic Forum took place at the mayor's palace imposed a physical limitation to the number of assistants. There had to be a selection process, as the number of people who manifested interest in participating was four times the capacity of the palace. This was compensated by the transmission, in real time, of the whole event via Internet. The e-address was widely divulged in anticipation to the five think-tanks, so that people from all the countries involved could follow the debates.

The agenda comprised ten technical sessions: 1) BRICS and their neighbors – trade and investment; 2) Sustainable inclusive development; 3) BRICS international development cooperation; 4) ICTs and innovation challenges in the BRICS; 5) Peace and security issues; 6) New middle classes: emerging groups in emerging countries; 7) Rapid urbanization: the challenge of the mega cities; 8) Productivity and the middle income trap; 9) BRICS and the global governance; and 10) Social technologies.

In each of these sessions there were presentations by representatives of the five countries, followed by open debate with all the participants. This has allowed not only a climate of free interchange of ideas but also the identification of a number of relevant issues in each topic.

Starting with the 2011 Forum, the divulgation of the works presented in the Academic Forum became a common practice. In that year the proceedings were published in Chinese, imposing limits to its divulgation. In 2012 and in 2013 some of the articles presented at the New Delhi and the Durban Forums were published in English, making it more easily accessible to most interested researchers.

We have followed this trend and asked the speakers to submit their pieces of work in English. We had some fifty presentations in the 2014 Forum, from which we have received texts for half of them. These are the texts divulged in the present publication. We are thankful to FUNAG for editing the texts.

It is expected that this set of works might contribute as a rich source of information and systematic analysis. And it is hoped that the tradition that is just beginning, in terms of free debates and publication of a volume to divulge the texts, will remain in the next BRICS Academic Forums.

Renato Baumann
Coordinator 3rd BRICS Think-Tank Council and
6th BRICS Academic Forum

TECHNICAL SESSION 1

BRICS and Their Neighbors – Trade and Investment

- Trade flows
- Foreign direct investments
- Preferential agreements

CHAPTER 1

AN EMPIRICAL ANALYSIS OF CORRELATION BETWEEN STATE LEADERS' VISITS AND BILATERAL TRADE RELATIONS

Chen Huaqiao[1]

ABSTRACT

Economy and trade have become one of the most important issues among the BRICS, it is well known that political measures are effective in promoting cooperation in those areas. We tested the correlation between state leaders' visits and bilateral trade data, which proved that the significance of the BRICS in Chinese foreign strategy has been increasing recently, but top leaders' foreign visits did not demonstrate a very close trade relationship with BRICS counterparts.

Keywords: foreign visits; trade; correlation.

1 RESEARCH BACKGROUND

The BRICS address great attention to economic and trade issues. They try to use the political means to promote their economic and trade connections. Can political means improve their economic cooperation? Whether the top official visits can push the process of the BRICS economic and trade cooperation is worth further discussion.

2 RESEARCH HYPOTHESIS

We assume that those visits and their foreign trade development have a positive correlativity.

3 RESEARCH METHOD

Firstly, we chose the member of the Standing Committee of the Political Bureau of the Communist Party of China as our sample, and collected their overseas visits covered by *People's Daily* from October 1st, 1949 to November 1st, 2012.

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We chose these samples because they are at the core of Chinese political power and can fully represent Chinese government's diplomatic stance. At the same time, *People's Daily* was regarded as the epicenter of Chinese government and can fully document all top leaders' foreign visits. We set the statistical standard, such as visiting time, the name of the leader, country, and continent.

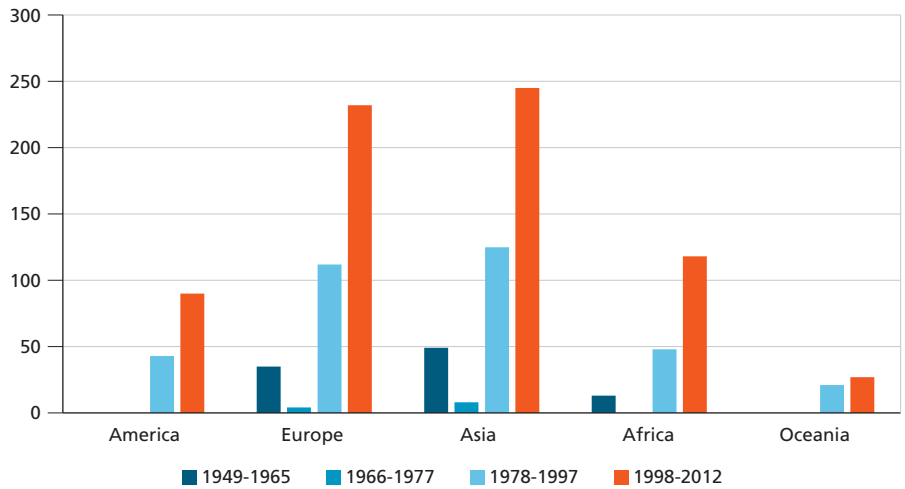
Secondly, we examine the Chinese and other countries trade figures, paying close attention to those countries, which Chinese leaders have visited.

Last but not least, we compared those figures through linear regression analysis by SPSS software.

4 DATA ANALYSIS

4.1 Analysis of the development phase of chinese leaders' diplomatic visits

GRAPH 1
The general foreign visits statistics of the member of standing committee



Source: People´s Daily (1949-2013).

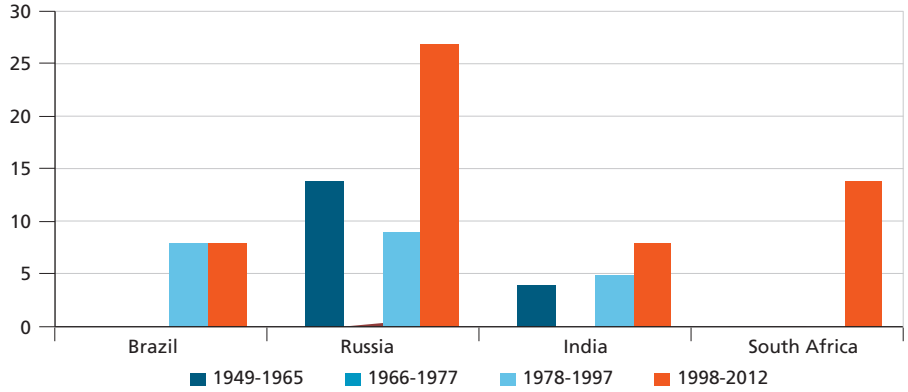
TABLE 1
The general foreign visiting statistics of the member of standing committee

	America	Europe	Asia	Africa	Oceania
1949-1965	0	35	49	13	0
1966-1977	0	4	8	0	0
1978-1997	43	112	125	48	21
1998-2012	90	232	245	118	27

Source: People´s Daily (1949-2013).

4.2 Analysis of Chinese leaders' diplomatic visits to BRICS.

GRAPH 2
The BRICS' visiting statistics of the members of the standing committee



Source: People´s Daily (1949-2013).

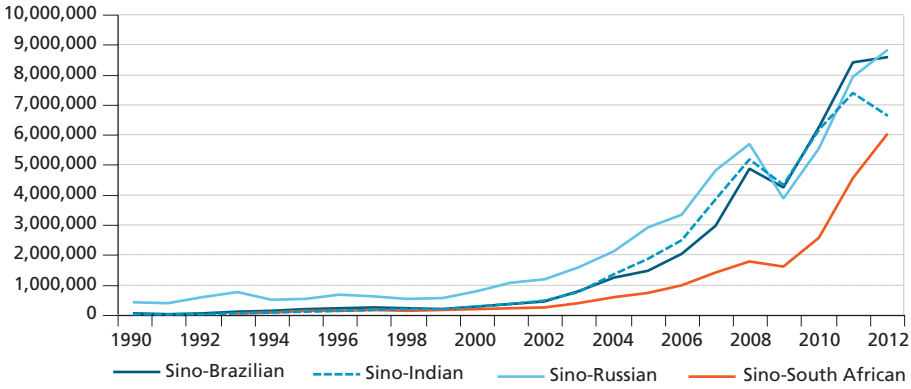
TABLE 2
The BRICS' visiting statistics of the member of standing committee

	Brazil	Russia	India	South Africa
1949-1965	0	14	4	0
1966-1977	0	0	0	0
1978-1997	8	9	5	0
1998-2012	8	27	8	14

Source: People´s Daily (1949-2013).

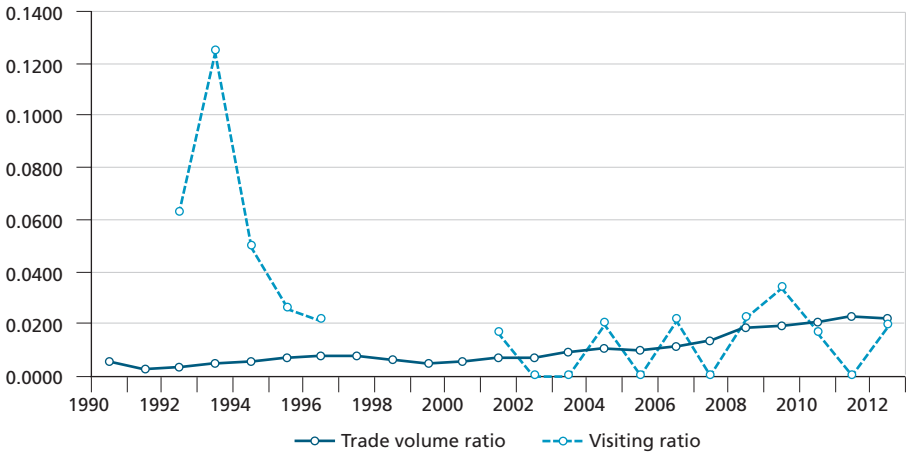
4.3 Chinese leaders' visits to BRICS and Sino-BRICS trade relations

GRAPH 3
China and BRICS trade relations
(10,000 $)



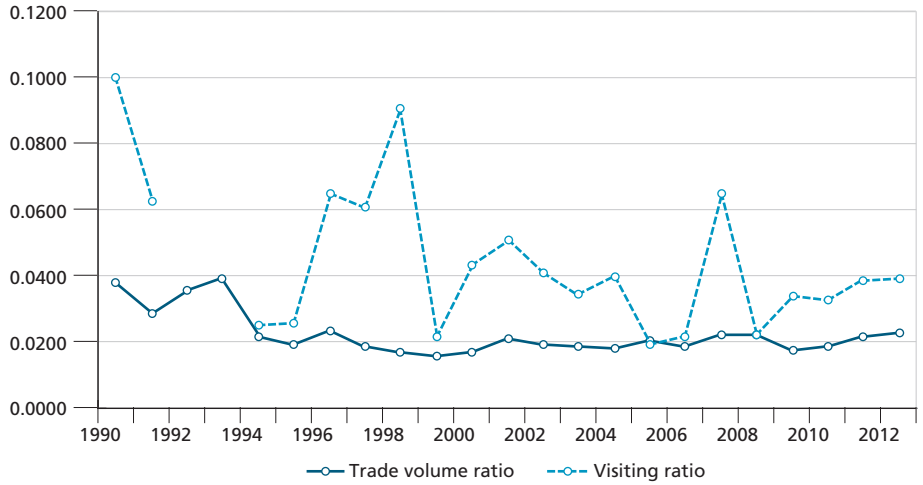
Source: People´s Daily (1949-2013).

GRAPH 4
Chinese leader' visit to Brazil and Sino-Brazilian trade relations



Source: People´s Daily (1949-2013).

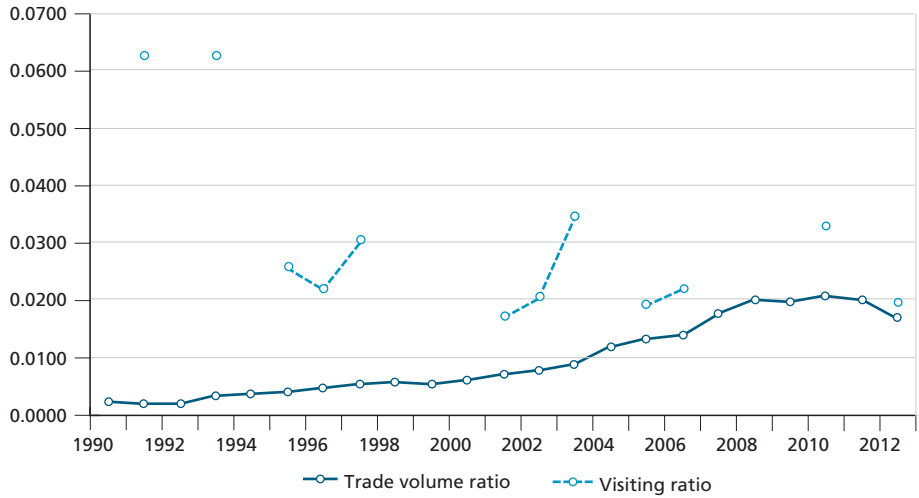
GRAPH 5
Chinese leader' visit to Russia and Sino- Russian trade relations



Source: People´s Daily (1949-2013).

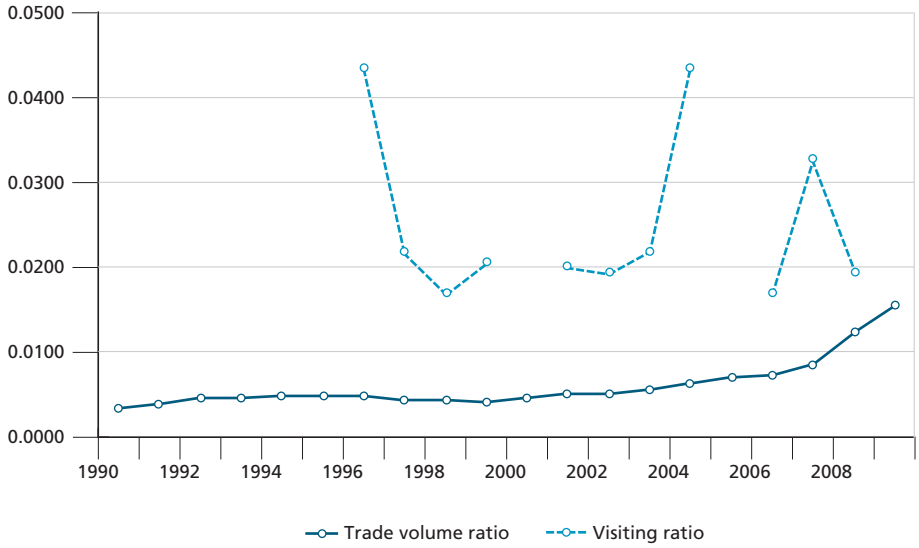
The Pearson Correlation between leaders' visiting Russia and their foreign trade development has a positive correlativity (0.552), and it is obviously significant (p<0.01). The results showed that both the diplomatic visiting and trade volume is developing steadily in these years.

GRAPH 6
Chinese leader' visit to India and Sino-Indian trade relations



Source: People´s Daily (1949-2013).

GRAPH 7
Chinese leader' visit to South Africa and Sino-South African trade relations



Source: People´s Daily (1949-2013).

5 CONCLUSION

The data indicated that the significance of the BRICS in Chinese foreign strategy has been increasing recently, but top leaders' foreign visits did not demonstrate a very close trade relationship with BRICS counterparts. Therefore, the result shows that it is not obvious that these visits can encourage its foreign trade volume, and vice versa. Thence, the economic and trade topics should be highly enhanced in the future agenda of such visits.

6 DISCUSSION

We only concentrated on a very small group and this could have affected the validity of the data. The continuous study should enlarge the scope of the sample, and test the effect of a larger sample of foreign visits on the bilateral trade relations.

We only used linear regression analysis to test our hypothesis, and time series analysis was needed to investigate their relevance. We believed that it would be very interesting to explore the correlation between state leaders' visits and bilateral foreign direct investment in further research.

TECHNICAL SESSION 2

Sustainable Inclusive Development

- The post-2015 United Nations development agenda: integrating sustainable development and millennium development goals
- Global sustainable development goals: a BRICS perspective
- Rio+20: the implementation of environmental protocols

CHAPTER 2

RECENT DYNAMICS OF ENVIRONMENTAL MDGS INDICATORS IN BRAZIL: FORESTS, CLIMATE CHANGE AND BIODIVERSITY

Júlio César Roma[1]

INTRODUCTION

During the United Nations Conference on Sustainable Development – also known as Rio+20 – which was held in Rio de Janeiro, Brazil from the 20th to 22nd of June 2012, countries from around the world renewed their political commitment to achieve sustainable development, through the promotion of "economically, socially and environmentally sustainable future for our planet and for present and future generations". The main outcome of the Conference was a document entitled "The Future We Want" (UNGA, 2012), which contains many practical measures for achieving this main purpose. The document also deals with a set of thirty thematic areas and cross-sectorial issues that embrace the three pillars of sustainable development.

Also during the Rio+20 conference, in addition to reaffirming their commitment to accelerate the achievement of internationally agreed development goals, including the Millennium Development Goals (MDGs) by 2015, Member States also decided to launch a process to develop a set of Sustainable Development Goals (SDGs), which are being built upon the MDGs to converge with the post 2015 development agenda.

This paper briefly presents advances obtained by Brazil during the last ten years in some of the environmental indicators of the MDGs regarding three closely related of the aforementioned thematic areas, namely forests, climate change and biodiversity. More than just sharing information on these thematic areas, the main purpose of the text is to foster academic cooperation among BRICS's think tanks towards the achievement of MDGs and the future SDGs, with a focus on the design of public policies that effectively promote sustainable development in our countries.

FORESTS AND THE LOSS OF NATURAL VEGETATION COVER

As defined by the Food and Agriculture Organization of the United Nations (FAO), forests are areas greater than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use (FAO, 2004).

1. Coordinator of Studies in Environmental Sustainability Directorate for Regional, Urban, and Environmental Policies and Studies Institute for Applied Economic Research, Brazil.

According to data from the Brazilian Forest Service (Brazil, 2013a) – the institution responsible at the federal level for the sustainable management of forest resources in the country – Brazil's vegetation is made up predominantly of forests. In 2012, 4.63 million km², or 54.4% of the Brazilian territory, was covered by natural and planted forests – the second largest forest area in the world, after Russia. Of this total, 4.56 million km² (98.5%) refers to natural forests, located mainly in the Amazon Biome (3.25 million km², or 77.5% of the natural forests; table 1). The remaining 70,000 km² (1.5%) corresponds to planted forests, mainly with species of *Eucalyptus* and *Pinus*.

TABLE 1
Estimated area of natural forests in the Brazilian biomes (2012)

Biomes	Total area (km²)	Forest cover (km²)	Forest cover (% of biome)	Contribution of the biome to the total amount of Brazilian natural forests (%)
Amazon	4,196,943	3,254,700	77.5	71.4
Atlantic Forest	1,110,182	201,283	18.1	4.4
Caatinga[1]	844,453	414,097	49.0	9.1
Cerrado[2]	2,036,448	573,214	28.1	12.6
Pampa[3]	176,496	28,171	16.0	0.6
Pantanal[4]	150,355	89,375	59.4	2.0
Total	**8,514,877**	**4,560,840**	**53.6**	**100.0**

Source: Brazil (2013a). Florestas do Brasil em resumo - 2013: dados de 2007-2012. Brasília, Brazilian Forest Service.
Notes: [1] Drylands of Northeastern Brazil.
[2] Savannas of Central Brazil.
[3] Grasslands of Rio Grande do Sul state, in Southern Brazil.
[4] Wetlands of Central Brazil, in Mato Grosso and Mato Grosso do Sul states.

Using remote sensing and GIS technology, the government started monitoring the vegetation cover at different times throughout the Brazilian territory. For the Legal Amazon,[2] the first of the Brazilian biomes monitored for deforestation, the National Institute for Space Research (INPE) has been obtaining regular data since 1988, through the Program to Calculate Deforestation in the Amazon (Prodes). This system measures areas greater than 6.25 hectares (ha) in which vegetation suffered clear-cutting, i.e., where vegetation was totally removed.

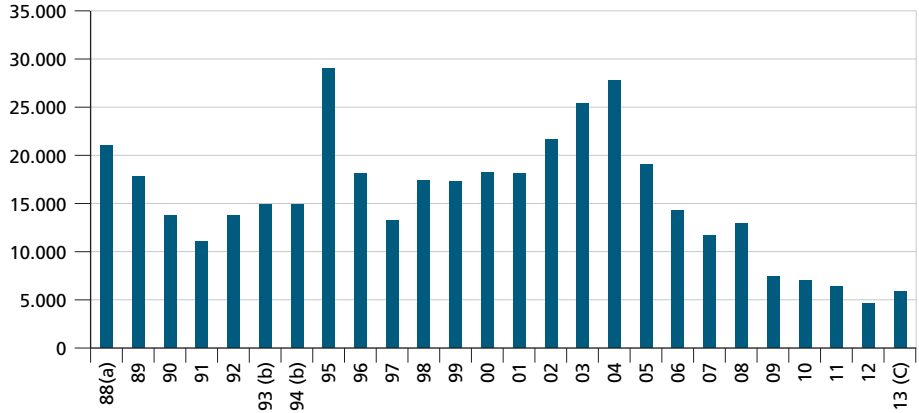
Deforestation rates of the Legal Amazon oscillated greatly during the more than 25 years of monitoring by Prodes,[3] reaching a peak of 29,100 km² in 1995. After two years of decline in 1996 and 1997, there was a strong upward trend in deforestation observed between 1998 (17,400 km²) and 2004, when there was a new peak of 27,700 km². Starting in 2004, the Brazilian government launched the Action Plan for Prevention and Control of the Legal Amazon Deforestation (PPCDAM).

Since then, there has been a steady decline in the annual rate of deforestation observed for the Amazon biome: from 27,700 km² in 2004 to 4,570 km² in 2012, representing a total reduction of approximately 83.5 % in this period. For 2013, INPE estimates point

2. Defined by law for planning purposes, the Legal Amazon currently encompasses the states of Acre, Amapá, Amazonas, Mato Grosso, Pará, Rondônia, Roraima, Tocantins, and part of Maranhão (west of meridian 44° W). Thus, it is, in fact, more extensive than the Amazon biome, and includes part of the Cerrado biome (in Mato Grosso and Tocantins states).
3. Data available at: <http://www.obt.inpe.br/prodes/index.php>.

to deforestation of 5,840 km², which represents an increase of 28% over the previous year. Nevertheless, the value is still the second lowest of the entire series (graph 1).

GRAPH 1
Annual deforestation rates in the Brazilian Legal Amazon (km²/year) (1988-2013)



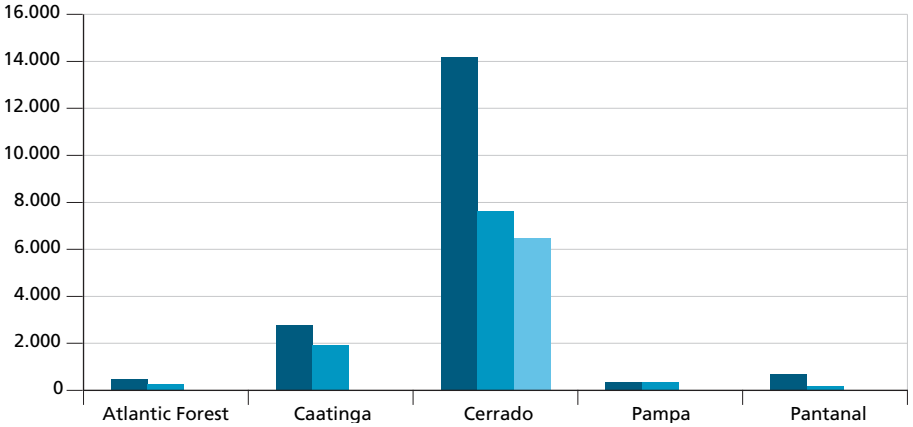
Source: National Institute for Space Research (INPE)/ Program to Calculate Deforestation in the Amazon (Prodes).
Notes: [1] Average rate between 1977 and 1988.
[2] Average rate between 1993 and 1994.
[3] Estimated rate for 2013.

In addition to the Amazon, as mentioned above, all other terrestrial biomes started having their respective deforestation rates monitored in 2008, through the Program of Deforestation Monitoring in the Brazilian Biomes Using Satellites (PMDBBS). This program was planned by the Ministry of the Environment – MMA and is technically implemented by one of its affiliated institutions, the Centre for Remote Sensing of the Brazilian Institute of Environment and Renewable Natural Resources (CSR/IBAMA). The main purpose of PMDBBS is to systematically monitor the vegetation cover to identify and quantify deforestation of native vegetation areas in the Caatinga, Cerrado, Atlantic Forest, Pantanal, and Pampa biomes. Moreover, the results of the Program are used for planning actions aimed to prevent illegal logging, to allow biodiversity conservation, and to mitigate and adapt to climate change. Initially, accumulated deforestation rates between 2002 and 2008 were calculated, which resulted in an annual average rate of deforestation for each biome during this period of time. From 2009 on, however, deforestation rates have been obtained on an annual basis (graph 2).

Between 2002 and 2008, the Cerrado had an accumulated deforestation of 85,075 km², which corresponds to an average annual rate of 14,179 km²/year. The years 2009 and 2010 showed a decline in deforestation rates, with observed values of 7,637 km²/year and 6,469 km²/year, respectively.

All other non-Amazonian biomes showed a decline in deforestation rates for the year 2009, when compared to the annual average 2002 to 2008 (graph 2).

GRAPH 2
Annual deforestation rates of the non-Amazonian biomes (km²/year)



Source: MMA/IBAMA – Technical reports on the Program of Deforestation Monitoring in the Brazilian Biomes Using Satellites (PMDBBS). Available at: <http://www.mma.gov.br/florestas/controle-e-prevenção-do-desmatamento>. Data for 2002-2008 refer to the annual average for the entire period.

1 CLIMATE CHANGE: PROFILE CHANGES OF CO_2 EMISSIONS

As required from Parties to the United Nations Framework Convention on Climate Change (UNFCCC), Brazil published its Second National Communication to the Convention in 2010 (Brazil, 2010). The document is divided into five sections, one of which is the Second Brazilian Inventory of Anthropogenic Emissions by Sources and Removals by Sinks of Greenhouse Gases not Controlled by the Montreal Protocol.

The Second National Communication included data on emissions of the following greenhouse gases (GHG) in the period 1990-2005: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6). Emissions or removals of the above gases were estimated according to the sources, which are called sectors: energy, industrial processes, agriculture, land-use change and forestry, and waste.

More recently, in 2013, Brazil published the Annual Estimates of Greenhouse Gases Emissions (Brazil, 2013b) in compliance to the provisions of Article 11 of Decree No. 7,390/2010. This Decree requires the publication, from 2012 on, of annual estimates of greenhouse gases emissions in Brazil in an appropriate format to facilitate understanding by society and to monitor compliance with the National Policy on Climate Change (Federal Law No. 12,187/2009). The policy, in its turn, has stated a voluntary national commitment of reducing between 36.1% and 38.9% of the projected GHGs emissions for the year 2020.

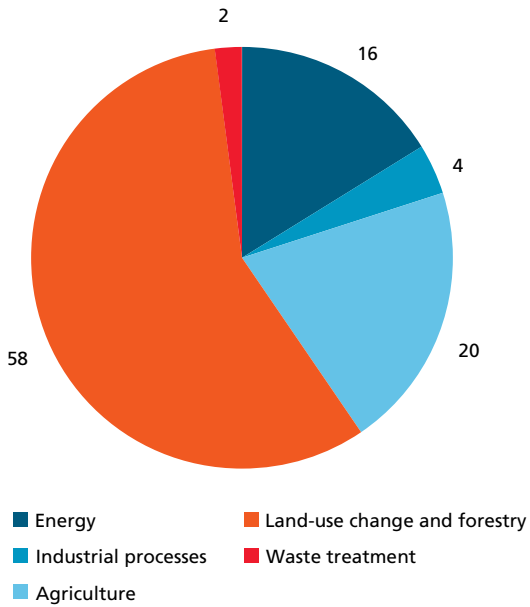
The Annual Estimates made corrections to the Second Brazilian Inventory when necessary and extended the analysed timespan from 2005 to 2010. It included all direct greenhouse gases already considered in the Second Brazilian Inventory.

Thus, to compare and to add them up to reach the common unit - the carbon dioxide equivalent (CO_2e) – the Global Warming Potential (GWP) metric was used as a weighting factor.

Data on greenhouse gases emissions showed profound changes during the period 2005-2010, both in the total amount of GHGs emitted and in the emission profile, i.e., the specific contribution of each economic sector to the total. The same is also valid for the proportion of each GHG in total emissions. In 2005, Brazil emitted 2.03 billion tons of CO_2e, amount that was reduced to 1.25 billion tons of CO_2e in 2010, a reduction of 38.7%.

In regard to the contribution of each economic sector, in 2005 the main source of emissions was land-use change and forestry, mostly due to deforestation in the Amazon and Cerrado biomes. In 2005, the sector accounted for 57.5% of total GHG emissions (graph 3), converted into CO_2e by the GWP method. The second main source of emissions was the agriculture sector, whose emissions accounted for 20.5% of the total. In third emerges the energy sector, whose emissions result from fossil fuel combustion and fugitive emissions from oil industry, gas and coal, with 16.2% of the total.

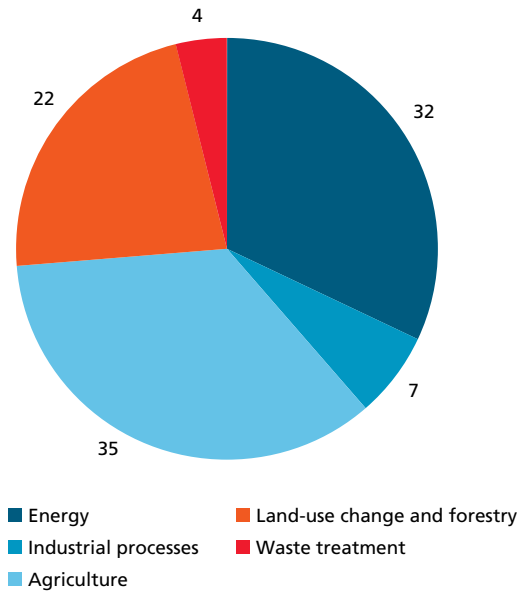
GRAPH 3
Total GHG emissions (CO_2e) by economic sector (2005)
(In %)



Source: annual estimates of greenhouse gases emissions (Brazil, 2013b).

On the other hand, in 2010 the Brazilian GHG emissions resulted mainly from activities of the agriculture sector, which accounted for 35.1% of total emissions. The energy sector, in turn, moved from third to second position, with 32.0% of total emissions, followed by the land-use change and forestry sector, which accounted for 22.4% of the total (graph 4).

GRAPH 4
Total GHG emissions (CO_2e) by economic sector (2010)
(In %)



Source: annual estimates of greenhouse gases emissions (Brazil, 2013b).

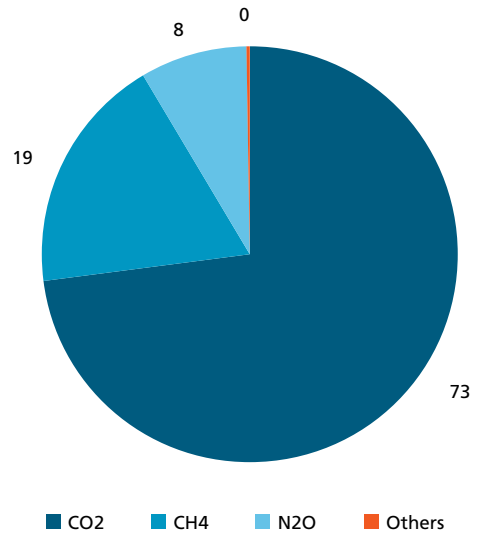
This profound change in the emissions profile, as well as the absolute reduction of total GHG emitted, was primarily due to a 76.1% reduction in emissions from the land-use change and forestry sector between 2005 and 2010, as a consequence of the 83.2% reduction in the emissions from the Amazon and 60.8 % from the Cerrado biomes, in accordance to declines in their respective deforestation rates, as mentioned in the section dedicated to forests.

The energy sector, on the other hand, showed an increase of 21.4 % in its CO_2e emissions between 2005 and 2010, mainly as a result of the increased use of fossil fuels. The agriculture sector, whose main sources of emissions are enteric fermentation in animals (56 % of sector emissions) and arable land (35 %), increased by 5.2 % in absolute terms during the period 2005-2010. Other sectors that increased their absolute volume of emissions in the period 2005-2010 were waste treatment (16.4%) and industrial processes (5.3%).

Yet, in regard to the contribution of each gas to the total amount of Brazilian GHGs emissions, converted in terms of carbon dioxide equivalent (CO_2e) by the GWP method, there were also significant changes between 2005 and 2010. In 2005 (graph 5), carbon dioxide accounted for 73% of GHGs emissions, a participation that was reduced to 57% in 2010 (graph 6). Methane and nitrous oxide, on the other hand, increased their relative shares from 19% to 28% and from 8% to 14%, respectively. As already mentioned, this fact was mainly due to the great

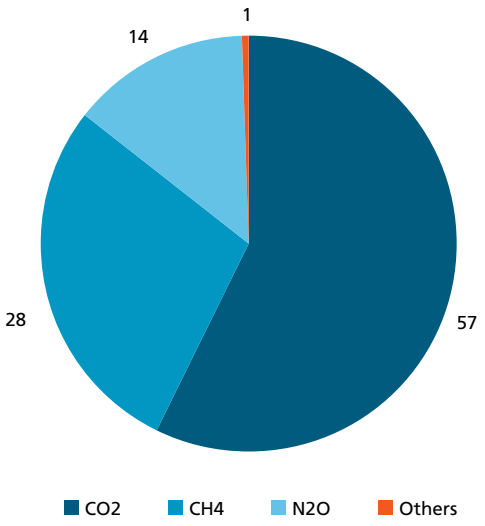
reduction in CO_2 emissions over the period considered, resulting from a sharp drop in deforestation rates of the Amazon and Cerrado biomes in this time period.

GRAPH 5
Relative contribution of GHG emissions in Brazil – CO_2e (2005)



Source: annual estimates of greenhouse gases emissions (Brazil, 2013b).

GRAPH 6
Relative contribution of GHG emissions in Brazil – CO_2e (2010)



Source: annual estimates of greenhouse gases emissions (Brazil, 2013b).

The greater the share of renewable sources (sugar cane biomass, hydropower, wood and charcoal, among others) in the energy matrix, the smaller the amount of CO_2 generated from energy consuming activities. In Brazil, although declining from 45.4% in 2008 to 42.4% in 2012 (Brazil, 2013c), the share of renewable sources in the energy matrix remains high when compared to the world average (13.2% in 2010) or even the average for members of the Organisation for Economic Co-operation and Development – OECD (8.0% in 2010).

As a result, if one considers only CO_2 emissions from the energy sector, i.e., excluding the issue of deforestation, heavily present in land-use change and forestry sector in the country but insignificant in developed countries, Brazil presented an increase from 1.70 ton of CO_2 per capita in 2005 to 2.01 tons per capita in 2010. Considering all GHGs converted to CO_2e, as well as all sectors (and not just the energy sector) included in the Second National Communication, however, we observed a decline from 11.03 tons of CO_2e per capita in 2005 to 6.54 tons of CO_2e per capita in 2010. By comparison, the average annual emissions in developed countries in 2010 were around 11 tons of CO_2 per capita, and 3 tons per capita in developing countries, although there are wide variations among countries (United Nations, 2013).

In a similar way to the above reasoning, that is, considering only CO_2 emissions from the energy sector, the Brazilian economy in 2005 emitted 0.23 kg of CO_2 for every dollar produced, a rate that remained constant in 2010. On the other hand, if one considers all GHGs converted to CO_2e, as well as all economic sectors, there was a reduction from 1.49 kg CO_2e per dollar produced in 2005 to 0.73 kg CO_2e per dollar produced in 2010. According to the United Nations, in 2010 the emission values were 0.6 and 0.4 kg of CO_2 per dollar produced in developing and developed countries, respectively (United Nations, 2013).

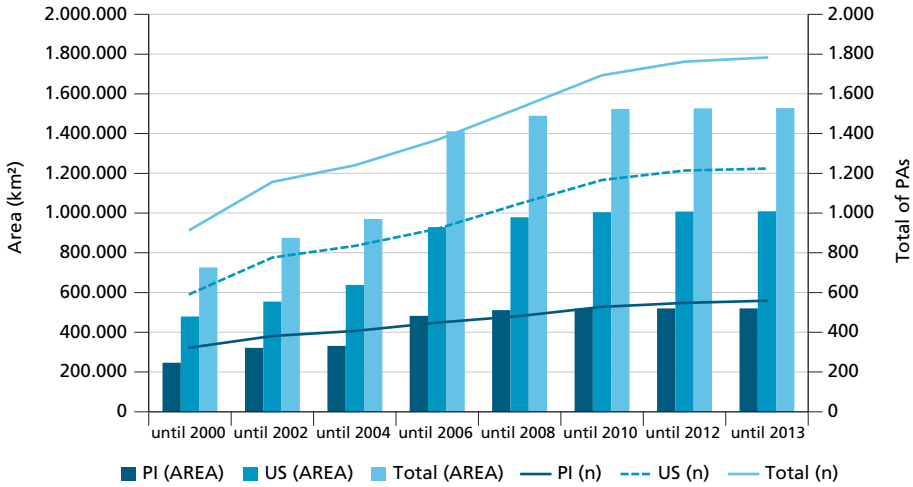
2 BIODIVERSITY: PROPORTION OF TERRESTRIAL AND MARINE PROTECTED AREAS AND OF SPECIES THREATENED WITH EXTINCTION

The establishment and maintenance of a National System of Protected Areas (SNUC) remain at the core of Brazil's strategy to protect its biodiversity. Created through Law nº 9,985 of July 18, 2000, the SNUC is made up of federal, state and municipal Protected Areas (PAs), which are divided into two major groups: PAs of Integral Protection (PI), whose primary goal is to preserve nature, with only indirect use of its natural resources permitted, and PAs of Sustainable Use (US), whose main objective is to reconcile nature conservation with the sustainable use of part of their natural resources.

Data on Protected Areas are organized and made available through the National Database of Protected Areas (CNUC), maintained by the MMA in collaboration with federal, state and municipal agencies. The CNUC points to a considerable increase both in terms of numbers as well as in the total area covered by PAs, from 2000 to 2013. Meanwhile, PAs increased more than 54% in number (from 1157 to 1783) and over 110% (from 0.7 to 1.53 million km²) in terms of area (graph 7). Currently, 1,224 (covering 1.01 million km²) are PAs of Sustainable Use, and the remaining 559 (520,000 km²) refer to PAs of Integral Protection. Protected Areas (taking into consideration all the three spheres of public administration) correspond nowadays to approximately 17% of the terrestrial and 1.5% of the marine areas in Brazil.

GRAPH 7

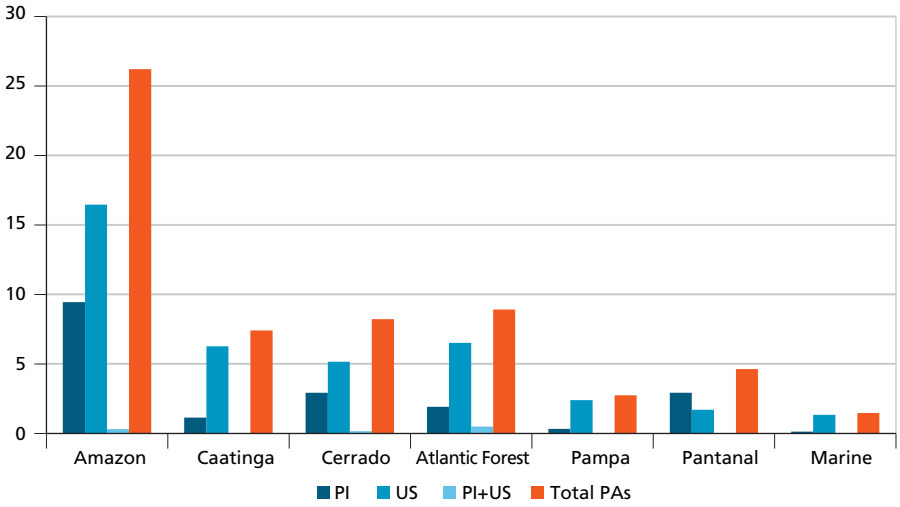
Evolution in numbers and in area covered by PAs per group (2000-2013) (Integral Protection – PI and Sustainable Use – US)



Source: MMA/Department of Protected Areas, National Database of Protected Areas (CNUC). Last updated in October 2013.

The Amazon, with the equivalent to 26.2% of its total area, is the biome with the highest coverage of PAs (16.5% of Sustainable Use and 9.4% of Integral Protection). The second biome with greatest coverage of PAs, in percentage terms, is the Atlantic Forest (8.9%), followed by the Cerrado (8.2%), Caatinga (7.4%), Pantanal (4.6%) and Pampa (2.7%). In all of these cases, the highest percentage refers to PAs of Sustainable Use (graph 8).

GRAPH 8
PAs coverage of the biomes (% of the biome), by SNUC group (Integral Protection – PI and Sustainable Use – US)



Source: MMA/Department of Protected Areas, National Database of Protected Areas (CNUC). Last updated in October 2013.

Estimating the proportion of Brazilian species threatened with extinction, as required in MDG 7, is quite a difficult task, considering both the great number of species involved and the magnitude of what still remains to be known about Brazilian biodiversity. Using sampling techniques, experts have estimated that Brazilian biodiversity encompasses between 1.4 and 2.4 million species, which makes Brazil the country with the highest biodiversity in the world. Out of this total, however, only 10% to 20% refer to species already known and properly catalogued by science (Ipea, 2010).

Currently, the official lists of the Brazilian species threatened with extinction contain 472 species of plants and 627 species of animals (table 2). Thus, the proportion of endangered species, as required in MDG 7, is not a good indicator to analyse the conservation status of the Brazilian biodiversity as a whole.

TABLE 2
Official lists of species of wild fauna and flora threatened with extinction in Brazil

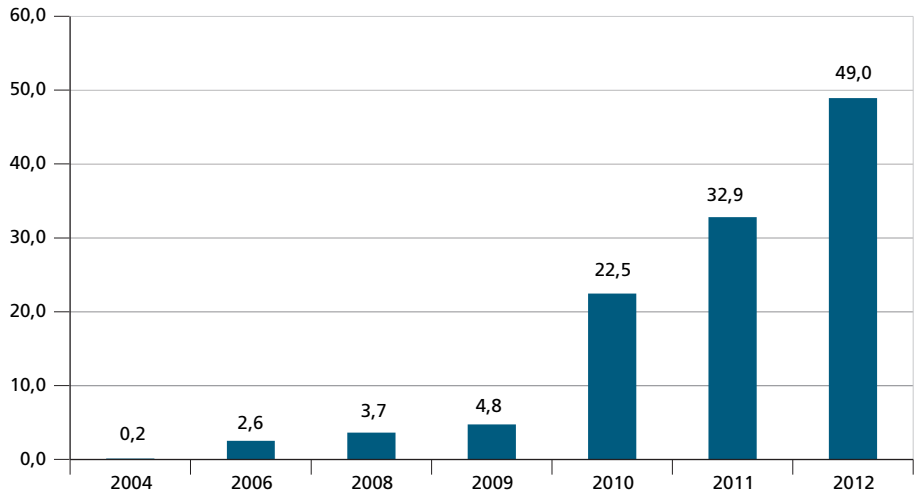
Biological group	Legally binding instrument	Number of species threatened with extinction
Flora	MMA Directive No. 6 of 2008	472
Fauna (terrestrial invertebrates and vertebrates, excepting fishes)	MMA Directive No. 3 of 2003	395[1]
Fauna (aquatic invertebrates and fishes), updated by MMA Directive No. 52 of 2005)	MMA Directive No. 5 of 2004	232[1]

Source: MMA.
Note: [1] Total of species of the Brazilian fauna threatened with extinction: 627.

With reference to measures for conservation and recovery of endangered biodiversity, Brazil presented advances in recent years, particularly in relation to species of the fauna. The first evidence of this is a greater knowledge on the animal species present in federal protected areas. According to data of the Chico Mendes Institute for Biodiversity Conservation (ICMBio)[4] obtained in 2011-2112, there was an increase of more than 8% (from 50.6% to 58.8%) in the proportion of species of the Brazilian fauna threatened with extinction that are represented in federal PAs, which was due essentially to improvements made in the identification and evaluation of species recorded in the field.

Another indicator of progress in the conservation of Brazilian biodiversity refers to the proportion of species of the fauna threatened with extinction that already have Plans of Action for Conservation and Recovery, the so-called National Action Plans (PANs). Data for the period 2004-2012 show that, from 2008 on, there was an exponential growth in the proportion of species of the Brazilian fauna threatened with extinction whose conservation and recovery strategies were already detailed in National Action Plans. In fact, during the period 2008-2012 the number of endangered species with PANs increased more than thirteen times, reaching approximately 49% of them in 2012 (graph 9). This represents a significant expansion of initiatives to combat threats to species of the Brazilian fauna, in line with the MDG 7 objective of reducing biodiversity loss.

GRAPH 9
Proportion of endangered species of the Brazilian fauna with National Action Plans
(In %)



Source: ICMBio – Directorate for research, evaluation and monitoring of biodiversity.

4. Affiliated to the MMA, ICMBio is the Federal Institution responsible for the administration of Protected Areas in Brazil.

FINAL REMARKS

Despite frequent disputes with economic and social issues, which are expected to occur in developing countries like the BRICS, progress has been made in recent years in Brazil regarding public policies aimed at strengthening the environmental pillar of sustainability in the country. For instance, with respect to the combat of deforestation, particularly in the Amazon, one can recall the Action Plan for Prevention and Control of the Legal Amazon Deforestation (PPCDAM), as well as other administrative, economic and legal measures that contributed significantly to reduce this important problem in the biome. The same model is being adopted for the Cerrado, which currently presents the highest deforestation rates in Brazil, and could eventually inspire similar sets of actions in other BRICS countries presenting similar problems.

With respect to climate change, Brazil has established the National Policy on Climate Change in 2009, whose legal text fixed voluntary actions to mitigate greenhouse gas emissions at the national level with a view to reducing projected emissions by 36.1%-38.9% by 2020. The measures to implement the Policy are underway, with a view to establishing sectorial plans to achieve the goal expressed in the Policy regarding mitigation actions. This is one of the most ambitious national voluntary mitigation actions in the world, an experience that certainly should be shared and discussed in further details with other countries, especially with the other BRICS.

In regard to the third theme treated in this paper, biodiversity, there are also many similarities amongst Brazil and other BRICS countries. Perhaps the most remarkable one is the fact that Brazil, China, India, and South Africa belong to the group of megadiverse countries, i.e., a set of seventeen countries that collectively hold over 70% of the world's biodiversity. Conserving and using this fantastic natural capital in a sustainable way, which also encompasses a variety of ecosystem services that are essential for mankind, represent an enormous challenge. Brazil is pursuing this goal mainly through the implementation of the Convention of Biological Diversity (CBD) in the country, whose scope is very ample and frequently requires measures that are hard to attain. On the other hand, sharing knowledge and positive experiences learned by Brazil and other BRICS countries individually could represent an important shortcut in the process.

Finally, attention should be given to the moment we are currently living in. While we observe increasing environmental problems, such as biodiversity loss, climate change, water shortages, among others, the world population is growing fast, bringing increasing needs in terms of materials and other environmental services and generating additional pressures on the environment. On the other hand, world agreements focusing on the environment have just passed a phase of

reviewing and updating commitments, as is the case for the CBD, or are on their way to do so, which is the case for the MDGs and the Kyoto protocol.

All of these features remind us of the importance and urgency to strengthen institutional, academic and political cooperation among the BRICS and other countries, not only in respect to economic and social issues, but also on what concerns environmental sustainability. Otherwise it will soon be too late for implementing the changes needed to secure a sustainable future for mankind on planet Earth.

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CHAPTER 3

PUBLIC INFRASTRUCTURE INVESTMENT: A BRICS PERSPECTIVE FOR INCLUSIVE SUSTAINABLE DEVELOPMENT

Jaya Josie[1]

ABSTRACT

This paper focuses on the relationship between public infrastructure investment in the context of the Rio+20 agenda and the post 2015 United Nations (UN) development agenda for integrating sustainable development goals (SDGs) and the millennium development goals (MDGs) from a BRICS perspective for global sustainable development. All eight MDGs emphasise human capital, infrastructure, and socio-economic and political human rights as integral to increasing an individual's living standards and human capabilities. Of the three, public infrastructure provision is perhaps the key intermediate factor for ensuring that an individual's living standard, capabilities and human, socio-economic and political rights are sustainable in the long-term. In this regard this paper presents a BRICS perspective on the extent to which public infrastructure investment may contribute towards the provision of basic public infrastructure as a solid foundation for sustainable long-term development integral to meeting public infrastructure objectives for MDG and SDG targets up to, and beyond 2015.

INTRODUCTION

The aim of this paper is to discuss public infrastructure investment in the context of the post-2015 UN development agenda for integrating SDGs and the MDGs from a BRICS perspective for attaining global sustainable development goals. The MDGs emphasise human capital, infrastructure, and socio-economic and political human rights as integral to increasing an individual's living standards and human capabilities. The paper focuses on the extent to which public infrastructure investment may contribute towards the provision of basic public infrastructure as a solid foundation for sustainable long-term development integral to meeting public infrastructure objectives for MDGs and SDGs up to, and beyond 2015.

1. Human Sciences Research Council (HSRC).

Section one of the paper briefly discusses the extent to which infrastructure investment may act as a catalyst for *integrating post-2015 MDGs and SDGs*. Section two provides a review of the current trends in infrastructure investment as they relate to gross fixed capital formation (GFCF) among BRICS countries. Section three outlines a possible theoretical framework for public investment to address basic public infrastructure service backlogs targeting MDGs and SDGs in BRICS countries. Section four discusses the possible role of a BRICS development finance institution in financing public infrastructure investment, and the paper concludes with some specific proposals. Accompanying the paper is a separate Annexure with data showing evidence of BRICS infrastructure programs by sector and project.

1 INFRASTRUCTURE INVESTMENT: A CATALYST FOR INTEGRATING MDGS & POST-2015 SUSTAINABLE DEVELOPMENT

Over the past two decades the development debate internationally has been dominated by two trends (Sachs, 2012; Loewe, 2012) that juxtaposed sustainable development goals (SDGs) with millennium development goals (MDGs). The MDG campaign has its roots in the 2000 Declaration of the Millennium Summit of the United Nations (UN) for attaining Millennium Development Goals (MDGs) by 2015 (Millennium Development Report, 2013). This programme was adopted in 2001 by the UN General Assembly, and established as an integral part of the UN agenda. The MDGs seeks to ensure that an individual's living standard, capabilities and human, socio-economic and political rights are sustainable in the long-term. Eight MDGs were identified that included the eradication of extreme poverty and hunger; achieving universal primary education; promoting gender equality and empowering women; reducing child mortality rates; improving maternal health; combating HIV/AIDS, malaria, and other diseases; ensuring environmental sustainability; developing a global partnership for development. Presupposing the programme for the MDGs is a requirement for adequate human capital, infrastructure, and socio-economic and political human rights for improved living standards and enhancing human capabilities.

The campaign for SDGs on the other hand started with the Earth Summit in Rio de Janeiro in 1992 and continued at the Rio+20 summit in June 2012 (Loewe, 2012). The latter argued for integrating and extending MDGS as part of a post-2015 campaign for attaining global sustainable development goals (SDGs), and culminated in the release in May 2013 of a UN panel report on a Post-2015 Development Agenda focusing on a new global partnership for eradicating extreme poverty and transforming economies through sustainable development by 2030. This UN post-2015 Development Agenda underscores a convergence of the MDGs and SDGs. One argument (Sachs, 2012) suggests that the SDG's could provide the necessary impetus for a sustainable global development trajectory. The other

(Loewe, 2012) argues that indeed the SDG agenda is a pre-condition for attaining, and sustaining the MDG targets into a post-2015 development trajectory.

With respect to the post-2015 development trajectory, and relevant for this paper, the SDG agenda promotes among others: poverty reduction; food security, nutrition and sustainable agriculture; water and sanitation; energy; sustainable tourism, transport, cities and human settlements; health and population; full and productive employment, decent work for all and social protection; least developed countries; landlocked developing countries; African regional efforts; education; gender equality and the empowerment of women (Loewe, 2012). When comparing the MDG and SDG targets it is clear that not only do they have much in common, but they also complement each other. However attaining the targets for the provision of sustainable basic infrastructure services explicit in some of the MDGs and SDGs requires a long-term commitment for infrastructure investment in physical and social infrastructure in particular. Such investment has to be differentiated, if it seeks to address inter and intra-regional spatial and socio-economic disparities that militate against attaining the MDGs and SDGs. If the MDG and SDG policy targets set the public infrastructure standard that must be reached beyond 2015, then public infrastructure financing must seek to progressively close the gap between the existing norm and the desired standard within the post-2015 time frame for SDGs.

2 UNDERSTANDING INFRASTRUCTURE INVESTMENT TRENDS: A LONG-TERM BRICS PERSPECTIVE

BRICS Member States are currently considering a new complementary and supplementary development finance institution to support emerging economies and developing countries – especially in associated regional economies. The role of such an institution could be to mobilize resources for infrastructure and development projects not only for BRICS member states but also for other emerging and developing economies. Such an initiative will be a positive response to the problem of insufficient long-term financing and foreign direct investment faced by developing countries in addressing challenges of infrastructure development.

To target infrastructure investment to address economic and social infrastructure backlogs resulting from socio-economic and spatial disparities, policymakers require an indicator that captures both national and per capita infrastructure needs for inclusive and sustainable growth and development. The literature on public infrastructure investment in economic development suggests that its role is mediated through its contribution to capital stock in macroeconomic aggregates. By implication the role and measurement of capital stock in sustainable economic development implies that capital stock and capital backlog estimates can be used in conjunction with capital cost disparity indicators

to estimate the level of physical and social infrastructure investment required for financing public infrastructure in disadvantaged regional and sub-regional economies (Josie *et al*. 2008).

Although there are other determinants of general investment such as variations in business confidence and tax polices (Vane and Thompson, 1989) increases in public infrastructure investment will most likely have a significant impact on the levels of capital stock in general and economic development in particular. Timmer and van Ark (2002) demonstrated this relationship in constructing fixed non-residential capital stocks for South Korea and Taiwan. Aschauer (1989) tested this proposition in a seminal article in an econometric study that presented estimates to show dramatic returns to public capital investment in the United States. Naqvi, (2003) using the Aschauer model compared the productivity of public capital against private capital in Pakistan from 1965 to 2000 and demonstrated that externalities generated by public capital stock shows that public capital was more productive than private capital in growth. In a Europe-wide survey Romp and de Haan (2005) concluded that, although not all empirical studies can show that public capital has positive impacts on economic growth, there is currently greater unanimity that public capital investment increases economic growth.

The arguments and conclusions advanced by Aschauer and others have been challenged (Hulten and Schwab, 1993) both methodologically and conceptually. Their critique suggests that the United States data may indicate a correlation between infrastructure and output growth, but this association cannot be interpreted to mean that lower infrastructure was the cause of slower growth. The authors argue that any one of several other variables such as low productivity and higher costs may have had just as significant an impact on slowing growth for the period of Aschauer's study.

Ndulu *et al.* (2005) and Ndulu (2006) note that in sub-Saharan Africa inadequate public infrastructure is the greatest obstacle to faster economic growth. In this regard Sub-Saharan African economies were characterized by low capital accumulation, high prices of investment goods, low productivity of investment and a higher level of geographical disadvantages that compromised growth and regional integration. Given that the consensus in the literature seems to err on the side of increasing public infrastructure investment restating the role and contribution of infrastructure investment in capital stock will be important.

Infrastructure is a component of the capital stock of a country. The value of an infrastructure asset[2] in GFCF is determined by the value the asset is expected to earn for the delivery, production or generation of specific capital services over

2. The SNA93 defines fixed assets as produced assets that are used repeatedly, or continuously in the production process for more than one year.

its lifetime (OECD Manual: 16). The standard formula (OECD Manual: 16) for calculating infrastructure asset values is written as:

$$V_t = \sum_{\tau=1}^{T} \frac{f_{t+\tau-1}}{(1+r)^{\tau}} \quad (1)$$

Where:

- Vt is the real value of an asset at the beginning of year t;
- f is the real rental in each period;
- T is the service life of the asset in years;
- τ takes values of 1, 2, 3…. T; and
- r is the discount rate used to reduce the future flow of rentals to their present values.

Thus the role of infrastructure value in GFCF underscores the significance of capital stocks in economic growth. This is evident from the most recent GFCF trends in BRICS Member States presented next.

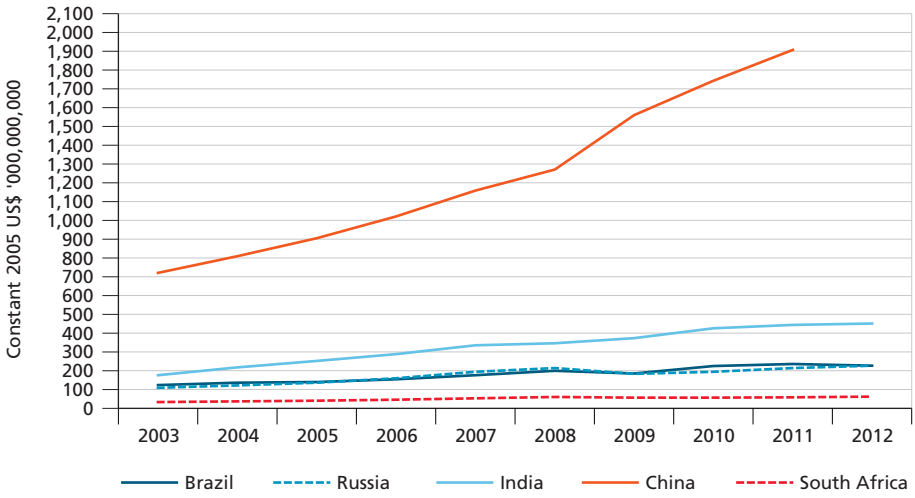
According to historical data provided by the World Bank in 2013, China and India increased their GFCF investment over the last nine and ten years. Other countries saw a decrease in one or more years. On average China's GFCF grew by 13.5%, and over the last ten years South Africa's was the lowest at 7.7%. South Africa is the only country where GFCF dropped in two consecutive years, i.e. 2009 and 2010. Brazil saw a decrease in both 2009 and 2012, and Russia, recorded a decrease in GFCF for 2009 (see table 1).

TABLE 1
Gross fixed capital formation at constant 2005
(Prices in US dollars)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Brazil	124.35	135.69	140.61	154.35	175.73	199.58	186.16	225.87	236.52	227.04
Russia	108.93	122.65	135.65	160.07	193.68	214.21	183.37	194.13	213.96	226.80
India	175.65	217.77	253.04	288.00	334.67	346.40	372.96	425.15	443.79	451.44
China	721.63	809.57	905.91	1020.96	1,158.79	1,270.03	1,560.87	1,741.93	1,907.41	
South Africa	33.11	37.37	41.48	46.51	53.01	60.05	57.34	56.17	58.70	62.03

Source: World Bank, 2013.

GRAPH 1
Gross fixed capital formation



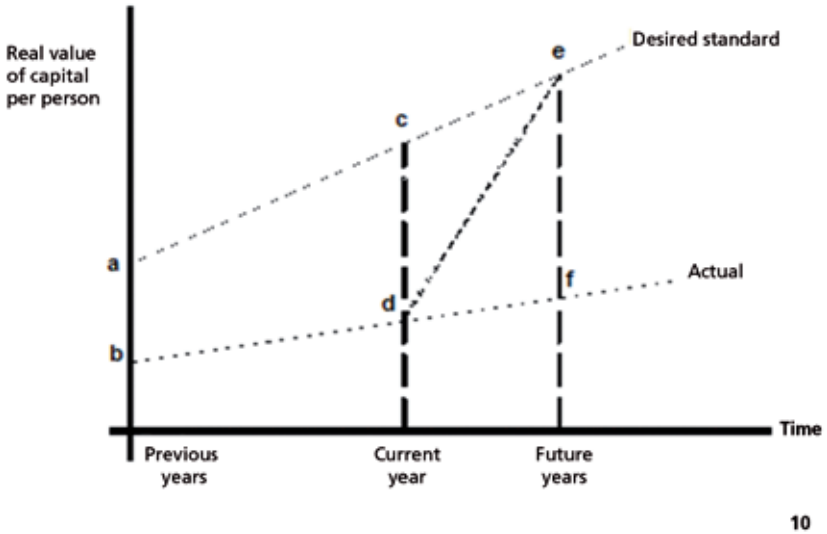
3 ILLUSTRATIVE FRAMEWORK: PUBLIC INFRASTRUCTURE INVESTMENT, BASIC PUBLIC SERVICES, MDGs AND SDGs

Theoretically, to determine the desired level of capital stock needed to achieve economic objectives a reasonable estimate of existing capital stock has to be calculated. The difference between the desired level and existing level of capital stock is the level of capital backlog that has to be eradicated. The cost of eradicating capital backlogs while taking account of regional and sub-regional capital cost disparities determines the level of fixed investment that will be required to achieve socio-economic goals. Thus capital stock data is a critical input for measuring and forecasting infrastructure investment and, for estimating infrastructure deficiencies or backlogs (Levtchenkova and Petchey, 2000). However, in developing and emerging economies such as South Africa the challenge for public infrastructure investment to address MDGs and SDGs is the absence of disaggregated capital stock and GFCF data at local level. The South African Reserve Bank (SARB) publishes the public sector economic infrastructure components of South Africa's GFCF and the per capita fixed capital stock data aggregated at national level although it is collected locally. However, for targeted public infrastructure investment to attain MDGs and SDGs across sub-regions capital stock estimates for these areas will provide an important indicator for determining the amount of financing required to enhance government's contribution to the desired level of capital stock in the economy. Alternative approaches for estimating capital stock such as the perpetual inventory method (PIM) demand infrastructure expenditure time-series data spanning at least two to three decades

to smooth out errors (Levtchenkova and Petchey, 2002). Nevertheless, assuming a supply of regional and sub-regional capital stock data the following discussion presents an illustrative framework for public infrastructure investment to meet basic MDG and SDG public infrastructure service targets.

Using South Africa as a case study for analysing the basic service infrastructure gap in developing transition economies, Petchey and Levtchenkova (2002) concluded that compared to an international benchmark the overall amount of physical infrastructure and social infrastructure available for the provision of basic services was insufficient. Graph 2 illustrates the theoretical possibility of how the development gap between a desired benchmark standard and current norm can be closed.

GRAPH 2
Closing capital stock gap between policy norm and desired standard



Source: Adapted from Petchey, Macdonald, Josie and Nthite (2004).

The diagram schematically illustrates how public infrastructure investment could underpin sustainable development. In Graph 2 the actual per person capital stock of a representative poor region for a particular service is plotted (point *b*) against the standard capital stock for the service across all regions and in which the standard capital stock is growing over time. In the diagram, the actual capital stock is depicted below the standard. The region has a capital backlog equal to the distance in *ab*. In a current period, this would have grown to equal the distance *cd* because investment is insufficient to reduce the backlog of the preceding period. In addition because of low investment over time the backlog has increased further to equal the

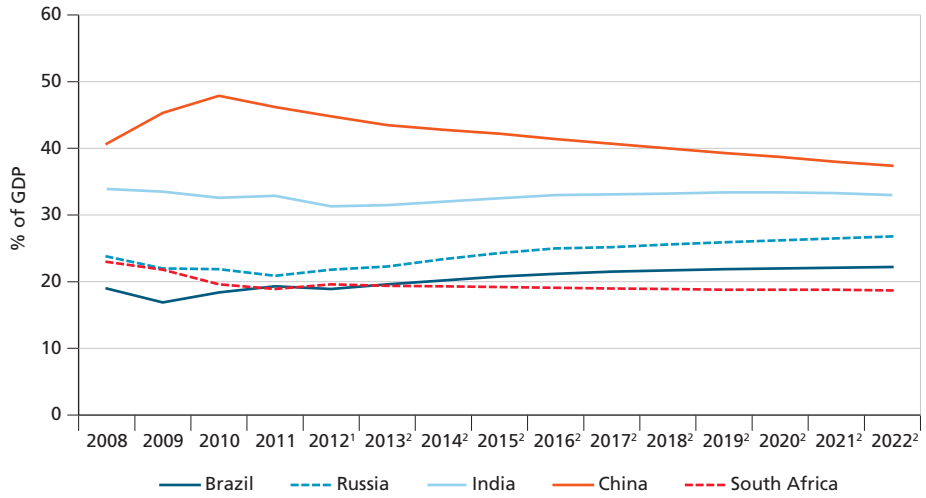
distance *ef*. The key question is how to raise the level of net investment so that its actual capital stock for the service equals the desired standard at some future period? Line *de* represents the development trajectory for closing the investment gap, and is arbitrary in the illustration. Of course there can be several possibile trajectories depending on how quickly or gradually the investment gap can be closed, and therefore the pace and amount of investment will define the shape of line *de*.

4 A BRICS DFI FOR PUBLIC INFRASTRUCTURE INVESTMENT

A leaders statement at the BRICS Summit in Durban 2013 acknowledged that developing countries face challenges of infrastructure development due to insufficient long-term financing and foreign direct investment, especially investment in capital stock. By implication, and following from the preceding discussion, such an inadequacy will place constraints on attaining MDG and SDG targets. The statement asserted that BRICS cooperation towards more productive use of global financial resources can make a positive contribution to addressing the problem. The statement further indicated that a BRICS Finance Ministers feasibility and viability study supported the establishment of a New Development Bank to mobilize resources for infrastructure and sustainable development projects in BRICS, emerging economies and developing countries to supplement the existing efforts of multilateral and regional financial institutions. Table 1 clearly demonstrates that among BRICS Member States trends for capital GFCF vary widely. As a percentage of GDP total capital investment across BRICS has also been variable (see table 2 of the appendix). According to Business Monitor International (BMI) forecasts, Russia is expected to grow from 2012 to 2022 after experiencing a decrease from 2008 to 2011. Brazil also decreased its investment in 2009 and BMI expects the 2012 data to show another decrease. However, for other years, including the BMI forecasts, an increase in investment spending is expected. China witnessed an increase from 2008 to 2010 and a decrease in 2011, with the trend expected to continue through to 2022. South Africa is the only country that shows a persistent marginal decrease in its spending.

With respect capital investment per capita Business Monitor International (BMI) expects all countries to increase their investment spending from 2014 (table 3). Past trends show that between 2008 through to 2011 China increased its investment, and is expected grow further until 2022. Brazil, Russia, and South Africa all decreased their investment from 2008 to 2009; however, South Africa is also expected to decrease its spending further from 2011 to 2013 where after all three are expected to show growth in investment. Out of all member countries India has the lowest per capita investment.

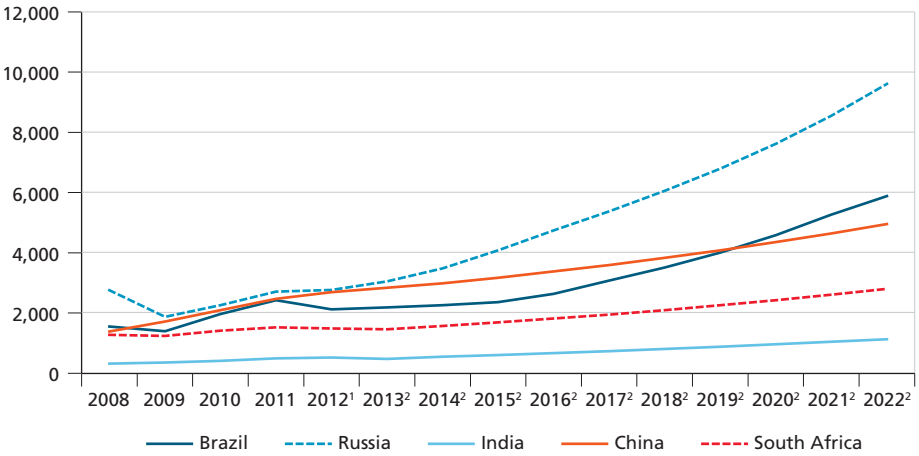
GRAPH 3
Total capital investment as a percentage of GDP



Source: Business Monitor International.
Notes: [1] Expected.
[2] Forecast.

The potential for further economic development within BRICS is obvious from the data. An accompanying annexure with tables provides evidence of this potential for each country by sector and project.

GRAPH 4
Capital investment per capita
(In US$)



Source: Business Monitor International
Notes: [1] Expected.
[2] Forecast.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the questions to ask is: can BRICS initiated infrastructure investment be equitable across Member States and associated regional economies? Secondly, how can public infrastructure investment contribute towards this sustainable economic development among BRICS member states and associated regional economies experiencing public infrastructure backlogs? Of course these questions raise the fundamental issue of the role and impact of public infrastructure investment in sustainable and inclusive economic development.

The preceding sections of this paper briefly reviewed and discussed some of the key concepts and issues that may mediate the role and impact of public infrastructure investment for sustainable and inclusive economic growth that can contribute towards attaining the post-2015 MDG and SDG targets. If BRICS Member States want to be part of the post-2015 MDG and SDG agenda, Member States should consider the following proposals: 1) A new BRICS development bank should include a programme for public infrastructure investment targeting the provision of basic services; 2) Give serious consideration to promoting and sharing research for disaggregating and recalibrating capital stock data to local levels to facilitate planning and targeting infrastructure investment; 3) Define an acceptable and consistent set of MDG and SDG indicators across BRICS that may be used to take account of socio-economic and spatial disparities that differentiate regions, sub-regions and communities from each other. The latter two will be important for making investment decisions in favour of meeting MDG and SDG targets.

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APPENDIX: Jaya Josie, HSRC

TABLE 2
Total capital investment as a percentage of GDP

	2008	2009	2010	2011	2012[1]	2013[2]	2014[2]	2015[2]	2016[2]	2017[2]	2018[2]	2019[2]	2020[2]	2021[2]	2022[2]
Brazil	19	16.9	18.4	19.3	18.9	19.6	20.2	20.8	21.2	21.5	21.7	21.9	22	22.1	22.2
Russia	23.8	22	21.9	20.9	21.8	22.3	23.4	24.3	25	25.2	25.6	25.9	26.2	26.5	26.8
India	33.9	33.5	32.6	32.9	31.3	31.5	32	32.5	33	33.1	33.2	33.4	33.4	33.3	33
China	40.7	45.3	47.9	46.2	44.8	43.5	42.8	42.2	41.4	40.7	40	39.3	38.7	38	37.4
South Africa	23	21.8	19.6	18.9	19.6	19.4	19.3	19.2	19.1	19	18.9	18.8	18.8	18.8	18.7

Source: Business Monitor International[3]
Notes: [1] Expected.
[2] Forecast.

TABLE 3
Capital investment per capita in US dollars

	2008	2009	2010	2011	2012[1]	2013[2]	2014[2]	2015[2]	2016[2]	2017[2]	2018[2]	2019[2]	2020[2]	2021[2]	2022[2]
Brazil	1,556.5	1,395.0	1,972.4	2,424.5	2,122.0	2,187.1	2,267.1	2,363.5	2,638.0	3,084.3	3,516.5	4,015.5	4,593.4	5,268.5	5,891.2
Russia	2,764.4	1,876.7	2,267.5	2,713.7	2,764.8	3,049.7	3,484.2	4,084.2	4,749.0	5,380.5	6,058.5	6,795.4	7,629.5	8,554.3	9,609.8
India	326.1	357.9	418.2	494.5	526.6	477.3	555.9	607.3	671.0	734.8	805.0	882.1	962.2	1,045.0	1,129.8
China	1,387.6	1,718.1	2,099.2	2,470.3	2,693.9	2,843.6	2,990.1	3,176.3	3,381.4	3,601.0	3,836.2	4,088.0	4,357.7	4,646.6	4,956.2
South Africa	1,276.3	1,245.8	1418.1	1,527.7	1,494.5	1,458.4	1,571.8	1,690.2	1,817.4	1,954.2	2,101.3	2,259.5	2,429.4	2,612.0	2,808.2

Source: Business Monitor International
Notes: [1] Expected.
[2] Forecast.

3. BMI Infrastructure report Brazil Q2 2012 and Q4 2013; BMI Infrastructure report Russia Q1 2012 and Q4 2013; BMI Infrastructure report India Q4 2012 and Q4 2013; BMI Infrastructure report China Q1 2012 and Q4 2013; BMI Infrastructure report South Africa Q3 2012 and Q3 2013.

TECHNICAL SESSION 3

BRICS International Development Cooperation

- Definition and measurement of international development cooperation
- Monitoring and evaluation of international development cooperation
- BRICS international development cooperation agencies

CHAPTER 4

ECONOMIC DYNAMICS OF THE COUNTRIES OF THE WORLD IN THE YEARS 1992-2010: INHOMOGENEITY OF GROWTH

Leonid M. Grigoriev[1]
Elena N. Parshina [2]

1 FORMULATION OF THE PROBLEM

In the modern world the notion of economic growth is one of the most widely employed; it is of great interest not solely for economist. The R. Solow model is generally acknowledged as the fundamental model of economic growth, in line with which growth is tied to the adjustment of potential gross domestic product(GDP). Such adjustment can take place following an expansion of the resource base of economy (extensive growth) or an increase of factor productivity. On the basis of Solow model the "golden rule" of capital accumulation was formulated. The "golden rule" allow us to calculate the optimal capital growth rate, which ensures that in the presence of multiple trajectories of sustainable growth the economy takes on the trajectory maintaining the maximum level of per capita consumption. Yet, if such stimuli of economic growth are narrowed down to sustain a certain level of capital accumulation, then, with a proximate level of productive factors availability and similar technologies, development trajectories of a country which are likely to converge in the long term (reciprocal flow of production factors is in progress) and eventually become identical in the level of development. This assumption underlies the concept of convergence of economic growth trajectories.

In fact the state of things over the last two decades (1992-2010), which are relevant both for practical purposes and for verification of the existing theoretical concept, appears largely different. Shocks, crises, transition processes (especially

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in Russia) leave no chances for "pure theory" to produce the desired effect. This time span includes an extremely painful period for the Russian economic history.

Needless to say, that the effect of convergence of countries by their development level ought to be of continuous character. In this study we suggest that a period of ten to twenty years be regarded as a "step". To offer a credible picture of growth dynamics we employ the index of GDP in terms of purchasing power parity (PPP) per capita in the prices during 2005. The validity of the theory is confirmed by empiric data; simultaneously, there arises a logical question as to which particular test is the fittest to verify actual existence of convergence. Attempts at such verification were made, e.g., by Lanton Pritchet, who carried out a juxtaposition of the per capita GDP dynamics covering 111 countries. He used the index of GDP on PPP basis in the prices of 1985 and reviewed the time span from 1960 to 1985 or 1992 (the period vary for different countries). This fact is of great significance, as the above period covers only several years following China's high growth rates (late 1980-s). Pritchet divided countries into developing and industrial ones. As a criterion for categorizing a country as industrial he used its membership in OECD, while other countries were referred to developing (i.e., they were not divided into clusters by their development level). Omitting the technique of study, let us mention, that at that time his analysis showed the following: the variation of growth rates among the developing countries is more significant than in industrial countries; growth rates in industrial countries is sustainably higher, than in developing countries. Median growth rate in industrial countries reaches 2,86%, which exceeds almost two times as much as median growth rates in developing countries – 1,51%. The range of in-country growth rates is wide in different periods of time. The average absolute value of growth rate shift among the developing countries is 3.4 percentage points, while for all sampled countries it equals 2.0 percentage points.

The calculations of the International Monetary Fund (IMF) demonstrated the hardships on the way to improving the level of development in the 20th century, when several wars, revolutions, disruptions of empires and severe economic crises obstructed the effect of market convergence factors. There were notable changes in this situation over later periods. W. Easterly speculates on the following stylized facts:

1. Economic growth rates are sizably affected by other factors apart from capital formation. Namely these factors contribute to the difference in the levels and rates of per capita GDP growth across countries. They are referred to as "total factor productivity".

2. The inter-country difference of the level of per capita GDP increases with time. Divergence between groups of countries is observed. Though poor countries are not becoming poorer, rich countries are getting richer much faster than poor countries.

3. Capital formation rates manifest much more sustainable dynamics, than GDP growth rates.
4. All production factors are directed to the same regions of the world (which disagrees with some assumptions made by R. Sollow) resulting in more concentrated economic activities.
5. Domestic policies affect growth in the long term. Proceeding from the growth of total productivity factor, national policy, which fosters the efficiency of capital and labor application and affect the endogenous technological level, may promote an increase of productivity and thus accelerate economic growth in the long term.

In his analysis Easterly reviewed 64 countries, covering the period of 1980-1992. Those countries were divided into ten groups according to the rates of per capita GDP growth. Econometric analysis showed, that inter-country disparities of the actual per capita GDP growth rates on 90% are determined by the disparities in growth rates of the total factor productivity, i.e., factors, other than capital. Similar results were obtained by Klenow and Rodriguez-Clare, who reviewed a selection of 98 countries, covering the period of 1960-1995: the difference in total factor productivity growth rates accounts for 90% of the difference in output growth rates calculated for one employee.

Using the same empiric material (and covering the same period) researchers have revealed new tendencies in the dynamics of economic growth observed in separate groups of countries. Thus, we can distinguish three key tendencies of global economy development in scope of inter-country converging trajectory:

1. Over the last years, growth rates of developing economies on the basis of per capita calculation have been sustainably higher, than those in the developed countries, which is indicative of a structural shift in the global economy. The nascence of the new convergence can be explained by three factors: firstly, growing global interdependency translates into rising direct foreign investments, as well into a possibility of adapting the existing technologies. Secondly, demographical transition, which took place in many developing countries, facilitated the formation of a more capital-intensive economy and acceleration of per capita economic growth rates. Thirdly, developing countries achieved an increase of the share of income further used as investments. The latter not only enhance labor productivity by means of using additional capital, but can also improve total factor productivity, which, as it was mentioned above, accounts for the greater part of inter-country disparities of economic growth rates (according to empiric study).

2. Regardless of the difference between long-term growth rates in developed and developing countries, a cyclical interdependency does not vanish. We distinguish three main channels of interdependency between countries. The first one is trading and commerce, as their intensification brings about the shocks of external demand, which, in their turn, produce a powerful effect of economic growth of a particular country. We regard financial markets and investors' expectations and behavior as the second and third channel, respectively. It should be mentioned, that this experience did not include the events of the period of 2008-2013, which was marked by a crisis followed by a lengthy revival.
3. Despite common convergence of average income, in most countries the income gap between the rich and the poor is growing. Later (in the 1990-s) this phenomenon was less obvious, since rapid growth in China, India and a number of other countries changed the situation.

It should be noted, that even first-class research works failed to identify the clear tendency for convergence in the period before 1992. Thus, a study into the question of existence or non-existence of convergence leads to conflicting results. An important matter is defining the period within which the effect of convergence can be observed using actual data and materials (to identify it not just as a tendency, elicited from equations).

The authors attempted at testing the presence of economic growth convergence between countries within the period of 1992-2010. We pose three simple questions: 1) did "neighbors" converge in terms of their level of development in the period of eighteen years; 2) does convergence take place on a broader scale – between the countries of the world; 3) which trajectory did the Russian economy take in the given period amongst 150 countries of the world.

The overall picture of the countries' going up and down the cluster ladder is clearing up, because, among other things, we use simple averages encompassing 150 countries and not aggregated indices calculated for continents and groups. In our opinion, these findings should be appreciated in shaping the idea of modern development and of what "stylized" facts must underlie the theorems of global economy.

2 STATISTICS AND METHODOLOGY

The analysis covered 150 countries (table 1). The choice was largely determined by the availability of statistic data covering the reviewed period. The selection was closely approximated to the general totality – the list does not include a number of poorest countries and several oil-exporting countries with incomplete statistic data. The share of the consolidated GDP of the reviewed 150 countries total is 97% for the period of 2010.

The choice of the period of 1992-2010 can be attributed to the fact, that it is difficult to analyze the implications of convergence in longer periods, marked by the above mentioned shocks. In a favorable environment it is easier to distinguish the influence of convergence from other factors, since, should it exist, it is likely to be most vividly manifested in such periods. The reviewed period falls within the third stationary period, as they were categorized in the study "The theory of growth under the strokes of crises". In these years the collapse of the socialistic system had already taken place, while the later years were marked by the Great Recession. As applied to post-soviet countries and Central and Easter Europe, our calculations were largely influenced by a severe transition crisis of the 1990s. Soaring oil prices in the period of 2003-2010 must have contributed to the growth of oil-exporters, which affected their position in our clusters,[3] but we did not review the implications of this factor individually.

TABLE 1
Splitting the sample of countries into clusters

1992			2010		
Cluster 1	Poland (7,748)	Cluster 6	Cluster 1	Belorussia (12,494)	Cluster 6
UAE (68,798)	Chile (7,696)	Sri Lanka (2,125)	Luxembourg (68,742)	Botswana (12,462)	Guyana (3,078)
Luxemburg (45,976)	Serbia (7,564)	Papua New Guinea (2,005)	Macao (57,123)	Mexico (12,441)	India (3,073)
Norway (34,180)	Estonia (7,532)	Mongolia (1,964)	Singapore (51,966)	Mauritius (12,286)	Vietnam (2,875)
Switzerland (32,347)	Malaysia (7,473)	Kirghizia (1,947)	Norway (46,908)	Panama (12,206)	Moldavia (2,790)
The United Stares (32,015)	Republic of South Africa (7,411)	Yemen (1,888)	UAE (42,351)	The Caribeans (11,491)	Uzbekistan (2,786)
Germany (27,313)	Macedonia (7,376)	Tadzhikistan (1,877)	The United Stares (42,297)	Bulgaria (11,490)	Nicaragua (2,613)
Japan (27,067)	Dominica (7,325)	Bhutan (1,838)	Hong-Kong (41,713)	Dominica (11,003)	Solomon Islands (2,431)
Singapore (27,036)	Botswana (7,251)	Cameroon (1,835)	Switzerland (37,583)	Venezuela (10,973)	Pakistan (2,411)
The Netherlands (26,956)	Brazil (7,018)	Nicaragua (1,801)	The Netherlands (36,996)	Romania (10,921)	Yemen (2,380)
Austria (26,362)	Panama (6,900)	Guyana (1,790)	Cluster 2	Kazakstan (10,916)	Laos (2,288)
Hong-Kong (26,133)	Costa Rica (6,650)	Cote d'Ivoire (1,784)	Ireland (35,988)	Costa Rica (10,377)	Papua New Guinea (2,217)
Denmark (26,128)	Ukraine (6,635)	Pakistan (1,738)	Austria (35,379)	Brazil (10,056)	Mauritania (2,203)
Canada (25,929)	Mauritius (6,630)	Mauritania (1,731)	Canada (35,223)	Serbia (9,598)	Nigeria (2,152)
Belgium (25,746)	Bulgaria (6,525)	Uzbekistan (1,692)	Australia (34,411)	UAE (9,477)	Cameroon (2,058)
Bahamas (25,728)	Romania (6,347)	Armenia (1,551)	Sweden (33,771)	Macedonia (9,192)	Sudan (2,023)

(Continues)

3. In this article the term "cluster" stands for a single-factor group with unequal intervals (editor's note).

(Continued)

1992			2010		
Cluster 2	Columbia (6,304)	Nigeria (1,455)	Germany (33,414)	Azerbaijan (8,913)	Kirghizia (2,008)
France (24,697)	Jamaica (6,255)	Senegal (1,446)	Belgium (32,808)	Tunisia (8,566)	Tadzhikistan (1,940)
Macao (24,546)	Latvia (6,0)	Republic of Cape Verde (1,426)	Iceland (32,781)	Peru (8,555)	Cluster 7
Italy (24,264)	Algeria (5,951)	Kenya (1,339)	England (32,474)	Columbia (8,479)	Myanma (1,749)
Iceland (24,20)	Kazakstan	China (1,338)	Denmark (32,235)	Dominican Republic (8,387)	Senegal (1,736)
Sweden (23,698)	Belorussia (5,731)	Cluster 7	Finland (31,493)	Thailand (7,673)	Cote d'Ivoire (1,704)
Australia (23,314)	Ecuador (5,531)	India (1,238)	Japan (30,573)	Albania (7,658)	Bangladesh (1,488)
England (22,020)	Cluster 5	Guinea-Bissau (1,232)	France (29,640)	Algeria (7,564)	Kenya (1,481)
Finland (20,763)	Belize (4,916)	The Comoros (1,182)	Bahamas (28,476)	Turkmenia (7,422)	Ghana (1,475)
Saudi Arabia (20,691)	Tunisia (4,838)	Zambia (1,165)	Italy (27,137)	Cluster 5	Lesotho (1,437)
Spain (20,340)	Thailand (4,524)	Dahomey (1,137)	Korea (27,027)	Ecuador (7,201)	Dahomey (1,424)
Cyprus (18,919)	Namibia (4,324)	Gambia (1,120)	Israel (26,023)	China (6,816)	Tanzania (1,286)
Israel (18,485)	Dominica (4 ПО)	Vietnam (1,005)	Cyprus (25,937)	Ukraine (6,029)	Gambia (1,265)
Greece (17,618)	Paraguay (4,034)	Laos (976)	Slovenia (25,048)	Belize (5,983)	Chad (1,229)
Portugal (17,091)	Salvador (3,967)	Lesotho (945)	Greece (24,206)	Salvador (5,981)	Uganda (1,141)
Cluster 3	Swaziland (3,887)	Ghana (937)	Trinidad and Tobago (23,088)	Namibia (5,808)	Burkina Faso (1,127)
Malta (14,949)	Azerbaijan (3,543)	Madagascar (926)	Malta (22,761)	Angola (5,549)	Nepal (1,075)
Check Republic (14,411)	Congo (3,541)	Chad (904)	Check Republic (22,575)	Egypt (5,544)	Guinea-Bissau (1,064)
Gabon (14,403)	Fiji (3,469)	Togo (838)	Cluster 3	Swaziland (5,339)	Rwanda (1,044)
Slovenia (14,183)	Guatemala (3,457)	Tanzania (826)	Portugal (21,660)	Jordan (5,157)	the Comoros (983)
Korea (12,944)	Syria (3,428)	Ruanda (826)	Saudi Arabia (20,374)	Armenia (4,901)	Guinea (978)
Hungary (11,210)	Jordan (3,378)	Guinea (814)	Slovakia (20,164)	Butan (4,780)	Mali (955)
Trinidad and Tobago (10,766)	Egypt (3,292)	Bangladesh (774)	Poland (17,352)	Syria (4,741)	Ethiopia (934)
Venezuela (10,652)	Turkmenia (3,197)	Nepal (748)	Hunagry (16,958)	Paraguay (4,648)	Togo (895)
Mexico (10,393)	Bolivia (3,140)	CAR (726)	Estonia (16,561)	Sri-Lanka (4,555)	Madagascar (869)
Russia (10,219)	Angola (2,843)	Burkina Faso (705)	Chroatia (16,128)	Georgia (4,552)	Mozambique (845)
Slovakia (10,103)	Honduras (2,744)	Mali (700)	Lithuania (15,534)	Bolivia (4,350)	Malawi (791)
Cluster 4	Moldova (2,720)	Niger (631)	Cluster 4	Guatemala (4,292)	Sierra Leone (742)
Chroatia (9,973)	Morocco (2,659)	Sierra-Leone (584)	Argentina (14,363)	Morocco (4,227)	CAR (708)
Lithuania (9,278)	Solomon Islands (2,641)	Uganda (574)	Russia (14,183)	Fiji (4,178)	Niger (653)

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1992			2010		
Argentina (9,155)	Georgia (2,629)	Malawi (556)	Chile (13,596)	Indonesia (3,880)	Liberia (376)
Turkey (8,269)	Albania (2,573)	Burundi (500)	Gabon (13,504)	Congo (3,808)	Burundi (366)
Uruguay (8,044)	The Philippines (2,426)	Congo (477)	Malaysia (13,214)	Mongolia (3,620)	Congo (311)
The Caribbean (7,923)	Indonesia (2,270)	Ethiopia (432)	Latvia (12,948)	The Philippines (3,560)	
Lebanon (7,802)		Mozambique (377)	Uruguay (12,655)	Honduras (3,519)	
		Myanmar (363)	Lebanon (12,621)	Cabo Verde (3,476)	
		Liberia (284)	Turkey (12,547)		

Source: compiled by the authors using the World Bank database World Development Indicators (WDI).
Obs.: the table gives the values of GDP on PPP basis in dollars, as of 2005 .

The selected 150 countries were arranged in the ascending order according to their per capita GDP on PPP basis (in the prices of 2005) as of 1992, further on they were divided into seven clusters.[4] The obtained clusters were analyzed in terms of the average per capita GDP of a cluster, the spread of this value inside and across clusters (variation index was employed as a measure of spread).

TABLE 2
Borders of clusters in 1992 (in int. dollars) and the number of constituent countries

Cluster n.	Borders of clusters as of 1992	Number of countries in the cluster
1	Over 25,000	15
2	From 15,001 to 25,000	15
3	From 10,001 to 15,000	11
4	From 5,001 to 10,000	30
5	From 2,251 to 5,000	27
6	From 1,251 to 2,250	20
7	Under 1,250	32

Source: compiled by the authors using the World Bank database World Development Indicators[5].

Over the period of 1992-2000 world economy grew by 16% per capita, and by another 25,2% in 2010 (which totals 45% over the entire reviewed period). The borders of clusters for the years 2000 and 2010 shift proportionally to growth rates of the per capita GDP on PPP basis, in the prices of 2005 (by multiplying all borders by 1.45). Thus, both the composition of the clusters

4. The borders of clusters in the year 1993 were defined on the principle of maximum distances between relatively dense groups. In other words, the density of countries along the scale increases towards the middle of clusters, rather than their borders.

and their borders change for each of the three points. In shaping the clusters we attempt to distinguish the convergence factor from a simple increase of the average per capita GDP (table 3).

TABLE 3
Borders of clusters (in int. dollars) and the number of constituent countries

Cluster	1992			2000			2010		
	Borders		Number of countries	Borders		Number of countries	Borders		Number of countries
	Lower	Upper		Lower	Upper		Lower	Upper	
1	25,001	-	15	29,012	-	19	36,305	-	9
2	15,001	25,000	15	17,407	29,010	14	21,784	36,304	24
3	10,001	15,000	11	11,605	17,406	8	14,523	21,782	8
4	5,001	10,000	30	5,803	11,604	28	7,262	14,522	34
5	2,251	5,000	27	2,612	5,802	27	3,269	7,261	27
6	1,251	2,250	20	1,452	2,611	22	1,817	3,267	17
7	0	1,250	32	0	1,451	32	-	1,815	31

Source: compiled by the authors using the World Bank database World Development Indicators.

The presented analysis is targeted at looking into the question of presence of sigma-convergence (marking a transitional reduction of the spread of the countries' development level) between and inside country groups. The reviewed period of time of 1992-2010 is relatively short, simultaneously, in a number of selected countries this period was marked by a severe crisis.

3 CLUSTER ANALYSIS

Clusters play a significant role in our analysis, since they enable us to look at global growth broken down into country groups, which means maintaining an individual approach to analysis (without aggregating continents and other). Developed countries have notably increased their GDP level (with relatively an insignificant growth in percentage points) and reached the average level of 40 thousand dollars of PPP (according to IMF calculations). This is a remarkable threshold for countries with developed market democracy. Rising deviation in the other six clusters is indicative of the inhomogeneity of growth existing in countries with a similar entry level in 1992. The growth becomes evident – further on we can analyze the correlation of the existing situation with savings ratios, factor productivity, and, eventually, institutional factors, which have sustained high savings ratios and productivity growth for over two decades.

In our test, if countries grow much faster (or more slowly) than the global economy, they shift to other clusters. In this case vast transitions across clusters are obvious (table 4). As of 2010, three lower clusters embrace two thirds of the

population, 75 countries and over a quarter of GDP, since China and India shifted to upper clusters but remained in the frames of this part of the world: fast growth does occur, but there are no miracles in economy. Cluster 4 (with the limits of 7.26-14.52 thousand dollars) grew by all parameters, but there remains a drastic gap between the former and clusters 3 and, the more so, cluster 2. Clusters 3 and 4 are of the greatest interest for us (they encompass the greater part of countries with transition economy, and Russia).

TABLE 4
The results of ranking the composition of clusters and border shifts in 2010

Cluster N.	Number of countries in the cluster		Coefficient of variation of per capita GDP on PPP basis inside a cluster, %		Average value of of per capita GDP on PPP basis inside a cluster, international dollars		Share of the global population, %		Share in the global GDP in the prices of 2005, on PPP basis	
	1992	2010	1992	2010	1992	2010	1992	2010	1992	2010
1	15	9	36,3	21,9	31 848	47 298	10,1	5,2	44,1	22,4
2	15	24	12,6	14,7	21 303	29 559	5,3	9,1	17,6	28,2
3	11	8	16,1	12,7	12 203	18 092	6,1	1,5	9,7	2,8
4	30	34	14,7	19,3	7 212	10 889	10,6	14,5	11,3	16,4
5	27	27	22	21,7	3 442	4 940	9,6	28,7	4,3	17,7
6	20	17	13,3	15,4	1 728	2 431	27,9	26,1	5,8	7,6
7	32	31	34	35,8	801	1 082	26,6	10,8	4,1	1,3

Source: compiled by the authors using the World Bank database World Development Indicators.

The transition crisis was acute, but the countries of Central and Eastern Europe managed to swiftly overcome it – before 2000. The year 1992 did not see the lowest point of this crisis in the majority of post-soviet countries. Thus, the severe Russian crisis (minus 43% of GDP) in the 1990s is mainly "hidden" inside the period and manifests itself in the loss of the level of development, which Russia did not manage to achieve by 2010. Naturally, over the period of 2010s the countries of the former USSR mostly recovered from the transition crisis and in some degree improved their standing in the global scale. Specifically, by 2000 Russia first moved from cluster 3 (1992) to the middle of cluster 4, and later on ascending to its top over the period of 2000s. We realize that there was no significant investment upturn in the post reform period, but the effect of growing oil prices shifted growth in the center of the scale and sustain upward movement of the Russian economy. In practice, the country is close to returning to cluster 3 in the coming years. Currently, this cluster is mainly composed of Central and Eastern European countries with transition economies (see table 1).

A key role in this analysis is played by the 1,45-fold increase of cluster limits in line with the global growth of per capita GDP on PPP basis. Naturally, the share

of two upper clusters in the global GDP declined by approximately 10 percentage points for the benefit of cluster 3, to which China moved. 48 countries, one third of the reviewed selection, remain in the lower two, truly poor clusters. There was a certain increase of the number of countries in two upper clusters; however, their share of the world population declined. Yet, here it is important to mention a redistribution of the number of countries and the share of GDP across clusters 1 and 2 – cluster 1 has shrunk to 22,4% of GDP and nine countries, which survived the 21st century growth race.[5] This is a new pattern, with clusters shrinking at the extremes of the scale of countries, ranked by their per capita GDP.

Inter-cluster shifts entailed changes in the ranking – the homogeneity of countries inside clusters. There was a sharp slump of variation in the majority of clusters. Correspondingly, it is conceivable, that in clusters from the 2nd to the 6th variation is also relatively small. Let us mark here, that in 2010 the gaps between arithmetic average values of per capita GDP across clusters suggest larger incremental disparities. In practice, the proportion between average level of adjacent clusters (for clusters from the 7th to the 3rd) is 2:1. Each group of countries sets its own development objectives. Doubling per capita GDP in real terms is an objective of at least two decades, if not a generation. This gives us more credible parameters of the future world, rather than just real GDP growth rates of aggregated groups (OECD, BRICS, UN and other). Determining the nature and paces of development depend primarily on the national socio-economic problems. Simultaneously, this is also a matter adapting socio-political institutes to ensure sustainable growth.

At the same time the disparities between clusters are growing, the scale is stretching. The 7th cluster hosts 31 countries with an average per capita GDP of 1,082 dollars (compared to 801 in 1992). The average proportion of per capita GDP of the 1st and the 7th clusters grew from 40 to 43.7 times, while regarding absolute values – from 31 to 46.2 thousand dollars the gap even between the 1st and the 6th cluster totaled 44.6 thousand dollars. Thus, poor countries are growing as well, but dozens of countries still remain behind, with nine countries having reached the average (non-weighed) GDP of 47.3 thousand dollars (the average value was largely influenced by Norway, see table).

4 THE PROBLEM OF CONVERGENCE

Cluster Analysis is the analysis of separate sets of countries. However, the convergence, if any, should first of all be observed among neighboring countries (based on the ranges of per capita GDP). The variations within the clusters as well as among them give a

5. Let us specify that in clusters of the year 1992, countries were ranked at an interval, since their shifts to other clusters stemmed from inhomogeneous shifts inside clusters.

certain insight into the range of values. However, it is more interesting to observe the "sliding variation", which shows the range of per capita GDP based on PPP in a fixed size group within each year. Such sliding variations were reviewed for the years 1992 and 2010.[6]

To calculate sliding variation we worked with a fixed size group of thirty countries (chosen according to the sizes of the most numerous clusters). On average it equals the size of one or two clusters, which is enough to attempt to detect convergence. At a shorter interval (10-15 countries) the deviation among neighboring countries would be less significant (and slightly closer to the sizes of numerically smaller clusters). Yet, we assume that the notion of convergence is wider than that among several neighboring countries. It is obvious that at an interval of thirty countries we slightly "even the variation", which is mostly important when the calculation of another variation doesn't involve the cluster itself, but large parts of adjacent clusters (i.e. several heterogeneously formed objects).

The graphs presented in the picture reflect the obtained results for a selection of 150 countries for the years 1992 and 2010: the position of each point is defined by the value of variation in a group of thirty countries and the average per capita GDP on the basis of PPP for the same group. Each following point reflects the value of the stated factors for the first group of countries, which is changing at a certain interval. At the same time the average value of GDP per capita in a group of 30 countries is in reality very close to the median of each group. In order to interpret it we chose the abscissa coordinate, which equaled the absolute values of per capita GDP based on PPP of the 15th country in each group of thirty countries, on condition that the countries are ranked according to the indicator value.

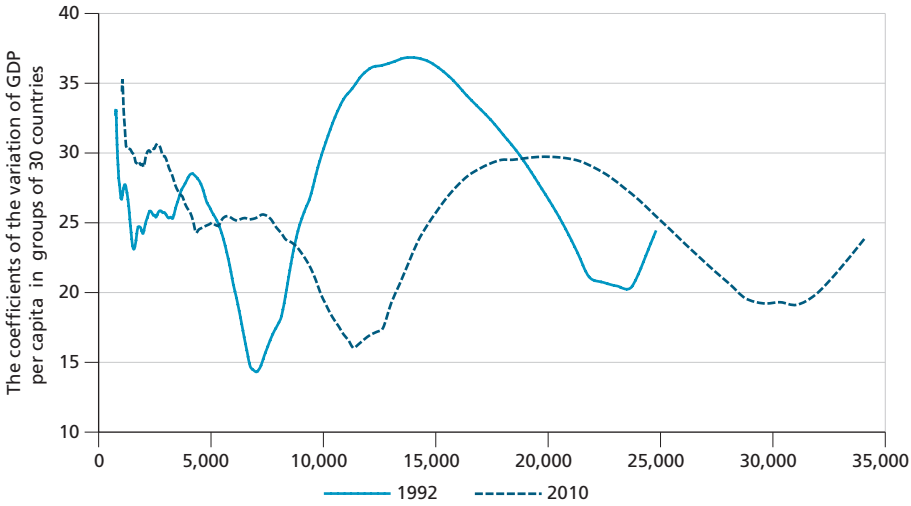
In 1992 China was the median for the 104th group made up of thirty countries with the level of per capita GDP based on PPP of 1,338 dollars, while in 2010 it became the median for the 64th group made up of thirty countries with the level of per capita GDP based on PPP of 6,816 dollars. Russia in 1992 was the median for the 26th group, while in 2000 it turned to be the median for the 40th group, but by 2010 it rose to the median of the 29th group.

The applied approach shows the degree to which the neighboring countries (in sliding groups of thirty) are scattered at the rate of an average variation (the average variation coefficient of thirty). We can analyze the data along the graph arranged according to the increase of per capita GDP in 1992 and 2010, as well as among themselves.

6. Calculations were made for the selections of 150 and 133 countries. No sizable difference was found, the coefficient of correlation of the drawn up ranges came up to 0.82, and curves are similar.

GRAPH 1

The average values of per capita GDP in groups of 30 countries



Source: the authors used the World Development Indicators (WDI) database of the World Bank.

The Difference in the Degrees of Development of 150 World Countries in 1992 and 2010.

NB: The 150 countries under consideration were ranged according to the increasing level of GDP per capita. The ordinates of points in both graphs are the coefficients of the variation of GDP per capita in groups of thirty adjacent countries for the corresponding year (the vertical scale). Altogether there are 121 points in each graph. It is the sliding coefficient of variation at an interval of one country (for thirty countries). The abscissas of the graph points are the average values of per capita GDP in the same arranged groups of thirty countries, whose composition wasn't changed, at the same interval of one country (the horizontal scale).

The first graph of the average variation (1992) revealed the following: the minimal variation is observed around $7,000, and the maximal variation is observed in the range of $12,000-17,000, which later increased to $20,000-25,000 on average. These findings give a better idea of deviation than the cluster analysis, where countries were organized in comparatively small groups.

The same test for 2010 gives even a better view of this problem. For less developed and most developed countries there's a considerable increase in deviation, which reflects uneven growth at the extremes of the scale. While arranging the line of 150 countries according to the value of GDP per capita in 2010 we can observe a visible decrease in the rate of sliding deviation within the range of $12,000-30,000.

Generally it shows that the development of countries with similar initial conditions is uneven. They may not only migrate to other clusters, but may also reposition themselves along the scale (which is neglected in the cluster analysis). Eighteen years later the countries significantly changed their positions along the scale. These data mainly allow us to state the fact that the current median countries (a different set of countries) are closer to each other than the median countries eighteen years ago.

The problem is whether it can serve evidence of the convergence of countries. We assume it possible that there is a certain tendency of convergence among middle--developed and developed countries. To clarify the situation we would like to point out that in 1992 it was not necessarily neighboring countries, which converged. On the contrary, the diversity in the structure of assets and quality of institutions, as we can see, fosters considerable diversity in the growth rate at an interval of several years or even a generation (eighteen years in terms of the same regime). Our analysis shows a tendency to convergence, but the conditions of development are changing. During the next period there may be an increase in development of other countries and a further decrease in deviation. The reason why this approach is important for more general problems of development is that within the range of $12,000-30,000 countries are evidently prone to a dangerous period of instability in their history; they might become economically, socially and politically closer.

For least and most developed countries (in both poles) the situation is vaguer. We could sooner say that the period under consideration is characterized by the stratification "on top" and "at the bottom" of the stairs according to the levels of GDP per capita. The world became more diverse, but the reasons for such development are more complicated.

Even within the stated range there was no significant decrease in deviation during two decades. The problems of growth in less developed countries are widely debated, but they are beyond the framework of our analysis. The next article considers the factors that could be relevant for the most developed countries (clusters 1-2).

5 "CULTURAL CODES" AND THE GROWTH OF THE LEADING COUNTRIES IN 1992-2010

Cultural factors are considered by some researchers to foster modernization of countries alongside with economic factors. In our opinion, their role is really significant, especially for those sectors of countries, which form the basis for social and cultural institutions. A. Maddison divided countries into two groups according to high (A) and low (B) developmental trajectories. He considered the following countries to have the high developmental trajectory: the countries of Western Europe, the United Stares, Canada, Australia, New Zealand and Europe. Despite evident technical difficulties of the statistical analysis, we think it is important and interesting to see

how cultural factors unite a part of countries on the basis of institutions and how they influence the processes of convergence of developmental levels.

We believe that cultural factors of the institutional development do not necessarily have the same impact on the countries which got to trajectory A (further on – "A-countries"), i.e. countries with stable development over a long period of time (stable development in this case is accumulation of tangible and cultural assets, and income growth). Consequently, we don't aim at confirming the obligatory predominance of the A-countries in development momentum if there are all necessary institutions. We assume that the fixed institutional predominance of trajectory A countries should be observed within the relative group of countries. This advantage should have had a certain impact in the 1990s, which created favorable conditions for development, as well as in more intensive, though far more turbulent conditions of the 2000s.

The "Cultural Factors of Modernization" report presents the results of calculations based on statistical tables by Angus Maddison, which include the data on the per capita income of countries since the beginning of the 20th century. It reveals the direct relations between the quantitative social and economic indicators of the economic development of society of a certain country and the dynamics of its fundamental values. Approaching the stable trajectory of economic development is accompanied by an increasing trust of citizens towards authority, increasing status of self-expression and self-realization values, increasing responsibility for one's own fate. The more widespread these values are in the society, the more stable the trajectory of economic development is. And vice versa, the less the elite works with the value system of the society, the fewer chances there are for the transition of the economy to trajectory A. The report presents the following three groups of countries, which were defined on the basis of the undertaken analysis:

1) Countries which got to the modernization trajectory of development (trajectory A) already at the beginning of the 20th century (Australia, Austria, Belgium, Denmark, Canada, Finland, France, Germany, England, Ireland, Italy, the Netherlands, Norway, Sweden, Switzerland, the United Stares).

2) Countries which came to trajectory A in the second half of the 20th century (Hong Kong, Japan, South Korea).

3) Countries which haven't so far reached trajectory A and which still follow the developmental pattern of the "lower" trajectory B.

The selection of 150 countries considered in the present article includes all the listed modernized countries (present in trajectory A) except Taiwan. The framework of our test enables us to follow how this set of countries transfers from one cluster to another in the period of 1992-2000. The boundaries of clusters, defined for the

year 1990, change due to the growth of the world GDP. Basically this test is aimed to verify the supposition that usually (if not always) the "A-countries" grow faster than the rest of the world or other trajectory B countries. Literature (A. Maddison in particular) does not present any generally accepted division into groups, but for the purposes of our research we use the group which is mentioned in the "Culture" project. Even though it might be incomplete, it surely includes the majority of the "A-countries" and definitely only the countries of this group. So our objective is to form a control group out of the countries which are the closest in terms of their development. The database of "the whole world" cannot be considered reliable for comparison as there is a group of rapidly growing countries with a low initial level. In this analysis we use two sub-periods: 1992-2000 and 2000-2010. Basically we would like to get an answer to simple questions.

Hypotheses on the problem:

1) There is "the eternal predominance" of trajectory A countries, which continue their rapid advancement as opposed to the world countries and the control group (defined below), and which converge.
2) Four countries (Hong Kong, Japan, Singapore, South Korea) are approaching them.
3) The control group is catching up with them due to some factors.
4) The countries of the control group also converge as they grow at the comparable level.

Below we present the division of the "A-countries" group into clusters (per capita GDP on the basis of PPP in international dollars of 2005). In 1992, twelve out of twenty "A-countries" were in cluster 1 (Norway, Switzerland, the United Stares, Germany, Japan, Singapore, the Netherlands, Austria, Hong Kong, Denmark, Canada, Belgium), seven countries were in cluster 2 (France, Italy, Sweden, Australia, Great Britain, Finland, Ireland), one country was in cluster 3 (South Korea).

In the year 2000 cluster 1 had fifteen countries (Norway, the United Stares, Singapore, Switzerland, the Netherlands, Ireland, Canada, Austria, Denmark, Belgium, Germany, Hong Kong, Australia, Sweden, and Great Britain), cluster 2 had five countries (Japan, France, Italy, Finland, South Korea).

There happened considerable changes during the first quite successful decade of the 21th century. In 2010 there remained only six countries in cluster 1 (Singapore, Norway, the United Stares, Hong Kong, Switzerland, the Netherlands), and there were fourteen countries in cluster 2 (Ireland, Austria, Canada, Australia, Sweden, Germany, Belgium, Great Britain, Denmark, Finland, Japan, France, Italy, South Korea).

Some countries demonstrated rapid upward movement across or inside clusters over the reviewed period (Ireland, Australia, South Korea), but some countries have lost this position. Others remained in the 1st cluster throughout the entire period under review (Singapore, Norway, the United Stares, Hong-Kong, Switzerland and the Netherlands). Arguably, the latter are of greater interest for our study due to the specificity of their cultural codes, as only Norway had the benefit of imposing high oil and gas prices.

TABLE 5
Average GDP growth of "A-countries" against global growth and the control group

Growth of average per capita GDP on PPP basis, %	Year 2000 to 1992	Year 2010 to 2000
For sixteen countries	23.7	12.8
Control group	21.7	20.8
All countries of the world	16	25.1

Source: compiled by the authors using the World Bank database World Development Indicators.

A comparison of growth rates of the average per capita GDP on PPP basis for twenty countries with A-trajectory and countries of the world (table 5) reveals, that growth in the group of countries with A-trajectory was largely inhibited in the environment of the growing global average value. We are not questioning the fact, that over the last decade a number of countries took on the A-trajectory – mainly, they are Asian countries, which had long been under direct American control. The question is how closely this related to cultural codes of the European civilization. Before a definite moment American military presence reduced military outlay and administration costs; it also provided "support" of the liberal regime. This can not be treated as a "credible experiment" of shifting to the A-trajectory. Singapore made a huge leap in the 55 years when it was under the leadership of the Lee Kuan Yew. However, the notion of cultural codes is not obvious, as this is the only country in the reviewed selection which can be referred to as a democracy, to "hybrid regimes" (5.88 points in the 10-point scale in the year 2012). We deem it important to compare the development of sixteen countries, (without Japan, Singapore, Hong-Kong and South Korea) which took on the A-trajectory in the beginning of the 20th century with other countries, given an equitable level of development.

Table 6 contains average values and variation of GDP for a group of sixteen countries (A-trajectory countries exclusive of four Asian countries). To compare the dynamics of the group of 16 A-trajectory countries, a control group was selected. It includes fifteen countries, which are in immediate proximity to the reviewed group by their per capita GDP on PPP basis, as of the year 1992. The control group is composed of countries, which rank highest according to their per capita GDP as of 1992 and belong to the European civilization, to shut out the factor of "alien codes".

It comprises Iceland, Spain, Cyprus, Israel, Greece, Portugal, Malta, Check Republic, Gabon, Slovenia, Hungary, Mexico, Slovakia, Croatia and Argentina.

TABLE 6
The dynamics of GDP values for different groups of countries

Indicators	1992	2000	2010	2010/1992
For 16 countries Average value of per capita GDP on PPP basis, thousand dollars	25,920	32,072	34,860	1.34
Variation of per capita GDP on PPP basis	15.9	13.8	13.5	-
For the control group Average value of per capita GDP on PPP basis, thousand dollars	15,024	18,279	22,075	1.47
Variation of per capita GDP on PPP basis	29.3	31.6	26.1	-
For the group of 4 countries Average value of per capita GDP on PPP basis, thousand dollars	23,295	28,791	37,820	1.62
Variation of per capita GDP on PPP basis	29.7	27.5	29.9	-
Reference: Variation of GDP across 20 countries	18.5	16.6	17.7	-

Source: compiled by the authors using the World Bank database World Development Indicators.

Thus, the average value of per capita GDP on PPP basis in the control group is initially lower than in sixteen countries of the A-trajectory. The group of A-countries grew more slowly; the spread inside both groups had narrowed by 2010, though not so significantly, as to qualify it a reverse of the trend. Let us also make a more detailed comparison of the sixteen countries and the control group according to their average per capita GDP on PPP basis (see table 5).

The obtained values of variation of per capita GDP on PPP basis give evidence that this value is declining in the group of sixteen countries, while no such trend is observed in the control group. However, the above values do not suggest the superiority of "A-countries". To test the second hypothesis we calculated the average value and variation of GDP on PPP basis for four Asian countries and for the sixteen countries, as well as variation in both groups (table 6). The value of variation inside groups demonstrates, that the period of 1992-2000 was marked by a considerable mutual approximation of the groups, with the "group of four" outrunning the main group in the average per capita GDP namely in the second sub-period. At the same time, there were no significant changes to the general gap.

The control group grew faster than "A-countries" (but more slowly, then the world in general) and acquired greater homogeneity, nonetheless, regarding homogeneity, it did not catch up with "A-countries". More importantly, the control group came short of average growth rates, but notably outperformed "A-countries" namely in the period of 2000-2010.

Previous analysis showed lower convergence on the extremes of the scale of 150 countries over the reviewed period. Nonetheless, the deterioration of the first cluster in the first decade of the 21th century is rather an unexpected fact. The countries, which shifted from cluster 1 (as of 2000) to cluster 2 in 2010 are: Ireland, Canada, Austria, Denmark, Belgium, Germany, Australia, Switzerland, The countries which remained in cluster 1 in 2010 are Singapore, Norway, the United Stares, Hong-Kong, Switzerland, the Netherlands. It is obvious, that with but few exceptions (the Netherlands remained in cluster 1, while Canada left it), almost all "A-countries", which have lost their position in the first cluster are European Union countries. Moreover, this does not apply to the United Stares, which had been over almost the entire period, and suffered an acute crisis at the end of it. Since the slowdown only affected a number of the countries, which is evident from cluster analysis described above, we still can not discuss the reasons for the "slowdown of growth past the threshold of 40 thousand dollars" – a more detailed study is necessary. One remark needs to be made: in the European Union similar slow-downs has recurred starting from the mid 1970s. This phenomenon is described in a work of Morice Alle, a Nobal laureate in economy. The slow-down under review took place in the 21st century and coincided with the introduction of Euro and the ensuing expansion of the European Union. Both dramatic steps were made chiefly to promote growth. However, heavyweight European economy, which stretched from fifteen to 27 countries, boosted growth far not in every country.

6 CONCLUSION

Summing up the results of our analysis, the following conclusions can be made: 1) "A-countries" ranked slightly lower than the control group and the rest of the world by their growth rates; 2) a small group of countries takes on the A-trajectory with the above mentioned exceptions; 3) arguably, among macroeconomic parameters of the control group countries we can distinguish growth factors, which allowed the group to verge towards "A-countries" – most likely, a more detailed analysis will show, that this is a higher rate of saving; finally, 4) as expected, the control group remains highly inhomogeneous, its approximation by the level of per capita GDP is in progress, but at rather a slow pace.

The carried out analysis points out a tremendous progress in global development within the period of 1992-2010. Many countries advanced sizably in their development, especially in clusters 4-6. The analysis allows one to speak, though with care, about the trend of convergence in the range of 12-30 thousand dollars of per capita GDP on PPP basis. At the same time over these years the scale "stretched" and world become more inhomogeneous on the extremes of the scale ranked according to per capita GDP. The impairment of growth of A-trajectory countries in the 21st century, as compared to the control group

and the rest of the world, poses additional questions and proposes a more complex analysis, which is necessary to get grasp the character of development of the most advanced countries of the world in the 21st century.

The conducted research needs to be complimented by more general remarks. In the first place, there is no simple evident answer to the question of annealing of global development level – the situation is more complex. Certain effects of approximation in the center of the scale of countries (covering eighteen years) are paralleled by a growing diversity, especially on the extremes. Finally, (as food for thought), there remains the problem of overstepping perhaps the most baffling barrier: to the medium level (nominally, from the 5th to the 4th cluster) and from the medium level of development (nominally, from the 4th cluster to 3rd cluster and above) to sustainable developed market democracy. The realities of rapid growth in a relatively favorable period of global development in 1992-2010 demonstrate what overwhelming difficulties we need to overcome on the way to socio-economic development. In this context Russia remains in the difficult 4th cluster – the trap of the medium development level.

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CHAPTER 5

BRICS' PROMISE TO DECOLONIZE INTERNATIONAL DEVELOPMENT: A PERSPECTIVE

Siphamandla Zondi[1]

1 INTRODUCTION

The BRIC emerged in 2009 as a platform for interaction, dialogue and alliance between countries considered to be emerging global economic powers and was only partly what Goldman Sachs anticipated in 2003, when they predicted that Brazil, Russia, India and China (BRIC) would become major economic powers. But the BRIC, and later BRICS, forum was much more than anticipated; it was a significant geopolitical platform for global reform. It immediately became a focus of all those hoping for an impetus to the global push for reform of institutions of global governance, principally the United Nations Security Council, IMF and the World Bank. These countries have taken advantage of the size of their populations, land area and opportunities in the world economy to achieve economic significance on a global scale. This and their development agenda could help decolonize the world economy, from one in which the North Atlantic is the prosperous centre and a largely poor periphery with a sprinkling of States in-between (the semi-periphery). This is the colonial power matrix that Anibal Quijano calls coloniality that BRICS may help transform the coloniality of international development whose genealogy includes slavery from the 15th century, the civilizing mission of the 19th century, development aid of the 20th century and now development partnership.

Because the historical context of the BRICS can be traced to the agency of the periphery in the form of South-South solidarity and alliances that have challenged the hegemony of the North Atlantic in the world system since 1950s, the BRICS' normative framework on international development is well developed for it to embrace fully, being epitomized by the ideas of collective self-reliance, endogenous development and solidarity. Both its position on the current discussions on international development in respect of the post-2015 development agenda debate code-named "The World We Want" and the discussions on development effectiveness through the High Level Forum on Development Effectiveness, on the

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one hand, and the potential role of the BRICS Development Bank, suggests that the BRICS may cause a reset of the idea (and perhaps even practice) of international development. This paper suggests that on this basis the BRICS has a potential to transform how we think about, discourse on and practice international development.

2 ON BRICS AGENCY ON DEVELOPMENT EFFECTIVENESS

With new power has come a new measure of global responsibility for BRICS countries, especially in respect of resolving the problem of elusive development for the marginalized people within BRICS and for the people of the global periphery in general. It is an expectation that true to the age-old southern spirit of solidarity and collective self-reliance, BRICS countries will use their wealth and voice to promote a significant change in the nature of global developmental partnerships. Opportunities for responding to this imperative lie in the areas of generation of ideas about alternative or better ways of responding to the underdevelopment question as well as in the form of practical interventions through effective and concerted development cooperation. This paper argues that with increased diplomatic clout, the BRICS have a precious opportunity to change the discourse going on today through the UN High Level Forum on Development Effectiveness, by focusing it back to questions of ownership and alignment of assistance with national priorities and efforts.

The conference of the High-Level Forum on Aid Effectiveness (HLFAE), which has become known as the Busan or post-Busan process, had its major meeting in November 2011 to negotiate and agree a new approach to partnership with regard to international development, covering both the traditional aid modality called North-South cooperation and the growing one of South-South cooperation. The conference was a culmination of previous attempts to redefine the manner in which development aid was designed and delivered, beginning with the Millennium Declaration in 2000 that adopted the eight MDGs with the eight being global development partnership or aid; the UN Conference on Financing for Development in 2002 that shifted the focus of discussions from the quantum of aid to its quality; Rome conference in 2003 that agreed principles for harmonization of aid; the Marrakech Roundtable on Managing for Development Results in 2004 that agreed principles regarding impact of aid; the 2005 Paris Declaration where principles for aid effectiveness were adopted; and the 2008 HLFAE in Accra, Ghana, which translated all the above commitments into an action plan called the Accra Agenda for Action.

The Busan conference saw strong activism on the part of developing countries as they sought to shift the initiative in these important discussions from the Organization for Economic Cooperation and Development (OECD), which represents the interests of donor countries, to the global South where most

beneficiary countries are found. The OECD had conceptualized and convened HLFAE since 2003, seeking to ensure that the agenda in the reform of global partnership generally and aid in particular remained in the hands of traditional donor countries. Although, the OECD or donor countries recognized the need to grow the voice of beneficiary or developing countries from 2005, this had not led to improvement in the quality of developing country participation. A key challenge is this regard was the fact that they remained agenda takers rather than agenda setters. In spite of the change in the language of these dialogues from donorship to partnership and from aid to development, the underlying logic of unequal relationship and power asymmetry continued to undermine the quality of the dialogue. In this sense, lacking the immense power of knowledge, technical expertise, negotiation capacity, facilities and resources, developing countries remained junior partners in what was marketed as a horizontal dialogue. For example, donor countries took the responsibility for monitoring implementation against the twelve performance indicators set in Paris and elaborated in Accra, giving them power to assess themselves as having made progress and also to judge the compliance of developing countries. The OECD and a host of western institutions remained repositories of knowledge and data used to make these judgments, thus exercising control over the direction that ideas of development would go.

Developing countries have approached Busan with great confidence and a sense of urgency because the development landscape has changed. The impact of development cooperation between countries of the South had started to show as early as the mid-2000s. Big developing countries like Brazil, China and India had helped alter the model of aid in the South-South direction. Individually, these and many other emerging powers had provided alternative sources of development finance, aid and technical assistance that remained invisible in the eyes of the OECD that had for decades tracked traditional North-South development aid. This had an impact on the tenor of discussions in Accra already as consensus developed around the South's idea of development effectiveness rather than aid effectiveness. It was not only that the former expanded the focus beyond aid to investment, trade, debt relief and so forth, but also that this was to recognize the model of development partnership that south countries represented, which was, as the South Commission Report of 1990 put it, about "growing self-reliance both in individual and collective" and that "the base for a nation's development must be its resources, both human and material, fully used to its needs". The same Report said while traditional aid has the capacity to lead to development thus defined, it could only do so if it is "integrated into the national effort and applied to the purpose of those it is meant to benefit".[2] Secondly, the South understood development to

2. South Commission, 1990. The Challenge of the South, p. 10-11.

imply freedom and self-determination. It must be designed to build the capacity of South countries and peoples to determine their destinies rather than mere to catch-up with others or to mimic them. It thus understand that development as conceived within coloniality was unfreedom, it was what Walter Rodney called underdevelopment of developing countries and prosperity of developed countries.

The BRICS positions since its inception in 2009 has been to call for the full implementation of the MDGs especially Goal 8 on global partnerships. This position is meant to put pressure on the global North to honor its commitments in 2000 to increase aid flows to developing countries to correct the structural and historical inequalities in development. The donor countries also committed to provide additional support for the special needs of the least developed countries, landlocked countries and small developing States. Through Goal 8, developed countries also committed to develop open, rule-based, predictable, non-discriminatory trading and financial system or to avert protectionism that has been blamed for the asymmetric trade balance between the North and the South and for imposing constraints on the South's exports to developed country markets. The goal also included a commitment to ensure reduction in the developing countries' external debt, a major binding constraint to their economic self-reliance. Lastly, developed countries also committed to ensure technology transfer to developing countries on the understanding that technology was an enabler for economic growth and for development.[3] Every single BRICS declaration insists on full implementation of these commitments, thus reminding the global North of their responsibilities for building a global development partnership and suggesting that they are to blame largely for the failure of this to materialize.

Sensing that the Western financial crisis from 2008 might cause developed countries to reduce their aid flow and thus renege on these commitments an additional emphasis is made in BRICS summits and by individual country statements especially at the G20 and the UN General Assessment that there should be no reduction in development aid to poor countries. As it said in its Second Summit in Brasilia in 2010, this was a matter of solidarity seen as strategic for global political and economic stability.

Secondly, BRIC countries commit regularly to improve their provision on the individual country basis of development partnership and international humanitarian assistance, especially in response to food crises. It is important that true to the thinking of the South represented by the South Commission Report quoted above, BRIC (now BRICS) do not call their efforts aid or development assistance, as this represents the paternalistic paradigm of assistance that has characterized the conduct of donor countries, neither do they regard

3. See UN Millennium Development Goals. Avalaible at: <www.un.org/millenniumgoals>. Accessed on: 22 Feb. 2014.

themselves as donors for the same reason, but they prefer development partners and partners. They see themselves as being solidarity with the affected peoples rather than as saviors.

Thirdly, BRICS see development finance by development banks like the World Bank and regional banks as essential for the solution of the scandal of underdevelopment on the periphery. They have pushed the matter of non-diversion of resources away from developing and emerging countries as the World Bank became heavily involved in containing the economic crisis in Europe.

3 WHAT TO MAKE OF ALL THIS?

Clearly, BRICS countries have become important actors in the on-going efforts to shape a new global development partnership agenda or international development, as it is commonly known. Four conditions seem to be crucial for BRICS' potential impact on this agenda to materialize.

The first is the point that intra-BRICS development partnership is one of the fast growing focuses of BRICS countries as ministerial meetings designed to flash out the BRICS agenda with regard to a few areas of social/human development, trade and investment and science and technology.

The second is the ability of the BRICS to play a catalytic role in global dialogues and negotiations, one that draws also from the collective wisdom of the many developing countries.

The third is the concrete demonstration of solidarity with less developed countries to enable them to achieve collective self-reliance. The proof of the pudding of the BRICS development agenda is in how it conducts its development partnerships in ways less constraining, less patronizing, less subordinating than what developing countries have become accustomed to in their experiences of the OECD approaches to development assistance. The BRICS' commitment to the Paris Declaration, Accra Agenda for Action and Development Effectiveness should be shown to be superior and more genuine than what we have seen from the OECD.

Fourthly, the BRICS will also have to harness the unique experiences of developing countries and regional initiatives designed to find alternatives to coloniality of so-called development assistance to build its knowledge-based and wisdom to effectively shift the geography, geopolitics and bio-politics, of knowledge underpinning international development.

To fulfill the promise of decolonial development, BRICS need greater internal cohesion regarding the various tracks of discussion at global level regarding the international development agenda. This cohesion must be that alignment in technical positions on this or that proposal, but it must be a more fundamental

convergence of ideological, theoretical and practical positions about the "the world we (in the South) want", to use the UN pay-off line for post-2015 discussions. Such a fundamental consensus would, of course, build upon the age-old South consensus on three pivotal principles: collective self-reliance, endogenous development and solidarity

The BRICS forum could buttress the heritage of thought generated by dialogues in defense of development up to Busan, while also propagating comprehensive approaches focused on achieving the above-mentioned principles. This would help in strengthening the solidity and cohesion of the South voice in these conversations that are increasingly being deliberately diluted by the power of Western institutions like so-called international NGOs, research institutions and intergovernmental organizations like the OECD.

The extent to which voices from below percolate within the BRICS countries themselves will determine whether these southerly voices are merely government and elite voices or whether they are truly a cacophony of voices from the peoples of the South. The diversity of these and even contradiction amongst them is not a weakness, but a strength, in that it would reflect the lived and historical experiences of a diverse people. Homogenization of any kind requires injustice, silencing and erasure of diverse experiences.

BRICS countries should consider establishing a platform for discussions focusing solely on development consensus within the organization and its positions on international development discussions. Such a platform would best be at a ministerial and senior official level, supported by academic and think tank forums, a meeting of development finance institutions and other stakeholders. It must consider among others the idea of creation of a council of development agencies of BRICS countries, enabling them to develop synergy and harmony in their response to the changing nature of global development partnership, thus helping to decolonize the discourse and practice in this area. Aid is dead, but its underlying ideology and logic remains alive in the new rhetoric of "development partners" and "strategic partnerships" where the so-called partners are not only unequal, but one dominates the other.

4 CONCLUSION

This paper has suggested that the emergence of BRICS countries and the growth of their forum have a potential to decolonize development, especially as this refers to collective self-reliance, endogenous development and solidarity. In order to make this case, this paper has provided a context for dissonance in the understanding of what development means and what implications that has on this idea of development partnership. We could have explored this latter idea more, as it may be more than

a change in rhetoric, but space did not permit. We have linked the development promise to the iteration of the idea of development as an alternative South agenda, its strengths and weaknesses. We use this as the basis for assessing the emerging messages on development within BRICS, both in response to the development effectiveness discourse.

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CHAPTER 6

DEFINITION, MEASUREMENT, EVALUATION AND INSTITUTIONAL DESIGN OF INTERNATIONAL DEVELOPMENT COOPERATION: THE CASE OF BRAZIL

Carlos R. S. Milani[1]

1 INTRODUCTION

Studies on North-South and South-South development cooperation have demonstrated that there are distinct types of historical experiences, with multiple domestic actors being involved and thematic agendas being reinforced based on different motivations, as well as various institutional designs conceived by governments in order to implement their strategies (Brautigam, 2011; Chatuverdi *et al*. 2012; Chisholm *et al*., 2009; Comeliau, 1991; Degnbol-M. and Engberg-P., 2003; Lancaster, 2007; Petiteville, 2001; Veen, 2011). Even within OECD/DAC countries, where institutionalization has gone further in terms of norms, assessment and peer-review monitoring, variety reigns and differences abound amongst governmental practices. This diversity of national trajectories as well as the lack of an institutionalized international development cooperation regime bring about obstacles, but also create opportunities in terms of political creativity and flexible management procedures (Vazquez, 2013). In the absence of a proper regime, countries can innovate in the field of rules, procedures, and practices; nevertheless, the lack of a consensus or a lowest common denominator may render statistical comparisons and collective building of norms very difficult in the international realm. That is the reality of North-South aid and South-South cooperation nowadays, as the impasse around the Paris-Accra-Buzan process has so far demonstrated. What is the current state of affairs as far as Brazil's international development cooperation (IDC) is concerned?

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2 OVERVIEW OF BRAZILIAN INTERNATIONAL DEVELOPMENT COOPERATION

In the particular case of Brazil, according to official data published by Ipea and ABC (2010; 2013), IDC increased from 160 million USD (2005) to approximately 923 million USD (2010); in this same span of time, technical cooperation expenditure was multiplied by four times, and humanitarian cooperation has also gained ground: from around 600 thousand USD (2005) to 161 million in 2010. ABC online database[2] reveals that amongst 1,464 concluded projects between 1999 and 2012 in other developing countries (South-South cooperation), 577 projects had been developed in South America, 552 projects were in Africa, 164 in the Caribbean, 90 in Central America, 65 in Asia, 15 in North America (Mexico) and 1 in Oceania (Papua New Guinea). Amidst these 1,464 concluded projects, 573 in social policies (health, culture, sports, social development, environment, education), and 539 in governance (public management and planning, urban development, justice, legislative capacity-building, defence and security).

Brazilian IDC is statistically conceived of as public expenditure under the Annual Budget Law's current spending; it does not include investment loans or debt write-offs, and grants are only exceptionally taken into consideration. There are two main types of public expenditures made by federal administration in international development cooperation: 1) payment of civil servants and eventual collaborators of the federal public administration (airline tickets, *per diems*, salaries; technical working hours, scholarships, grants); 2) financial commitments with multilateral organizations (Ipea and ABC, 2013, p. 14). The accounting system of the Brazilian IDC reveals a series of pros and cons. On the one hand, the statistical definition of IDC as being 100% concessional demonstrates a political will to go much further beyond OECD's definition of ODA, which requires a minimum of 25% of concessional funds. One could see through this statistical definition a political effort to revise a symbolic and conceptual dimension of what has been set up by DAC. On the other, Ipea/ABC studies do not take into account other funds and public sources, such as loans given by the National Development Bank (BNDES), the foreign debt write-offs or the activities implemented by sub-national entities within the Brazilian federation.

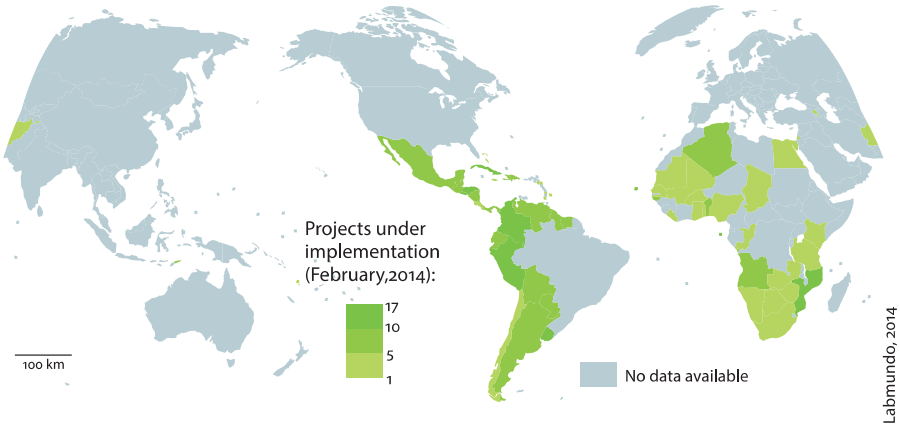
As the Ipea/ABC report on 2005-2009 IDC asserts, "a common definition of international cooperation was reached that served as an operational base for data collection, namely: the total funds invested by the Brazilian federal government, entirely as non-repayable grants, in governments of other countries, in nationals of other countries in Brazilian territory or in international organizations with the purpose of contributing to international development, understood as the strengthening

2. Available at: <http://www.abc.gov.br/projetos/pesquisa>.

of the capacities of international organizations and groups or populations of other countries to improve their socioeconomic conditions" (Ipea/ABC, 2013, p. 17). As the report itself acknowledges, "the concept of cooperation was formulated to guide the survey, bearing in mind the need to allow the comparison with traditional concepts used for nearly sixty years to quantify public international cooperation for the development of other countries. However, it is noteworthy that this concept is not aligned with the traditional definition of Official Development Assistance (ODA) of the OECD" (p. 17). Therefore, the effort made so far by the Brazilian government to promote transparency is an important step, even though reports need to be published more timely (the last report refers to 2010 data), and the statistical improvement for a more effective generation of accountability within Brazilian society.

Another aspect that calls our attention is the fact that technical cooperation accounts for 6.3% of total 2010 IDC budget, i.e., 57,770,554 million USD (Ipea and ABC, 2013, p. 18), whereas humanitarian assistance accounted for 17.5%, educational cooperation 3,8%, scientific and technological cooperation 2.6%, peace-keeping operations 36% and contributions to multilateral organizations 33.7% of the total budget. Technical cooperation is not a priority in terms of public expenditure, although it may be celebrated worldwide thanks to its flexible adaptability to local contexts in other developing countries. Indeed, particularly since the 1988 Constitution and all along the re-democratization years, civil servants and technical consultants have earned expertise in education, health, agriculture, culture, and public management, and have also gained suitable knowledge on the actual functioning of the domestic politics and the complex interplay among interest groups. Civil servants are the main agents of implementation of Brazilian IDC; they tend to be less expensive than national and international market professionals, and come from several institutions, ministries, and public agencies such as FIOCRUZ (public health) or EMBRAPA (agriculture). Their participation in Brazilian IDC has so far contributed to hinder the flowering increase of an "aid industry" in Brazil. Nonetheless, it is true that many civil society organizations end up being excluded from IDC projects and programmes. Viva Rio, Associação Alfabetização Solidária and Missão Criança are three cases of NGOs being currently involved in ABC's educational and humanitarian cooperation projects. Several Brazilian NGOs dealing with rights (human rights, women's rights, right to development, right to a safe environment, etc.) criticize the Brazilian government for what they label as a "participation deficit", a subject that still needs more attention from academic social science research (Mendonça *et al.*, 2013; Santos, 2014).

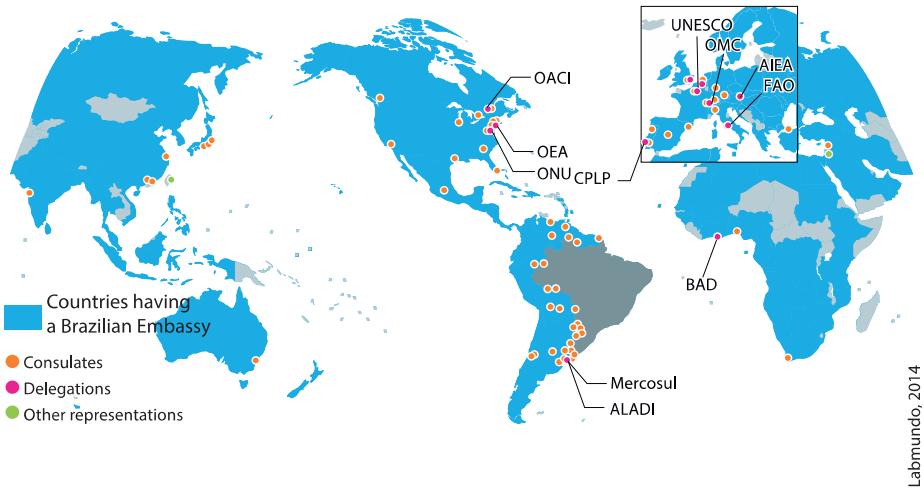
MAP 1
Brazilian technical cooperation



Source: Website Agência Brasileira de Cooperação (ABC, 2014).

Geographically, Brazilian IDC is concentrated in two main regions: Latin America and Africa (map 1). ABC database informs us that between 1999 and 2012, there were 84 developing countries with which ABC had cooperated: forty of them were African countries, thirteen were from the Caribbean, eleven from South America, other eleven from Asia, seven from Central America, one from North America (Mexico), and one from Oceania (Papua New Guinea). This concentration in Latin America and Africa can result from the historical formation of Brazil's society, its culture and current identity in foreign policy (focus on the South). It also stems from the "demand-driven" principle that guides ABC's agenda, and a very balanced distribution of Brazilian diplomatic representations worldwide (map 2), which guarantees direct bilateral dialogs with many developing countries in the field. It is true that the large number of developing countries (84) with which Brazil develops official IDC may also express a significant dispersion of cooperation efforts. What is the difference that a tiny project in Papua New Guinea can produce in development promotion? Irrespective of the fact that Brazil's government is not a signatory of the Paris Declaration, the issue of efficiency should be further discussed having in mind the rare public funds available to make a difference in IDC.

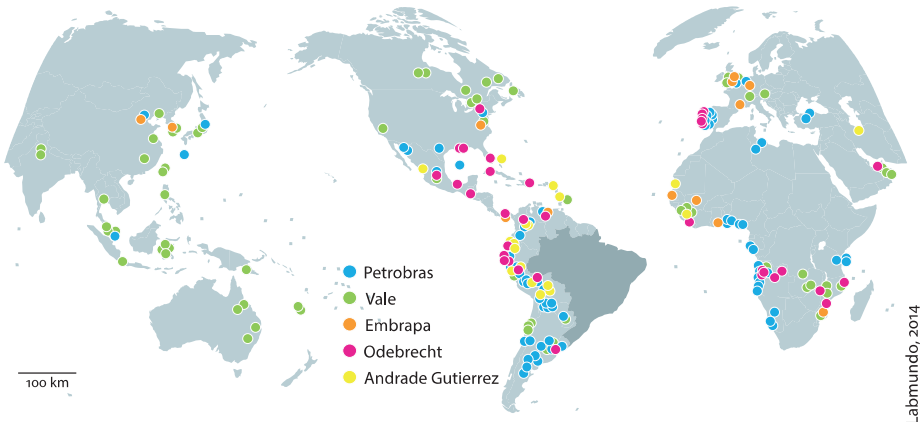
MAP 2
Diplomatic representations



Source: Website Ministério das Relações Exteriores (Itamaraty, 2014).
Obs.: Brazil does not recognize the following countries: Abkhazia, North Cyprus, South Ossetia, Westen Sahara, Somaliland, Transnistria and Taiwan.

Another relevant issue is the fact that Brazilian IDC may reveal public-private tensions, since countries where technical cooperation projects are more numerous may also be those where Brazilian transnational companies and business have more interest at stake (map 3), but we cannot develop this argument in this paper (Albuquerque, 2014).

MAP 3
Global presence of Brazilian business



Source: websites of companies (2013).

At the national level, the Brazilian Cooperation Agency (ABC) has the main responsibility for IDC coordination, but there are also special international cooperation units within "domestic" ministries (Health, Education, Culture); even within the Ministry of Foreign Relations, where ABC is located, there is a special unit dealing with food security cooperation programmes (CG-Fome). One could also recall IDC initiatives coming from the Presidency, federate-states and municipalities (Milani e Ribeiro, 2011). In the absence of a coordinated effort for reporting and policy-making, we believe that the current institutional setting may result in IDC fragmentation, and also yield much less coherence amidst different national and sub-national IDC strategies. These issues may be concrete shortcomings in the way of building a solid IDC public policy in Brazil.

3 CONCLUDING REMARKS

This paper does not aim to propose a model for the consolidation and institutionalization of Brazilian IDC. We acknowledge that Brazil's role in development cooperation is marked by a wide recognition of its development experiences as potentially useful for various governments, as well as for international organizations and other developing countries committed to the Millennium Development Goals (MDGs) and the post-2015 agenda. This paper searches, however, wrap up with a few questions based on other national experiences in South-South cooperation, and learning from the history lessons of North-South cooperation (Etienne, 2007; Milani, 2012; Milani *et al.*, 2013; Pankaj, 2005). These are questions that we consider of paramount relevance for the future construction of a Brazilian IDC public policy, and for the consolidation of Brazil's profile as a cooperation provider. Informality and institutional dispersion are the main features of Brazilian cooperation's institutional framework. ABC, currently part of the Ministry of Foreign Affairs (MRE), is just one among a myriad of institutions making decisions and implementing cooperation initiatives. Currently, there are divergent proposals to reform this system: one is to create a new agency in charge of development cooperation, trade and investment, and the other to strengthen ABC by boosting its human and financial resources. The influence of emerging countries such as the BRICS and IBSA countries is also rapidly increasing, including their role as providers of official and non-official South-South Development Cooperation (SSDC).

1) Conceptual and statistical clear definitions: what is the understanding of cooperation? And what is its statistical definition that the Brazilian government should consider in formulating an IDC public policy? Which modalities should it include?

2) Purpose of the policy: what is the scope of the IDC public policy? What are the concrete problems to which the Brazilian IDC public policy should respond? Are they exclusively international or should they also respond to Brazil's national interests?

3) Actors: which actors are mostly impacted by this policy? How do these actors participate in its formulation and implementation? What is the governance proposal for interaction and dialog between political institutions and civil society organizations? How to take into account the impacts in partner countries? Could partner countries be integrated in design and evaluation of this public policy?

4) Agency and professional skills: which national agency should have responsibility for which IDC modalities? How to ensure coordination and dialogue between different modalities so as to guarantee policy consistency and coherence? How to ensure a dialog between IDC goals and foreign policy objectives?

5) Bureaucracy and training: should the agency have a body of officials and technicians with knowledge of international relations and IDC? How to set up a challenging career plan and ensure the recruitment of very talented professionals? How to guarantee skills development and capacity building for bureaucratic agents?

6) Transparency and accountability: what systems should the government adopt in order to produce, collect, analyze, and disseminate data on Brazil's IDC? What could be done in terms of setting up and nurturing a policy epistemic community, which could also share the responsibility for the assessment and monitoring of IDC?

7) Standards and normative dimension: how can Brazil (its government and society) articulate the principle of national sovereignty of partner countries with human rights standards? How to require that international and regional standards be respected and followed by domestic actors who benefit directly and indirectly from Brazilian IDC projects and programs? What are the norms, if any, that Brazil's IDC should promote and sustain?

8) Political articulation: what could be the role of the agency in terms of support and subsidy for Itamaraty's activities in international cooperation forums? How will the government engage in regional and international development cooperation forums with South American, African, BRICS and IBSA countries?

9) Participation: what participatory mechanisms will the agency set up to dialog with civil society actors (NGOs, companies, universities and foundations)? Should these actors participate in the implementation, monitoring and evaluation of Brazilian IDC?

10) Regulatory framework: what is the regulatory framework that the Brazilian government should establish for the future development of this public policy? Will it contemplate the various actors of the Brazilian IDC, such as the National Congress and political parties, NGOs and social movements, business, institutes and private foundations, universities and research groups, ministries and other public administration bodies and federative entities?

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TECHNICAL SESSION 4

ICTs and Innovation challenges in the BRICS

- Evolution of science, technology and innovation indicators in BRICS
- Internet global governance and ICTs policies in BRICS
- The relevance of university-enterprise relations in fostering innovation

CHAPTER 7

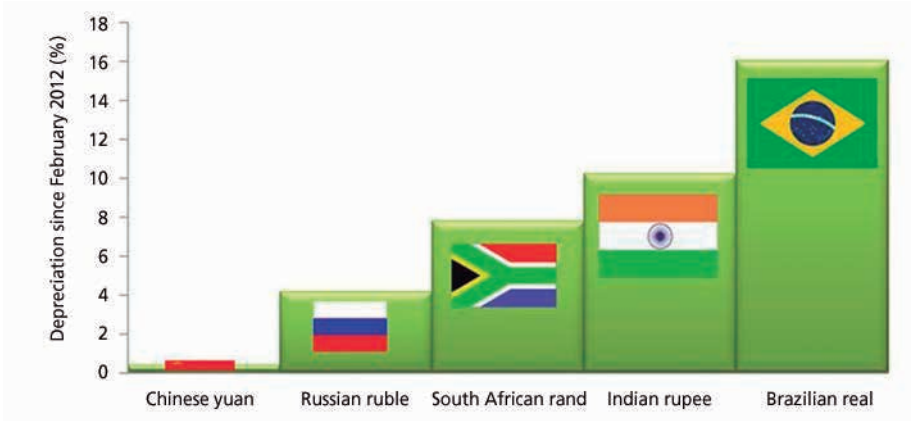
INNOVATION, INDICATORS AND DEVELOPMENTAL CHALLENGES FOR THE BRICS[1]

Rasigan Maharajh [2]

INTRODUCTION

In the period subsequent to the Fifth Academic Forum of the BRICS in South Africa in 2013, many of the individual members of this six-year old multilateral association of countries have experienced rapid changes with respect to the value of their respective national currencies. Currency prices play a significant role in calculating the gross domestic product of any country and rapid fluctuations may generate adverse impacts, including cost effects in debt servicing obligations. Longer-term investment planning is significantly influenced.

GRAPH 1
Depreciation against the US dolar



Source: Bloomberg Data, Gateway House Analysis (2012).

1. South African Paper for Technical Session 5 – Innovation Challenges in the BRICS, 6th BRICS Academic Forum: City Palace, Rio de Janeiro, Brazil, 18-19 March 2014.

2. Founding Chief Director: Institute for Economic Research on Innovation (IERI), Tshwane University of Technology, RSA; Visiting Scholar: George Perkins Marsh Institute (GPMI), Clark University, USA; Associate Research Fellow: Tellus Institute, Boston, USA; and Nodal Head: Department of Science and Technology and National Research Foundation Centre of Excellence in Scientometrics and Science, Technology and Innovation Policy, RSA.

Graph 1 provides an illustration of the changes during the previous two years. Three of the constituent members of BRICS have subsequently been included amongst counties labelled as the "fragile five" (Morgan Stanley, 2013, p. 1). According to their Global Currency Research Team: India, Brazil and South Africa had amongst the "most vulnerable currencies over the medium term" (*ibid*., p. 2). Their analysis suggests that the real, rupee and rand would "face headwinds over the medium term from various factors ranging from high inflation, high Real Effective Exchange Rates, external vulnerability from initial conditions, and vulnerability to further external deterioration based on a heavy reliance on fixed income flows and/or China related risks" (*Ibid*, p. 16). The values of the currencies of Brazil, India, and South Africa have all significantly devalued against the US dollar.

Most orthodox economists ascribe this to a return to longer term trends whereby capital sought refuge in the US dollar. This tendency was particularly enhanced when the Federal Reserve of the United States of America began reducing its "quantitative easing" mechanism. Financial markets, ostensibly globalised, responded with speed and mobility. Little consideration if any, it would appear, was afforded to the deeper structural transformative activities being undertaken in the BRICS. Under such circumstances, the capacity of national regulatory institutions to defend their sovereignty through policy interventions aimed at responding to the rapidity of capital surges (both inflows and outflows) was severely curtailed.

Structural reform in all of the BRICS remain a critical necessity as they seek to improve the general quality of living of their populations within the parameters of sustainable development and the threat of planetary ecological tipping points (UN, 2012). This forces massive outlays in extending public infrastructures and building the necessary human capabilities for progressive development. Such initiatives must therefore become more resilient and each country will need to pay more attention to the quality of investments. Even Morgan Stanley seemingly agree as they argue that the "most sustainable way to improve capital flow prospects is for governments to engage in structural reform, enhance competitiveness and boost growth potential" (2013, p. 19).

Mobilising and utilising a country's national science, technology and innovation (STI) resources provides fundamental building blocks towards unleashing the forces of "creative destruction" and its innovation potential. This intervention argues that the BRICS should renew, upgrade and improve their STI performance as a critical contributor towards the maintenance of their momentum as fast emerging economies. Besides the rather self-fulfilling prophecy as articulated in Item Eleven of the Founding Declaration that reaffirmed the BRICS commitment to "advance cooperation among our countries in science and education with the aim, inter alia, to engage in fundamental research and development of advanced technologies" (BRICS, 2009), there is an emergent recognition that the BRICS collectively (albeit unevenly and

imperfectly) represent an alternative to the conventional orthodoxies of capitalist growth models (Cassiolato and Vitorino, 2011).

This brief paper presents some of the recent dynamics in the BRICS countries as represented in their STI Indicators. After this introduction, section two presents some of the most recent STI data from South Africa. Section three provides some of the recently published comparative STI performance data and selected recent collaborative studies. Section four concludes the brief intervention by drawing the together the argument for the formulation of an enhanced research agenda based on increased intra-BRICS collaboration with the object of generating shared learning in the praxis of STI implementation.

1 INNOVATION SYSTEMS, INDICATORS AND THE SOUTH AFRICAN DATA

The general objective sought by utilising a National System of Innovation (NSI) framework to organise the productive structure of a country is to increase the rate of generating novel solutions to developmental constraints. Effectively, this means encouraging "creative destruction" and optimising the performance of STI actors. Such a conceptual construction presents the NSI paradigm a critical policy and strategy instrument for improving the generation, deployment, utilization and diffusion of STI capacities, capabilities, and competences across an economy. When the NSI is thoroughly interlinked with the productive and reproductive structures of the political economy, the emergence of new products, services, enterprises and even markets becomes realizable (IERI, 2014).

In its original formulation, "creative destruction" formed the crucial dynamic of the capitalist mode of production. According to this perspective, the dynamic economy incessantly destroys its older version whilst constantly creating a new variety. Joseph Schumpeter had defined "innovation" as being the result of the: 1) introduction of a new good or a new quality of the good; 2) introduction of a new method of production; 3) opening of a new market; 4) conquest of a new source of supply; and 5) carrying out of the new organization of an industry (1934). The NSI framework subsequently systematized these concepts and initiated a policy discourse that can be conducted in a structured format utilizing shared definitions, tools and methodologies. Thereby, a commonly employed NSI framework potentially improves the quality of policy discourse. Commensurately, the deployment of the NSI framework enables the building of critical capacities and capabilities for conducting policy research and analysis whilst simultaneously expanding competencies for managing implementation through comparative measurements of outcomes, impacts and indicators of change. Forged as a competency, the NSI framework provides for continuous improvements in public policy through transparent research and enhanced participation by stakeholders, role-players and the citizenry at large.

It should be noted that the adoption of any defined framework for understanding a socio-economic and political dynamic also affords that it be utilized to advance certain agendas and repress alternatives. As these capabilities improve, so does the capacity for more advanced formulations and opportunities for learning in simulations, cases and comparative studies. Based on the processes being collaboratively determined and open to contestation, both progressive and reactionary outcomes and impacts are possible.

Guided by the consensus of the BRICS in seeking an equitable, sustainable, just and harmonious global future, the NSI framework additionally provides tools for redefining development and reconstructing appropriate institutional arrangements and rebuilding the necessary agencies for transformation. The progressiveness of these new institutions will largely be determined by their capacity to deliver improvements in the material conditions of the vast majority of people, redressing the metabolic rift with the planetary ecosystem, and the provision of social, economic and political innovations (Maharajh, 2013).

A crucial aspect of the NSI framework is the representation of stylized facts derived from a commonly held set of indicators that reflect changes over time. South Africa has since the advent of its constitutional democracy in 1994 utilized the NSI framework as its heuristic device (RSA, 1996). The White Paper on Science and Technology represented a major innovation in governance as it sought to concurrently redress historical injustices, afford contemporary reform whilst building a normatively better system that was future orientated.[3] The development of the STI sector and the stand-alone status of the Ministry of Science and Technology achieved in 2002, saw increasing attention being devoted to data gathering, information collation and indicators generation. The ninth in a dataset series derived from a National Survey of Research and Experimental Development (R&D Survey) was published in South Africa at the end of 2013. The DST argues that the R&D Survey provides it with data that is "vitally important in monitoring the performance of the National System of Innovation" (RSA, 2013, p. 1).

The results were generated utilizing a survey that was compiled according to guidelines established in "The Measurement of Scientific and Technological Activities: Proposed Standard Practice for Surveys on Research and Experimental Development" by the Organization for Economic Cooperation and Development (OECD, 2002).[4]

3. For various reviews of the transformation of post-apartheid science and technology policy, see: Adam; Bawa; Kahn; Kaplan; Maharajh (2011); Marie; Mjware; Mouton; Mullin; Scerri (2009); and Singh amongst others.

4. Frascati Manual. The OECD had adopted the methodology in 1963 at a meeting in Frascati, Italy and the first version of the survey was drafted by Christopher Freeman, then affiliated with the National Institute of Economic and Social Research in London, and "who was assigned at the time to improving the survey on industrial R&D conducted by the Federation of British Industries" (Godin, 2008, p. 15).

The South African version of the survey was adopted and adapted through a careful and deliberate act of international scientific collaboration. In this process, the national Department of Science and Technology (DST) acted as the political centre of the exercise, vested implementation through the provision of "ring-fenced" funding and created the Centre for Science Technology and Innovation Indicators (CeSTII) which is housed within one of the country's Science Councils: the Human Sciences Research Council. A reference group which brought together some of the service provider's from the previous regime, science policy activists and academics helped guide the initial efforts of CeSTII.

The agency responsible for maintaining national statistics, Statistics South Africa has also become more involved in the quality assurance of the process. CeSTII has played a significant role in improving the measurement instruments and now delivers better quality data that is safeguarded from the vagaries of private sector service provider distortions, the exigencies of public policy changes and makes available verifiable data to policy analysts and scholars. With the recent announcement by the Minister of Science and Technology of a new national Centre of Excellence in Scientometrics and STI Policy in 2014, the further protection and development of this field of study is being institutionalized and capabilities deepened (RSA, 2014).

The published STI data is considered part of the country's official national statistics. According to the Minister of Science and Technology, the R&D Survey "provides information on R&D funding and performance in South Africa. The data helps to profile the size and shape of the R&D landscape and support the production of statistics for use in system-level planning, monitoring and evaluation" (RSA, 2013, p. iii). These are indeed laudable intentions and speak to the core of utilising credible evidence in the support of planning, monitoring and evaluation. Based on the R&D Survey, the DST discerns five critical indicators. These are:

1) Gross domestic expenditure on research and development;
2) Flows of funding for R&D;
3) R&D expenditure by economic sector, field of research and socio-economic objectives;
4) R&D personnel by category (researchers, technicians and related skilled R&D personnel) and the time that they devote to R&D; and
5) R&D involving local and international collaborations.

TABLE 1
Summary of NSI indicators from South African R&D surveys

	1991/1992	1993/1994	1997/1998	2001/2002	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
GERD[1]	3	3	4	8	10	12	14	17	19	21	21	20
GERD/GDP[2]	1.04	0.75	0.69	0.76	0.81	0.87	0.92	0.95	0.93	0.92	0.87	0.76
Total R&D personnel[3]				34	25	30	29	31	31	31	31	29
Total R&D personnel per 1,000 total employment[4]				2.3	2.2	2.6	2.4	2.5	2.4	2.2	2.3	2.2
Total researchers[5]				9	14	18	17	19	19	19	20	19
Total researchers per 1,000 of total employment[6]				1.9	1.2	1.6	1.5	1.5	1.5	1.4	1.5	1.4
Total researchers[7]				19	31	37	39	40	40	40	41	38
Women researchers (%)[8]				35	38	38	39	40	40	40	41	42

Source: Maharajh (2011); RSA (2013).
Notes: [1] Gross domestic expenditure on research and development in nearest billion rand. "GERD is total intramural expenditure on R&D performed on the national territory during a given period" (OECD, 2002, p. 121).
[2] Gross domestic expenditure on research and development as a percentage of gross domestic product.
[3] Full-time equivalents of research and development personnel in thousands.
[4] Full-time equivalents.
[5] Full-time equivalents of researchers in thousands.
[6] Full-time equivalents.
[7] Headcount in thousands of researchers.
[8] Expressed as a percentage of total researchers.

Table 1 clearly displays an initial upward trend with respect to the key NSI Indicators in South Africa. These have however tapered towards the end of the period and are now in decline. The DST had failed to achieve its declared target of one percent of GERD by its original goal date of 2010. As the 1% target had become part of the African Union objectives for Science and Technology on the continent, the DST had revised its target to 1.5% by the year 2014 (RSA, 2011). Unfortunately, the DST could again miss its revised target in this year, but that will only be determined when the 10th Survey Results are published. It continues to learn and utilize the target as a crucial reference point for budgetary allocations from the National Treasury.

The total FTE R&D personnel has stabilized after a major decline in 2003. In real money terms, it is obvious that, although GERD rose at a phenomenal pace, the rate of growth has plateaued and is now in decline. These features hold significant implications for current NSI planning and the use of indicators. As quantitative indicators they however do not provide sufficient explanatory insights for a nuanced understanding of South Africa's transformation process

that is now all of two decades in the making. In the next section, we will look at some broader mixed method studies whose focus was sectorial and comparative across the BRICS.

2 BRICS COMPARATIVE INDICATORS AND STUDIES

The field of measuring performance in STI is dynamic and growing. Subsequent developments have spawned a range of additional instruments although they largely remain anchored to the Frascati Family of Manuals (Gault, 2013). By 2011, the OECD had recognized that "(w)ithin the developing world, R&D is also concentrated in a relatively small group of countries in each region, notably the BRICS" (OECD, 2012, p. 3). The first BRICS Science, Technology and Innovation Ministerial Meeting took place in February 2014 and recognized that "the sharing and exchange of information on science, technology and innovation policies and strategies and the formulation of joint long-term problem focused cooperation programs will constitute the central modalities of this cooperation" (BRICS, 2014, p. 2). It is expected that these plans are endorsed by the Sixth Summit in Fortaleza in 2014.

Consolidating planning across five countries however demands improved comparative reflections on the relative performance of each of the BRICS countries and the collaborative efforts between them. Table 2 presents the GERD data for the BRICS.

TABLE 2
Gross domestic expenditure on research and development in BRICS
(Millions of current PPP$)

	2008/2009	2009/2010	2010/2011
Brazil	22.2	23.4	25.3
Russia	30.1	33.5	32.8
India	Nd	Nd	Nd
China	120.7	154.0	178.2
South Africa	4.7	4.4	4.0

Source: RSA (2013, p. 33).

The quantum differences are stark in table 2, but then so is the economic size of the different countries and their individual circumstances. Three of the BRICS display a very strong upward trajectory with significant resources being devoted to research and development. These three countries are also reaping the benefits of these investments by the expansion of productive capabilities and improvements in their respective domestic markets.

Table 3 presents the GERD/GDP ratio of the five countries for the latest year for which data is available. Only India and South Africa remain under the 1% marker. On the basis of the scale of China's GDP relative to the other members of the BRICS, its 1.77% is indeed and exemplary and remarkable achievement.

TABLE 3
Gross domestic expenditure on research and development in BRICS as a percent of GDP (2010/2011)

Brazil	1.16
Russia	1.16
India (2007)	0.76
China	1.77
South Africa	0.76

Source: RSA (2013, p. 32).

Table 4 looks at the number of full-time equivalent researchers per 1,000 of the country's population that are employed. In this regard and on the basis of a significant historical advantage due largely to nearly a century of state public investments in S&T, Russia's current ratio is incredibly strong. This could prove of particular value to the global challenges of the conjuncture and as well for intra-BRICS collaboration.

TABLE 4
FTE researchers per 1,000 employment in BRICS (2010/2011)

Brazil	1.46
Russia	6.33
India (2005)	0.35
China	1.59
South Africa	1.40

Source: RSA (2013, p. 35).

While quantitative comparisons serve the purpose of providing discrete data in an immediately understandable form, explaining the reasons for some performances requires more detailed and mixed-method appraisals. In 2005, a group of researchers who were affiliated with the Global Network for the Economics of Learning, Innovation and Competence-building Systems (GLOBELICS) further developed an ambitious research proposal to study the five countries of BRICS. The announcement of the Project at 3rd Annual Conference of GLOBELICS held in South Africa in 2005 was followed by a workshop convened at Aalborg University early in 2006. All of the government departments responsible for science and technology in all five of the BRICS indicated their support for the research

project which also received funding from the International Research Development Centre (IDRC).[5]

In the volume on the role of the State, Mario Scerri and Helena Maria Martins Lastres show how the specific cases of the five systems recognized that the five countries of the BRICS were and are undergoing rapid processes of structural transformation. Scerri and Lastres therefore suggest that all five cases "assess the relationship between innovation policy and development policy, its convergence or dissonance, and even more fundamentally the degree of differentiation between the two" (Scerri and Lastres, 2013, p. 14).

In the volume on the role of SMEs in the National Systems of Innovation of BRICS, Anna Arroio and Mario Scerri argue that the five cases show how the BRICS countries

> have pursued specific strategies to enhance SME's growth, their chances of survival, and the support for institutions that provide business, technological and other development services. Innovation policies have targeted the promotion of agglomerations of firms, incubators and science and technology parks. There appears, however, to be a sharp distinction between policies that target high-tech innovative SMEs and those policies that aim to support the "survivalist SME economy" (Arroio and Scerri, 2013, p. 23).

The fifth summit of the BRICS embraced these views and declared that

> we will explore opportunities for cooperating in the field of SMEs and recognize the need for promoting dialogue among the respective Ministries and Agencies in charge of the theme, particularly with a view to promoting their international exchange and cooperation and fostering innovation, research and development (2013, Outcome 19).

In the volume on the role of TNCs in the national system of innovation of BRICS countries, a broad definition of the national systems of innovation approach was adopted. The editors of the volume, José Eduardo Cassiolato, Graziela Zucoloto, Dinesh Abrol and Liu Xielin, argue that "the thesis of technological globalization is taken with more caution, refuting the idea that R&D activities would be inexorably internationalized" (Cassiolato *et al.*, 2013, p. 6). In particular, they suggest that "that the complexity involved in innovative activities, like R&D, limits the occurrence of technological globalization automatically and without significant costs, and argues that knowledge-intensive activities still tend to be concentrated in home countries" (*ibid*).

In the volume on financing, the editors Michael Kahn and Luiz Martins de Melo find that the key commonality amongst the BRICS countries was the strong role played by the State in steering their respective economic development paths (2013). The five country studies recognize that financing investments in

5. IDRC Grant Number 104227-011: "National Innovation Systems of BRICS Countries".

innovation remains an important structural bottleneck, whilst noting that these problems are not being resolved exclusively by private sector financial institutions. The BRICS reassert the importance of "national institutional arrangements" as a means towards redressing the "long lead times for development, inherent uncertainty and high risk" (*ibid.*).

In the volume on inequality, Maria Clara Couto Soares, Mario Scerri and Rasigan Maharajh suggest that the benefits of innovations rarely address the needs of the poor, because most STI systems and policies are aimed at achieving economic growth and competitiveness and not at reducing poverty or inequalities (Soares *et al.*, 2013). The coexistence of economic growth, substantial investments in STI, increasing inequality, and the persistence of people living in poverty remains a major challenge. The BRICS are increasingly concerned about this phenomenon and they remain seized by the search for more inclusive and "harmonious" pathways to achieve improved conditions of existence for their people within the constraints of ecological sustainability (*ibid.*).

CONCLUSIONS

Learning and leading – the role of STI Indicators in driving change

The contemporary state of world systems evolution and the current phase of the globally hegemonic capitalist mode of production is characterized by significant and enduring geopolitical shifts. Collectively, the peoples of the planet are exposed to an expanding potential of breaching of ecological thresholds and persistent failures in conventional multilateral institutions in redressing global precariousness. Exasperatingly, waves of extensive and intense financial market integration threatens the sovereignty of economic policy making. Thus, investment decisions and the empirical basis for determining currency fragility tends towards being the prerogative of international ratings agencies and trans-national financial capital.

A safeguard against the vagaries of asymmetrical and imperfect market sentiment are to be found in persistent and continuous efforts in building strong and consistent policy frameworks, the necessary public infrastructures and the capabilities to promote innovation. The deliberative and explicit use of the NSI concept affords the emerging economies generally and the BRICS in particular the opportunity to radically improve their respective productive structures.The literature shows that efforts at promoting linkages between the productive sector (enterprises) and arena of societal reproduction (households) with knowledge-generating resources results in enhancing the resilience of institutions and engendering endogenous economic development.

Evidence is also growing that the performance of NSIs are historically contingent, contextually bound, and representative of the dynamics of the country's political economy (see the various BRICS Country studies). As pointed out by Professor Ben Turok, MP in his preface to Volume 1 of the BRICS NSI Project: "there is ample scope for comparative studies and hence cooperation in science and technology and hence innovation for the mutual benefit of each" (Scerri and Lastres, 2013, p. 6). Now is indeed the time to advance further cooperative work among the BRICS and also simultaneously improve the policy learning capacities of each country's systems.

Such a research agenda would need to include more work on improving the collection and collation of R&D and Innovation data; as well as improving information about the flows of knowledge, finance, material and human resources. The enhanced policy learning that results from these exercises would naturally lead to improving the quality of policy development, monitoring and evaluation (Gault, 2010). Working together, the BRICS should contribute to further improve the measurement of STI, expand the utilization of indicators and generally advance evidence-informed policy research.

Investing in research on STI indicators will therefore be important for all five countries as the BRICS seek a more prominent role in determining the future of the global political economy and deepen their individual efforts at transforming their national systems. As the global political economy is increasingly transiting towards increased knowledge intensity, building domestic productive capabilities will be largely determined by the improved performances of the individual national systems of innovation of the BRICS. Research on the relative performances of the BRICS provides an opportunity for mutual learning, improved measurement capacities and hopefully, better capabilities and competences in the transition to a more sustainable and harmonious world order.

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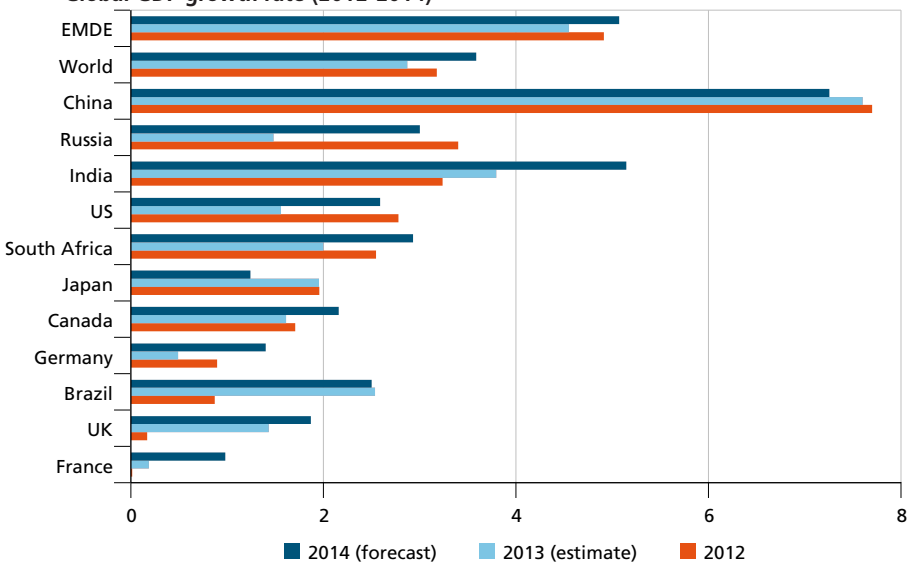
CHAPTER 8

THE COOPERATION IN INNOVATION AMONG BRICS COUNTRIES

Huang Wei[1]

While the United States and Japan have demonstrated improvements in economic growth, the constraints faced by advanced economies have not been totally eliminated. The middle- and long-term issues, such as aging population, high levels of public indebtedness, unequal distribution of income, industrial hollowing-out, and inadequate financial supervision are still unchanged. The increasing economic growth in advanced economies brings positive and negative spillover effects for emerging economies from different perspective. In general, the global economy is still recovering at a slow speed although the performance of next year could be better (graph 1). Inadequate demand and weak growth will continue to trouble global economy in a relatively long time.

GRAPH 1
Global GDP growth rate (2012-2014)



Data source: IMF.

1. Dr. Huang Wei, senior research fellow, deputy director of Research Department of Global Governance, executive director of Centre for International Economic and Strategic Studies, Institute of World Economics and Politics, Chinese Academy of Social Sciences. E-mail: <huangwei@cass.org.cn>.

1 GLOBALIZATION AND INNOVATION

The word "innovation" stems from Latin, with three meanings: renovating, creating new things and changing. With the increasing specialization under globalization, technological innovation shows two features: the acceleration of technology progressing and spreading throughout the world. Innovation is no longer along a linear path from research to application, or from minority to majority. With the development of internet technology, innovation follows a wavelike developing and spreading trend.

First of all, specialization improves the efficiency and optimizes the allocation of resources, as well as shortens the research time. With breakthroughs in biotechnology, the cycle time for a new drug from the development stage to commercialization production has shortened from 24 years in average to eight years. The benefits of specialization are reflected not only on the shorter development period, but also on the sharp increase quantity of innovations. The research report *Innovation in the Biopharmaceutical Pipeline: A Multidimensional View* issued by PhRMA in 2013 showed that there were 3,070 kinds of cancer drugs in development up to the year 2012, and the number of anti-tumor drugs in clinical trial increased from about 250 in 1996 to more than 900 in 2011; the number of drugs in development for infectious diseases increased from 150 in 1996 to 750.

Furthermore, the information and communication technology and industry collaboration play revolutionary roles in the popularization and spread of new products. Rogers (2003) indicates that the diffusion of innovation is a process for propagating certain innovation items or ideas, and is also related to a certain social transition. The spread of innovation is not only affected by economic factors, which include the cost for adopting some certain innovation; but also by social factors, which refer to the positive effect brought by a social group. It took sixty years to popularize the telephone, compared to only five years for the internet. As the rapid development on mobile Internet technology, communication is no longer constrained by physical distance. This change transforms the mode of transmission for innovation and promotes transmission efficiency.

The IMF provided a report for the Meeting of G20 Finance Ministers and Central Bank Governors in February 2014, suggesting that with ambitious but more realistic policies countries could lift the collective GDP by at least 2 per cent above the trajectory implied by current policies. One of the policies mentioned was about the improvement of productivity and positive spillover effects stimulated by innovation. Technological and conceptual innovations deliver benefits not only for the country's domestic economy, but also to its trade partners through technology diffusion. The IMF (2014) mentioned that about one third of the

global output gains in the medium term come from positive productivity spillovers among related economies.

These new features of technology innovation under globalization not only make it possible for BRICS to catch up with advanced economies in terms of innovation capacity, but also suggest that BRICS should take opening-up and cooperation as an important mechanism and pathway to promote innovation capacity.

2 THE DEVELOPMENTS AND COOPERATION OF BRICS TECHNOLOGY INNOVATION

2.1 The technology innovation capacity of BRICS Countries

The BRICS countries play more and more important roles in global economic activities with the rise of their development stage. The proportion of resource expending for R&D in BRICS also has increased in the past decade. According to the standard of the World Bank, India joined middle-income country group in 2008 from a low income country, whilst South Africa, Brazil and China have became upper-middle income countries respectively in 2005, 2006 and 2010, and Russia has become a high income country in 2012. The BRICS countries have made great progress in technological investment since this century, as their economic power has risen continuously. According to *Report of Science in 2010* provided by UNESCO, the proportion of the total expenditure of scientific innovation of the BRICS countries stands from 10.5% in 2002 to 15.3% in 2007 among the world's expenditure of innovation, as showed in table 1. The latest data from Chinese national bureau of statistics shows that the Chinese expenditure on R&D exceeded one trillion yuan (about 163 billion US dollars) for the first time in 2012, ranking the third in the world.

TABLE 1
The expenditure on innovation of BRICS countries

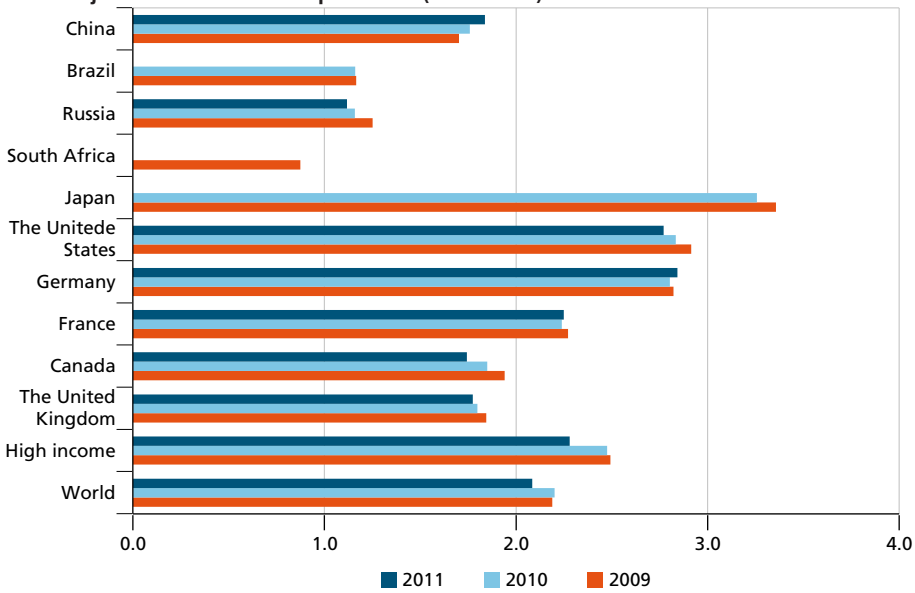
Country		China	Russia	Brazil	India	South Africa	**Total**
Total expenditure (PPP billion dollars)	2002	39.2	15.9	13.0	12.9	2.3	**83.3**
	2007	102.4	23.5	20.2	24.8	4.4	**175.3**
World's total expenditure (%)	2002	5.0	2.0	1.6	1.6	0.3	**10.5**
	2007	8.9	2.0	1.8	2.2	0.4	**15.3**
Total expenditure in GDP Proportion	2002	1.1	1.2	1.0	0.7	0.7	**4.7**
	2007	1.4	1.1	1.1	0.8	0.9	**5.3**

Data source: Unesco science report 2010.

Continuous increase in R&D investment significantly enhances the innovation abilities of BRICS countries. The total manpower working for science and technology sectors in China is over 51 million, which made China the number one country with the most people working on science and technology in the world. According to

data from Thomson Reuter,[2] in terms of the total number of SCI theses published, China, India, Russia and Brazil rank second, eleventh, thirteenth and fifteenth in the world respectively; while in terms of the citation rate, China, India and Brazil respectively rank in seventh, sixteenth and twentieth place. China ranked thirteenth in the number of international scientific papers published, rising to sixth in 2011. The annual authorization number of China's domestic invention patent has currently increased by 31% on average. The authorization number of Chinese invention patent was 49.7% of the world total in 2008. Brazil published 32,000 scientific papers in 2009, ranking 13th in the world, among which the number of papers on agricultural science and animal and plant science papers is 9.89% and 7.04% respectively of the world. India published 38,700 scientific papers, ranking 7th in the world, accounted 3.34% of the total number of the world's scientific papers. The number of patent applications in India is 36,800 in 2009, among which 16,000 were authorized, up by 4.8% from last year. Although the BRICS countries have made some progress in the science field, when compared with the advanced economies, the R&D expenditure in GDP is still at a relatively low level, as displayed in graph 2.

GRAPH 2
Major economies' R&D expenditure (2009-2011)



Data source: WDI, Dec. 2013.

2. Top twenty countries in all fields, Essential Science Indicators SM from Thomson Reuters, time period: 2001-August 31, 2011 (fourth bimonthly period of 2011).

3 THE MAIN PROGRESS OF BRICS TECHNOLOGY INNOVATION COOPERATION

In September, 2011, the *First BRICS Senior Official Meeting on Science, Technology and Innovation Cooperation* meeting was held. A Joint Statement for the meeting, proposed the concrete technology cooperation fields on the exchange of strategy and policy information in science and technology innovation, promotion of technology transformation, food security and sustainable agriculture, climate change and disaster reduction, new energy resources, renewable energy, energy efficiency, nanotechnology, medicament and biotechnology. Meanwhile, BRICS made an agreement on developing mechanisms for science and technology cooperation. A scientific innovation working group under the BRICS framework will be built and responsible for the promotion and practice of scientific innovation cooperation.

In 2014, the scientific innovation cooperation between the BRICS countries has been upgraded to the ministerial meeting *(First BRICS Science, Technology and Innovation Ministerial Meeting)*. The *Cape Town Declaration* issued after the meeting confirmed the main collaborative areas of science and technology innovation framework among the BRICS, and defined five subjects as the priority: climate governance led by Brazil, environment governance (water pollution and pollution abatement) led by Russia, spatial cooperation (geo-spatial technology and application) led by India, energy cooperation (new energy, renewable energy sources and the improvement of energy efficiency) led by China, astronomy led by South Africa. From these five thematic areas, the BRICS will attempt to walk their first step for further science and technology cooperation.

3.1 The direction of BRICS innovation cooperation: from technological innovation cooperation to non-technological innovation cooperation

The introduction of innovation mentioned above is mainly about technology innovation. However, non-technology innovation (such as institutional innovation) and the non-tech factors in technology innovation (such as the environment of encouraging innovation) have acted a more and more critical role in the study of innovation. Among those, the developing mode for innovation designed by governments has become an important force to promote the national innovation level and maintain a sustainable innovation capacity.

Due to the difference in development level as well as in history and cultural, there is no sole pattern, which is suitable for all countries in all time. Faster growth economies need to appropriately adjust their policies for facilitating innovation. In the past half century, China has accumulated some experience in innovative policies. In short, China has walked on a circuitous path, which is beginning from concentrating resource for *self-innovation as a spade work*, then *introducing and learning by opening-up*, and finally back to *independent-innovation*.

4 INDEPENDENT RESEARCH (1950-1978)

In the early new China era, China practiced a highly centralized planned economy, which was learnt from the former Soviet Union. The highly centralized planned economy could centralize limited resource on the grand projects. Because of the severe international situation at that time, the most important scientific research project in China was *Two Bombs, One Satellite*.

The Chinese government supported the project not only by providing necessary materials resource input, but also by encouraging excellent scientists and young scholars to devote themselves to the research project. This measure had achieved a remarkable progress. China tested its first atomic bomb successfully in 1964, the first hydrogen bomb in 1967. The first artificial satellite was launched successfully by China in 1970. Under the weak economic and technological conditions, it was necessary for the government to prioritize some projects and construct the basic scientific and technical research ability. The efforts in this phase paved the way for *introducing and learning* strategy in the second phase.

5 IMPORTING AND LEARNING (1979-1985)

In this stage, the Chinese government paid much attention to improving the level of science and technology. In several important government reports, some strategic theories on science and technology had been presented, such as *"science and technology are productive forces"*, "*the key of the four modernizations is to modernize science and technology"* and so on.

Eight important developing areas (Agriculture, Energy, Material, Computer, Laser, Space, High Energy Physics, and Genetic Engineering) and 108 critical research projects were determined in the *1978-1985 National Science and Technology Development Plan*, which was drawn up in 1978. Under the S&T development mode of "importing and learning," sustainable and significant progress was made in a large number of industries. Take color television as an example. The first production line of color TVs was imported to China in 1978. Thereafter, Chinese production caught up and became the world's second largest color TV producer since 1985. In 2012, the market share of Chinese TV companies was 18.1%, which made China become the world's largest supplier of color TVs. Nowadays, Changhong and Hisense have become the world-famous brands. However, "importing" at this stage mainly meant to buy a complete set of production equipment, which would lead to a mismatch between production and economy, such as the excess production capacity or under production capacity.

6 MARKET FOR TECHNOLOGY (1986-1996)

In the late 1980s, Chinese government proposed a new governance idea by separating government functions from enterprise management. The competition in the market had been encouraged by Chinese government. The policy of scientific research innovation changed as well. China started the 863 Program in 1986 to encourage tracking the technology frontier. In 1992, the strategy of "Exchanging Market for Technology" was officially proposed.

"Exchanging Market for Technology" involves allowing and encouraging (such as the strategy of tax deduction and exemption for foreign businessmen) foreign companies to set up factories through the Foreign Direct Investment channel. In this way, the advanced technology and management experience abroad could be introduced to China by technology penetration. A great number of foreign companies poured into China after the opening-up policy, which produced significant technological spillover effects. The overall level of science and technology in China has been improved during this decade. The labor productivity in China improved rapidly. Besides, the capacity of imitation and innovation had achieved striking development.

7 THE TRANSITIONAL PERIOD FROM TECHNOLOGY IMPORT TO INDEPENDENT INNOVATION (1997-2005)

The *National Important Fundamental Research Program of China (the 973 Program)* was launched in 1997 and promoted integrated innovation and secondary innovation mode. In a stage of relative low innovation capacity, integrated innovation was the dominant pattern in China. Integrated innovation refers to choosing, integrating and optimizing innovation elements and content, thus forming an overall innovation process for complementary advantages. For example, cooperation between joint innovation laboratories enterprises and universities, and joint innovation research between domestic enterprises and foreign enterprises, are both typical integrated innovations.

Secondary innovation refers to an innovation pattern different from the original innovation. Secondary innovation follows the path of importing, assimilating and innovating. Since China has walked on the road of independent innovation, China's technology innovation capacity improved quickly. China has turned from imitation oriented to innovation oriented.

8 INDEPENDENT INNOVATION (2006-NOW)

In 2006, the report of "the *Seventeenth National Congress of the Communist Party of China"* pointed out that "to take the path of independent innovation with Chinese characteristics". In the same year, the State Council issued the *National Long-term Science and Technology Development Plan (2006-2020),* aiming at cultivating an

innovation-encouraging environment and helping Chinese enterprises to be the major technological innovation subject in the world. The plan involved the following ten aspects: R&D investment, tax incentive, financial support, government procurement, re-innovation based on learning and improvement, protection on intellectual property, talent training, education and popularization of science, scientific innovation base and platform, and enhancing coordination.

At this stage, the innovation capacity of Chinese enterprises has been increased greatly. Large amount of Chinese independent Innovation brands have been extended from the domestic market to the oversea market, such as Huawei, ZTE, and Chery Automobile. Chinese enterprises in aerospace, marine exploration and information and biology are at the top of global science and technology.

9 CONCLUSION

Science and technology constitute the primary productive force, affirmed Deng Xiaoping in 1988. However, the development of innovation capacity is a systematic project, which is not only concerned with the research cooperation and breakthrough development on specific fields, but also affected by the overall environment of a nation's innovation policy. During the developing phase of science technology, some factors such as history, culture, economy, education and international situation would generate significant influence. Therefore, it is the responsibility of each BRICS country to explore and build a suitable innovation development path for itself according to these different characters. On the path to development, a country should be neither overconfident nor over dependent on external assistance. Technological cooperation and interpenetration are necessary and inevitable in a global era. With the mutual efforts among BRICS, emerging economies should walk faster and create a more stable path to innovation. The renaissance of science among BRICS countries is not very far.

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TECHNICAL SESSION 5

Peace and Security Issues

- Initiatives to deal with terrorism
- Cyber security
- BRICS Armed Forces as a tool for international cooperation

CHAPTER 9

CHALLENGES OF INCLUSIVE AND SUSTAINABLE DEVELOPMENT

Candice Eleanor Moore[1]

ABSTRACT

This paper analyses the links between development and peace and security, and the potential this relationship holds for the engagements of the BRICS States. In doing so, it highlights the necessity for cooperation on key international security issues of the day, including the fight against terrorism; the enhancement of global and national cybersecurity; and the potential posed by the BRICS armed forces for greater cooperation between the BRICS. The paper concludes with some general recommendations for the BRICS States, including the potential to infuse pragmatism into multilateral discussions on cybersecurity; the ability to strengthen their respective regional responses to terrorism; and the capacity for strengthening peace support operations in Africa and elsewhere.

1 INTRODUCTION

This year sees the celebration of the 20th anniversary of freedom in South Africa, as 27 April 2014 marked the date of the first democratic elections. This milestone also represents a moment of reflection on South Africa's foreign relations and strategic gains over the past 20 years. Second only to the imperative to make meaningful connections between the country's foreign relations and its domestic needs, the central focus of foreign policy has been the regeneration and development of the African continent. At the 2013 BRICS Summit in Durban, South Africa underlined this commitment by inviting as observers, representatives from some of Africa's regional organizations, and by organizing discussion around the theme "BRICS and Africa: Partnership for Development, Integration and Industrialization."

Peace, security and development are two categories that have a long shared affiliation in the histories of all of the BRICS States, and indeed, of their regions. In the Southern African and African regions, this nexus between these two concepts is arguably at the heart of all that challenges the continent. Indeed, as noted by

1. University of Johannesburg, Republic of South Africa, cmoore@uj.ac.za (until 31 March, 2014). These notes were prepared as a contribution by the South Africa delegation to the 2014 BRICS Academic Forum, Technical Session 4: Peace and Security, held at City Palace, Rio de Janeiro, 17-19 March, 2014. My thanks go to Mr Priyal Singh for constructive comments made in the preparation of these notes.

the former President of Brazil, President Luiz Inácio Lula da Silva, at the opening of the General Debate of the 61st session of the UN General Assembly,

> There will only be security in a world where all have the right to economic and social development. The true path to peace is shared development. If we do not want war to go global, justice must go global.[2]

Indeed, this is a unique strategic view shared by the BRICS States in their engagement as a grouping at the global level: a shared commitment to inclusive and sustainable development, and the recognition that there is an inextricable relationship between development, peace and security. To this end, there is a strong commitment to multilateralism, and especially to the UN, as the foremost international institution entrusted with "bringing hope, peace, order and sustainable development to the world".[3] However, BRICS are agreed, to varying degrees, that reform of the UN is required to better equip the organization for the security and development challenges of the twenty-first century. The South African Minister of International Relations and Co-operation, Minister Nkoana-Mashabane, issued a challenge in October 2013, that:

> the UN membership …celebrate the 70th anniversary of the United Nations in 2015, with a reformed, more inclusive, democratic and representative UN Security Council.[4]

There is the recognition among BRICS that individual States reserve the right to determine their own development paths. This is a powerful dictum in the contemporary international environment: the embodiment of the "pluralism" advocated by one half of the English School of the International Relations Discipline. Robert Jackson, one of the School's foremost scholars, averred that "a pluralist international society is a practical institutional adaptation to human diversity: the great advantage of a society based on the norms of sovereignty and non-intervention is that such an arrangement is most likely to achieve the moral value of freedom".[5]

Due to space constraints, this statement will not be fully interrogated here, save to emphasize the importance of managing diversity in our contemporary world, and the significant role that BRICS play in this, both through their conscious collective decision to form a grouping that is challenging dominant narratives about the distribution of power globally, and through the development paths each State has chosen to adopt.

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2. Ministério das Relações Exteriores, website of the Brazil Ministry of External Relations, <http://www.mre.gov.br/ingles/politica_externa/discursos/discurso_detalhe.asp?ID_DISCURSO=2923>, accessed online, 7 May, 2007.

3. BRICS Declaration 2013.

4. *Mail and Guardian.* 2013. "SA calls for UN Security Council reforms", 8 October, 2013.

5. Jackson, cited in Dunne, Tim. 2006. "Chapter 7: The English School", in Tim Dunne, Milja Kurki and Steve Smith. 2006. *International Relations Theories: Discipline and Diversity.* Oxford University Press: Oxford. Pp. 127-147: 137.

Following on from the outcomes of the 2013 BRICS Summit hosted by South Africa, the issues dealt with at this year's Academic Forum focus on the most salient points raised in the BRICS eThekwini Declaration of March 2013, and the issues raised by BRICS National Security Advisers resulting from their meeting in India in January 2013 and revisited in Cape Town in early 2014. Three of these issues in the Peace and Security domain were: the BRICS' posture with respect to terrorism; initiatives in relation to cyber-security; and, the role BRICS armed forces can play as a tool for international cooperation. While South African academics affirm the importance of these issues, there is a recognition that there are a number of other issues that would also benefit from greater attention from the BRICS leaders. These include the place of women in peace and security (as detailed in UNSC Resolution 1325 of 2000), which has not yet been mentioned in BRICS' Summit Declarations.[6] Women's role in the prevention and resolution of conflicts and the return to peace was recognized by the Security Council in 2000, but has not found a voice in the BRICS platform.

2 INITIATIVES TO DEAL WITH TERRORISM

In 1998, efforts to update South Africa's anti-terror legal framework picked up pace with the approval of a new official policy on terrorism. These efforts received new momentum after the 2001 9/11 terror attacks on the United States. Subsequent to this, the UN Security Council adopted Resolution 1373, which obliged each UN member state to create the prescribed legal framework to cooperate fully with other nations on anti-terrorism measures on a global scale.[7] "This included the criminalization of the financing and other acts of support for terrorism, the freezing of bank accounts, the introduction of effective border controls and other measures to fast-track the exchange of intelligence information."[8]

In August 2002, a legal opinion on South Africa's legislative framework for dealing with a terrorist threat was submitted by the South African Law Commission, a statutory advisory body, to the Minister of Justice. The opinion found that South Africa has some way to go toward fortifying its anti-terrorism legislation: "(O)ur law should provide for extra-territorial jurisdiction, the present terrorism offence is too narrow and financing of terrorism must be addressed".[9] Any such legislation must of course, comply with the South African constitution. South Africa's existing anti-terror legislation was designed to manage threats to the State from domestic sources,

6. BRICS Summit, Brasilia, 2010 made mention of women in the context of the fight against poverty, as did the Sanya Summit Declaration of 2011. The 2013 Durban Declaration, meanwhile, welcomed the appointment of a female AU Commission Chairperson as an affirmation of the leadership of women.

7. Hübschle, Annette. 2005. "South Africa's Anti-Terror Law: Among the least restrictive?", in *African Security Review*, Vol. 14, n. 4, online.

8. Ibid.

9. South African Law Commission. 2002.

especially the liberation movements. So, by 2002, efforts were well underway, in response to prompts from the UN Security Council, in the aftermath of the 9/11 attacks on the United States, for all States to update and finalize their proposed anti-terror legislation, especially with regard to the financing of terrorist acts.

There are already fourteen conventions or protocols to which all States should accede. South Africa is a party to all of these conventions.[10] According to the Department of International Relations and Cooperation (DIRCO), South Africa was assessed by the UN Security Council's Counter Terrorism Executive Directorate in 2008 and found to be compliant with international counter terrorism instruments. South Africa was also found to be 'largely compliant' with international anti-money laundering and financing of terrorism measures.[11] To date, the main terrorist threats South Africa has faced have been from urban terrorism. South Africa has had in place since 2005 the Protection of Constitutional Democracy against Terrorist and Related Activities Act. South Africa's position is that "the fight against terrorism requires a multilateral approach and should be conducted with due regard to international human rights law and respect for the sovereignty of States".[12] Mooted amendments to South Africa's constitution to respond to the terror threat after 9/11 met with stiff opposition from those who believed such amendments would infringe on personal liberties.

There is understandably, still no universally agreed definition of terrorism, in spite of most States, including the BRICS States, recognizing the seriousness of this problem. It is clear that the UN legal instruments, to which South Africa has acceded, largely deal sectorally with the terrorist threat. No less than five of the UN's fourteen international legal instruments to counter terrorism deal with aviation or aircraft. Recent events, such as the Westgate Mall massacre in Kenya, and transport terrorism in Russia show that these instruments are being outpaced by events. Terrorists act in smaller groups and may have far humbler, but more destructive, targets than previously. These changes need to be met with the adaptation of national laws to reflect the mobility and flexibility of this new terrorist threat. This means that laws must be enacted that govern the movement of finances in and out of States; as well as the movement across borders of individuals. However, this concern with security must be balanced with the concern to protect the civil liberties of individuals.

10. South African Government. 2010. "Statement of South Africa on Agenda Item 4: Integration and Coordination of Efforts by the United Nations Office on Drugs and Crime and by Member States in the Field of Crime Prevention and Criminal Justice at the 19th Session of the CCPCJ on 19. May 2010", accessed online at: <http://www.dirco.gov.za/vienna/speeches/statementccpcj180510.pdf>

11. South African Government, 2010.

12. South African Government, 2010.

What is the position of the BRICS States on the move toward a comprehensive convention against terrorism? The NAM supported this and this is also the preference of the OAU and now the AU. The UN, meanwhile, has had to work for piecemeal progress. According to the BRICS leaders after their 2013 summit,

> We reiterate our strong condemnation of terrorism in all its forms and manifestations and stress that there can be no justification, whatsoever, for any acts of terrorism. We believe that the UN has a central role in coordinating international action against terrorism within the framework of the UN Charter and in accordance with principles and norms of international law. In this context, we support the implementation of the UN General Assembly Global Counter-Terrorism Strategy and are determined to strengthen cooperation in countering this global threat. We *also reiterate our call for concluding negotiations as soon as possible in the UN General Assembly on the Comprehensive Convention on International Terrorism and its adoption by all Member States and agreed to work together towards this objective*.[13]

The emergence of a clear terrorist threat in Africa could provide added impetus to the actions of the BRICS States. The terror activities of Boko Haram in Nigeria, who are reputed to have links with both Al-Qaeda in the Islamic Maghreb (AQIM) and with Somalia's Al-Shabaab, could pose challenges across Africa, from Nigeria in the west to Somalia in the east. While South Africa has not been directly affected by the types of terrorist attacks that have been seen in the United States, United Kingdom, Russia and China, this does not mean that it may not serve as a key location for the planning and preparation of terrorist attacks, or for the harboring of terrorists. This was shown in a number of past cases, and recently with the news that the so-called "White Widow" British terrorist Samantha Lewthwaite had used a South African passport and had lived in South Africa with her children in the years preceding the Westgate Mall terror attacks on Kenya at the end of 2013. South Africa's successful prosecution of Nigerian terrorist Henry Okah in January 2013, showed the results of regional cooperation in the fight against terrorism. BRICS have a role to play in engendering the types of regional cooperation that can foster this kind of success.

1) It is recommended that BRICS States continue to promote and lobby for a holistic approach to combating the scourge of terrorism, in line with their individual approaches to this problem.

2) The BRICS platform should be utilized to establish a framework on regional responses to terrorism, encompassing information-sharing about potential terrorist activity, cooperation between law-enforcement agencies and financial institutions, as well as intelligence.

13. BRICS Summit, eThekwini Declaration, March 2013. Available at: <http://www.brics5.co.za/fifth-brics-summit-declaration-and-action-plan/>. Accessed on: 19 February, 2014. Italics added.

3) This could be supplemented by the creation and funding of a centre to study terrorism.

4) While each region may experience terrorist threats in different forms, the design of responses relevant to each context can be led by BRICS States, remaining fully aware of the political sensitivities in each case.

3 CYBER SECURITY

There is a growing recognition of the pivotal role the BRICS play and will continue to play in this regard. "The year 2013 (was) a pivotal moment for the Internet as cyberspace [became] an increasingly contested area. The economic and political stakes involved have transformed cyberspace from an issue of low to high-level politics, and the BRICS countries will play a critical role in determining its outcome".[14]

In the eThekwini Declaration of 2013, the BRICS States announced that,

> We recognize the critical positive role the Internet plays globally in promoting economic, social and cultural development. We believe it's important to contribute to and participate in a peaceful, secure, and open cyberspace and we emphasize that security in the use of Information and Communication Technologies (ICTs) through universally accepted norms, standards and practices is of paramount importance.[15]

This was reiterated by the BRICS Foreign Ministers Meeting on the margins of the 68th session of the UN General Assembly in September 2013. Another observer opined that, "(t)he outcome of the struggle over Internet governance and cyber-security between BRICS member States will to a large extent determine the future of cyberspace, and with it, shape a fundamental element of the future world order".[16]

An alternative internet infrastructure project that was announced by Brazilian President Dilma Rousseff in September in 2013; namely, the construction of the "BRICS cable" from Vladivostok to Shantou, to Chennai to Cape Town, to Fortaleza, promised the best avenue for BRICS cooperation on cyber-security. While there is extensive potential for cooperation among BRICS States on the infrastructure of the internet, an opportunity also exists for BRICS to collectively chart new courses in the governance of the internet, at the national and global levels. This is especially necessary given that the BRICS cable will not deter surveillance, nor will it protect data moving between the BRICS and other States. At the national level, there is much work to be done in securing national systems against attacks.

14. Ebert, Hannes and Tim Maurer. 2013. "Cyberspace and the Rise of the BRICS", *Journal of International Affairs,* I.
15. eThekwini Declaration, 2013.
16. Ebert and Maurer, 2013.

The rise of largely unregulated electronic currencies such as Bitcoin, for example, is an area of international commerce that requires further research, as well as the development of the anonymous online marketplace known as the "Silk Road" – which was shut down by the U.S. Federal Bureau of Investigation in October of last year. "The BRICS should therefore consider the integrity and security of their respective cyber-networks, through this forum, in order to promote a peer-learning approach toward the protection of critical national physical and electronic infrastructures, and to combat common transnational criminal elements".[17] BRICS agreed in December 2013 on the establishment of an expert working group on cyber-security that met in January 2014. In addition to the creation of this group, the BRICS States can galvanize their postures with respect to cyber-security by doing the following:

1) BRICS can engage in information sharing about good practice on shoring up security against cybercrimes, and in the building of skills capacity to respond to attacks at the national level.

2) Closer collaboration should be fostered between national agencies dealing with cybercrime. The 2013 Norton Report found that South Africa ranks third in the number of cybercrime victims, after BRICS partners, Russia and China.[18]

3) This is also an issue that could be discussed in our sister forum, the BRICS Business Forum, as the business community can also play a significant role in regulating its activities in this regard.

4 BRICS' ARMED FORCES AS A TOOL FOR INTERNATIONAL COOPERATION

Questions about BRICS' Armed Forces and their potential for international cooperation must be answered in the context of the changing role of the BRICS. While we hear and read much about BRICS' economic impact, we hear less about the roles that BRICS are playing in international diplomacy and military equations. South Africa has emphasized the potential of BRICS States' coordinated roles in managing conflict resolution on the African continent. This is an issue of crucial importance to South Africa. BRICS partners have agreed on the importance of this issue in principle but there is limited movement toward realizing any concrete benchmarks for such coordination.

The first standalone meeting of BRICS' National Security Advisers (BRICS High Representatives on Security Issues) took place in early January 2013, in New

17. I am indebted to Mr. Priyal Singh for these observations (e-mail).

18. Jones, Gillian. 2014. "South Africa neglects alarming effect of cybercrime", in *Business Day,* 14. January, 2014. Available at: <http://www.bdlive.co.za/business/2014/01/14/south-africa-neglects-alarming-effect-of-cybercrime>.

Delhi, India. Syria, Libya and Mali were the main themes for discussion. By issue, cyber terrorism, piracy and terrorism were the main discussion points. Incrementalism and gradualism are the key words in talking about BRICS cooperation and coordination. No indication was given of any firmer platform for cooperation on security issues at the New Delhi meeting. This was derived from the statement of the Indian National Security Adviser after the meeting.[19] Towards gradualism and incrementalism, BRICS' shared concern over the security of the oceans is a potential area of cooperation that is ripe with possibilities.

The maritime component of military cooperation between the BRICS is an issue on which the leadership has not yet made any declarations. Yet, the governance of the oceans is central to the geostrategic interests of all of the BRICS nations. The Indian Ocean, for one, represents both opportunities and security challenges, posed by global terrorist networks, piracy and drug smuggling. There is scope here for greater collaboration on managing the security of this region, in tandem with efforts to build peace in places such as Somalia.

What remains central to the BRICS' position on international peace and security cooperation is that the key global instrument and legal focal point of international conflict management is the United Nations system. This is a position underlined by the BRICS, especially in the Joint Declaration of 2010, emanating from the first summit hosted by Brazil. The United Nations has come under increasing pressure in recent years. The organization has had to spread its reach ever further, even while major funders such as the United States sought to rein in funding of the UN under the administration of George W. Bush.

Recently, BRICS' role in helping to steer the international response to the Syrian conflict is instructive. It is, in fact, this Syrian crisis that has prompted wider reflection on the potential political and military roles that BRICS can play. BRICS, through their adamant rejection of any intervention in Syria that is not sanctioned by the UN Security Council, and that is not clear and detailed, have encouraged discussions on how to deal with the crisis away from unilateral military action, in the direction of dialogue and negotiation.

It is worth noting that while the BRICS as individual States may differ in many respects they are single-minded on the question of humanitarian intervention. On the whole, there is opposition to the idea that the sovereignty of a State may be breached in favor of intervention to protect the rights of citizens.

19. Ministry of External Affairs, Government of India, "Transcript of Media Briefing by National Security Advisor after BRICS Meeting of High Representatives on National Security", January 10, 2013. Available at: <http://www.mea.gov.in/media-briefings.htm?dtl/21046/Transcript+of+Media+Briefing+by+National+Security+Advisor+after+BRICS+Meeting+of+High+Representatives+on+National+Security>. Accessed on: 29 June, 2014.

A key pillar of non-Western criticism of Western interventions has been that they have been conducted upon the whims of respective Western national interests. What is interesting and consequential about the BRICS position – if there may be termed to be "one" position – is that the power calculus that has so frequently driven UN interventions in the past is now mounting in favor of the so-called "emerging powers". This begs questions, not only of whether they will sanction interventions, modifying their own well-worn stances in the process – but also what these interventions may *look like*.

Under former president Thabo Mbeki, South Africa crafted a strong and clear stance on humanitarian interventions. The erstwhile South African position was predicated upon the internationalism favored by the governing party, the African National Congress, and was bounded by the country's awareness of its late entry into African brotherhood and solidarity. As noted by Kibasomba, South Africa accepted the substantial commitment of pledging to contribute toward a better Africa and a better world, but did so armed mainly with the conviction that *peacemaking* would be emphasized over *peacekeeping*.[20] Today, peace support and crisis management form essential components of South Africa's engagement in Africa.[21] There is thus an important role to be played by BRICS in this regard as each individual BRICS State finds itself in the position to be influential in certain conflict areas in the world, through its relations with one or more protagonists of contemporary global conflicts and crises.

In the realm of hard power, all of the five BRICS nations are undertaking military modernization exercises. This is in stark contrast to the Europe Union paring its military spending, and the United States whose budget is enormous but which has also had to begin to think within budgetary constraints following the financial crisis of 2008-2009, and changes to deployments following its drawdowns in Afghanistan and Iraq. There is the prospect of greater collaboration among the BRICS States as they seek to modernize their militaries. However, Brazil, as stated in its Defense Review of 2008, is keen to indigenize its arms procurement. Russia and China are two of the top five arms exporters over the period 2008-2012.[22] India and China, meanwhile, were among two of the five biggest importers.

BRICS can determine modes of engagement in conflict situations that accord with their norms of respect for sovereignty and for the centrality of the UN Security Council in the resolution of international disputes. Individual BRICS States, such as India, South Africa and Brazil have already proven to be prolific contributors to

20. Roger M-B Kibasomba. 2002. "Conflict Prevention and Resolution", Paper presented at Ten Year Presidential Review, The Policy Co-ordination and Advisory Services in the Presidency, 12-13 November, 2002, p. 1-2.

21. My thanks to Prof Anthoni van Nieuwkerk for this observation.

22. SIPRI, 2012. *Trends in International Arms Transfers.*

the UN machinery for the resolution of international disputes, whether in military leadership positions, such as Brazil's role in MINUSTAH in Haiti, or India's leadership in the supply of personnel for UN missions, or South Africa's role in assisting in the resolution of certain crises in Africa, including in Burundi, DRC, and Sudan.

1) BRICS can strengthen cooperation in maritime governance, especially in the Indian and Atlantic Oceans, in which each State has a stake.

2) They can also work to coordinate and strengthen peace support and mediation efforts in crisis zones. This would involve activities as diverse as coordinating positions on key international crises, and providing peace support in conflict areas.

TABLE 4
BRICS Armed Forces[23]

Country	Armed forces personnel, total	Military expenditure, 2012	World ranking
Brazil	713,480	1.47% of GDP	64
Russia	1,364,000	4.47% of GDP	8
India	2,647,150	2.43% of GDP	32
China	2,945,000	1.99% of GDP	41
South Africa	77,582	1.16% of GDP	89

TABLE 5
BRICS' contributions to UN Missions[24]

Country	Contributions to UN Missions as at 31 January 2014, Police and Military experts	Contributions to UN Missions as at 31 January 2014, Troops
Brazil	15/24	1,716
Russia	36/63	4
India	972/51	6,814
China	171/35	1,980
South Africa	61/21	2,105

5 CONCLUSION

This essay has sought to highlight some of the enduring frames for examining security cooperation within the BRICS. These include the security/development nexus, and the ideal of a pluralist international society. BRICS embody the aspiration for an

23. CIA World Factbook and World Bank Data (World Development Indicators).
24. UN Peacekeeping Office, accessed online.

international system predicated on the rule of law, through their own guidelines for interaction, as they seek to manage diversity within the grouping, while still seeking cooperation on key international issues. While their moves toward security cooperation have been incremental and gradual to date, there exist many opportunities for significant cooperation on a variety of international challenges. The BRICS can bring regional coherence and leadership to thwarting terrorist threats; pragmatism to the governance of cyberspace; and, improved governance of the oceans they border, along with better-coordinated peace-support operations in global flashpoints. The place of women in peace and security is an important additional issue that leaders should consider.

TECHNICAL SESSION 6

New Middle Classes: Emerging Groups in Emerging Countries

- Different concepts and definitions applied to BRICS
- Comparing new middle classes among BRICS
- The political economy of consumer markets

CHAPTER 10

STRUCTURAL CHANGE OF SOCIAL CLASSES AND STRATUMS AND ITS IMPLICATIONS FOR CHINA'S FUTURE SOCIAL DEVELOPMENT

Zhang Yi[1]

The structure of social classes and stratums are changing a lot in China. Using the classification framework of social stratification of Eric Olin Wright, this paper analyzes the structural change of social classes and stratums in China. Through the result of the analysis, the paper tries to explain how such change will affect the future social development and change in China.

1 THE STRUCTURE OF SOCIAL CLASSES AND STRATUMS BEFORE THE REFORM AND OPENING UP OF CHINA

Before 1949, the class structure of China was very complicated. Although the majority of the population belonged to a farmer class, they stayed in the lowest level of the social ladder. Due to the growing of the cities, the start of early modernization, and the existence of the capitalist class from the West as well as the comprador class affiliated to it, the working class entered modern society earlier than the capitalist class in China. Though small in size, the urban population enabled the formation of the urban classes accordingly. Since the beginning of modern history, the social stratification of China was no longer a purely agricultural society.

During the regime consolidation period from 1949 to 1956, the old state machine was remolded successfully with the theory of class struggle and proletarian dictatorship. In the cities, the economic foundation of the bureaucrat bourgeoisie class and comprador capitalist class was transformed into a state-owned economy. In the rural areas, land used to belong to the landlord class and the rich farmer class was distributed to the poor farmer class.[2] Afterwards, the socialist transformation was carried out in agriculture, handicraft industry, and capitalist commercial industry, which completed the neo-democratic revolution. With the support of the state power, the social status of the working class and farmer class was unprecedentedly high. At the same time, the original capitalist class, the landlord class, as well as the rich farmer class disappeared gradually. It is obvious, the change of the state

1. Institute of Sociology, Chinese Academy of Social Sciences.

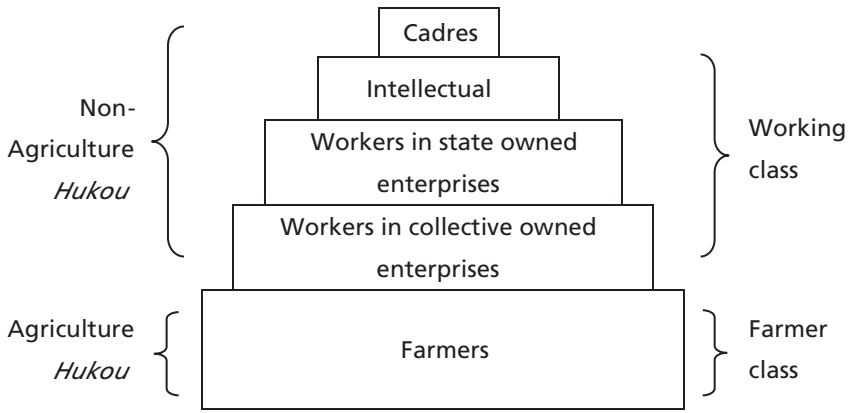
2. Because at first only the land of the landlord was distributed to the poor farmers, the rich farmers owned the largest share of land during the period from 1949 to the accomplishment of the socialist transformation.

system and economic foundation, on one hand, deconstructed the original upper classes, literally capitalist class, the landlord class, as well as the rich farmer class. On the other hand, the change shaped and strengthened the class position of the farmer class and working class, which made them the nominal leading classes.

The period of 1957 to 1976 experienced winding exploration. In this period, the structure of classes and stratums should be analyzed in the context of socialist economic construction. However, distracted by the ultra-Left trend of thought, the class line implemented in the regime consolidation period was continued, which mistakenly expanded the class struggle and repression. Although the economic foundation for the original landlord class, the rich farmer class, the capitalist class, and the bourgeoisie class did not exist any more, the people used to belong to these classes were criticized and attacked personally. Following the suit of the Soviet Union, China also tried to realize and stereotype the ideas of Marx in Critique of the Gotha Program in its economic construction, either consciously or subconsciously. The single public ownership (state ownership and collective ownership) of the means of production was built, characterized by giving priority to the development of heavy industry. The social resources were allocated by highly centralized central guiding plan and governmental monopoly. Accompanied with the single public ownership, the relatively equalized income distribution system gradually led to a simplified structure of classes and stratums in Chinese society. For a long time, there were only two big classes and one stratum in society, which were working class, farmer class and intellectual stratum. Before the implementation of the *hukou* system (residence registration system), there were several opportunities for the members of the farmer class to immigrate to the cities and become members of the working class.

The structure of classes and stratums of China in this period is shown in figure 1.

FIGURE 1
Hukou and class structure of China before reform and opening-up



From figure 1, we can see that with the restriction of the *hukou* system, the summarization of two big classes plus one stratum was reasonable but not very accurate. In reality, within the working class, the stratum of the "Party and government cadre" had a significantly higher power position and social reputation than the stratum of "intellectual". Although classed as the "bourgeoisie class", the intellectuals had better income and consumption level. Even within the public ownership, the working class in the state-owned enterprises enjoyed better treatment than in the collective ownership enterprises. In general, in such a rigid social mobility system, the farmer class still stayed at the bottom of society. But because there existed an "imaginary enemy" of revolution, who were classed as capitalist class and "landlords, rich farmers, anti-revolutionists, rightists, and bad guys", in the ideology arena, the farmer class belonged to the leading classes, in term of political status and identity (Zhang Yi, 2004).

In the two decades from the second half of 1950s to early 1980s, the social structure was solidified as "two big classes plus one stratum". As the majority of the population, the farmer class accounted for 80% of the whole population, and stayed at the bottom of society. The working class accounted for 12% of the population. Compared to the farmer class, the working class was less in number but enjoyed a better income level. Although the "cadre" was seldom considered as a stratum, in fact this group embraced better jobs and higher income levels than the working class. Despite some grassroots cadres having a low level of income, they enjoyed a higher social status, as a result of the power they had. The cadres accounted for 3.5% of the working population. Therefore, before the reform and opening up, the tendency of social mobility was to move from the farmer class to the working class, and then move from the working class to the intellectual and cadre stratums. The cadre stratum stayed at the top of society.

2 MAJOR CHANGES OF CLASSES AND STRATUMS STRUCTURE AFTER REFORM AND OPENING UP

Since Reform and opening-up, along with the differentiation of the social occupational structure of China and the speed-up of social mobility, rapid changes took place in the structure of classes and stratums of China.

According to the research framework of Eric Olin Wright, I made a distinction between the propertied class and employee class. Among the propertied class, small employer stratum and self-employed stratum belonged to the old middle class, because they only employed a relatively small number of employees. The propertied stratum held the highest position, the owners of enterprises who employed more than eight employees. Therefore, the number of employees was decisive for the class position of the employers. Defined with operational definition, the enterprise owner stratum became the upper stratum in the society. While stratified by income or educational level, the enterprise owners would be classified as middle class.

The new middle class was mainly referred to as the "non worker and non-manual labor employee". In other words, even with a high education, if one person employed less than seven employees, one would be categorized in the small owner stratum. However, if one was employed by the small owner stratum, one would be categorized into the group of the new middle class, according to one's managing power and situation of using human capital in the working units. As a result, according to the structure shown in figure 1, we just classified the professional manager class, professional supervisor class, professional class, technical manager class and manual manager class as the new middle classes.

In fact, in the definition of Eric Olin Wright, sometimes the manual supervisor class is categorized as the middle class. Since the manual supervisor class has the labor characteristics of the supervisors, their working experience and class identification will be different from general manual working class. Nevertheless, since the average educational endowment of the manual supervisor class is almost identical to the manual working class, we still categorized them as the working class.

Therefore, the definitions to the old middle class and new middle class here are not the same as the middle class in terms of education, occupation, and income, which is used more often by other sociologists. With the operational definition, the division of the old and new middle classes does not consider the income level. The reason is that through the process of the social labor division and labor market selection the laborers are already divided according to the degree of the scarcity of technology and power.

Table 1 reports the trend of change in the class structure from 2001 to 2013. In the matrix of property owner class, in 2001, property owner class accounted for 0.43% of the population. The small property owner class accounted for 2.25%. The sum of the two classes was 2.68%. The self-employed class accounted for 10.71%, while the farmer class accounted for 51.61%. The proportion of the whole new middle classes in the working population was 6.79. There is a significant increase in the proportion of the manual working class, which was 20.01%. The proportion of the semi-manual working class also grew to 6.72%. The proportion of the manual supervisor class was 1.48%.

In 2006, the property owner class accounted for 0.52% of the population. The small property owner class accounted for 2.63%. The sum of the two classes was 3.15%. The self-employed class accounted for 11.51%, while the farmer class accounted for 46.96%. The proportion of the whole new middle classes in the working population was around 7.76. The proportion of the manual working class increased to 21.43%. The proportion of the semi-manual working class also grew to 7.63%. The proportion of the manual supervisor class was 2.32%.

Through the data of occupational variable and number of employees, the questionnaire in 2011 made it possible to distinguish the owner class from the old middle class. But there was still no data for the sub-classes within the new middle class. The proportion of different classes was as follows: the proportion of the owner class and the small owner class was 0.84% and 2.72%. The sum of the two classes was 3.56%. The self-employed class accounted for 11.01%, while the farmer class accounted for 36.52%. The proportion of the whole new middle class in the working population increased rapidly to 12.68%. The proportion of the manual working class increased to 24.26%. The proportion of the semi-manual working class also grew to 9.63%. The proportion of the manual supervisor class was 2.32%.

In the questionnaire of 2013, there was no data for the number of employees, or data to identify the sub-classes within the new middle class. In 2013, the proportion of the owner class was 4.62%. The self-employed class accounted for 13.85%, while the farmer class shrunk to 30.32%. The proportion of the whole new middle classes in the working population increased rapidly to 15.75%. The proportion of the manual working class was 22.72%. The proportion of the semi-manual working class grew to 9.87%. The proportion of the manual supervisor class was 2.87%.

TABLE 1
Tendency of change of class structure in China
(In %)

	2001	2006	2011	2013
Owner class (8 or above employes)	0.43	0.52	0.84	4.62
Old middle class: small employer class (1-7 employees)	2.25	2.63	2.72	
Old middle class: self-employed class (no employee)	10.71	11.51	11.03	13.85
Employee class				
Professional manager class	0.87	0.93	12.68	15.74
Technical manager class	0.97	1.11		
Manual manager class	0.84	0.97		
Professional supervisor class	0.74	0.79		
Technical supervisor class	1.16	1.65		
Professional class	2.21	2.31		
Manual supervisor class	1.48	1.55	2.32	2.87
Semi-technical semi-manual class	6.72	7.63	9.63	9.87
Manual working class	20.01	21.43	24.26	22.72
Farmer class	51.61	46.96	36.52	30.32

Obs.: if a farmer ran a farm and hired employees, the owner of the farm would be categorized as owner class according to the number of employees he/she had. Self-employed included the laborers in the household enterprises.

3 THE IMPACT OF CLASS AND STRATUM CHANGING ON FUTURE SOCIETY

China is a populous country. For a populous country, food security will be a political concern rather than an economic one. Although the rate of decline of the farming class will slow, it will eventually reach up to 30% due to new machinery and advances in agricultural science and technology.

Among all countries, China has the largest number of manual workers and comparatively higher ratio of working class in labor population. However, in the process of transition of China's national strategy to service industry, the number of manual workers will shrink. In addition, if we take the expanded enrollment into consideration, it can be estimated that the number of semi-technical manual workers would increase.

For the old middle class, the increasing rate of its ratio in whole population will be going at the current level. However, the number of people belonging to new middle class will still going to increase. The faster education enrollment expands, the faster the number of people belonging to new middle class increases. The faster China restructures its industries and upgrades its techniques, the higher the ratio of new middle class in the overall population.

The large owner class, which employs comparatively more workers in the ownership class, will tend toward stability when it reaches a certain level.

However, the small owner class, which employs comparatively less workers in the Ownership Class, might continue to increase. This is one of the fundamental characteristics of East Asian society.

Based on the class and stratum structure in 2013, the ratio of farmer class had already dropped to about 30%, and the ratio of new middle class and old middle class had also reached to around 30%. The working class had become the largest class in China. This class landscape will continue to exist for a long time. Therefore, when the government makes a series of social and economic policies, attention must be paid to the common interest and respective special interest of these three large classes. If the policies made are biased, then the social movement caused by the difference among class interest might be intensified. In addition, the social structure composed by the middle class, the working class and the farmer class will also have the following effects:

3.1 The working class and middle class oriented development will continue to happen in the same historical period

More often than not, western countries entered into post-industrialized society after their finished industrialization. With a smaller population and driven by industrialization, these societies experienced working class oriented development first, and then underwent middle class oriented development driven by post-industrialization

in a noticeable way. In China, however, industrialization and post-industrialization almost go hand in hand. While the small and medium-sized cities undergo working Class oriented development, the large cities begin their post-industrialization.

3.2 The farmer class and working class will lose the opportunity of promoting social development

According to a recent survey, the middle class, particularly the new middle class expressed a stronger sense of social concern as well as social improvement. Although the middle class is the beneficiary class of society, it cares more about social values. We can see from the model below that when we make the class identification at bay, the new middle class in the objective economy shows very intense class value concern in every model.

4 THE MIDDLE CLASS WILL NOT NECESSARILY BECOME THE STABILIZER OF SOCIETY

The assumption which states that the middle class is the buffer of conflicts between upper class and lower class has not been verified by empirical research. In fact, the middle class can work as the buffer of conflicts only if the following several conditions are in place: 1) The conflicts between upper and lower class must be customary. To put it in another way as Aristotle did, the oligarchy of rich class and the extreme democracy of poor class have a certain social basis. 2) The interest demand of the middle class must be unbiased. 3) Having the above two conditions, the middle class also needs the ability to keep down both upper class and lower class, i. e. the so-called Middle Class Union comprised of many different professions, can not only coordinate the upper class in terms of their use of state dictatorship organ, but also can suppress the violent rebellion organized by the lower class in order to confine the conflicts between the two classes at extremity into a certain social space and prevent society from falling apart.

In brief, the middle class will have a great impact on Chinese society in terms of economic life, consumption idea and political system in twenty years from now. If institutions like government, enterprise and society cannot guide or adapt to this change very well, they will not be able to confront the upcoming conflicts in a calm and unflustered way.

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CHAPTER 11

BRAZIL'S NEW MIDDLE CLASSES

Marcelo Neri[1]

INTRODUCTION

Brazil constitutes a useful example for discussing global middle class issues given its resemblance to the world's income distribution. This paper discusses the new Brazilian middle class,[2] its definition, evolution, profile, attitudes and durability. It describes the methodology to determine economic classes and reveals that 42 million Brazilians joined the middle class since 2003 due to a growth-equity combination. It forecasts different economic classes' paths and calculates individual income risks from longitudinal data. An income-based approach is only the beginning. We integrate it with subjective data to measure different classes' expectations and attitudes and with a structural approach that takes into account the roles played by human, physical and social capital. In all cases, income is the chosen numeraire and central support where all dimensions analyzed are projected.

The paper is organized into four sections. The first conceptualizes the Brazilian middle class using an income-based measure. The following section uses this measure to chart these income-based classes' past performances through 2014 based on national household and longitudinal employment survey data. The third section addresses the sustainability of the new Brazilian middle class's ascension by measuring stocks of productive assets and of consumption goods. The main conclusions are presented in the end.

1 CONCEPTUALIZING THE MIDDLE CLASS

Our methodology draws upon the literature on social-welfare measurements based on household per capita income. After classifying people in income brackets (explained in the following section), perceptions and assets are incorporated

1. Minister of SAE/PR (Secretary of Strategic Affairs), President of Ipea (Institute for Applied Economic Research) and Professor at EPGE/FGV (Graduate Programme on Economics at Getulio Vargas Foundation). Most of the results presented here were conducted at the Center for Social Policies (CPS/FGV). I would like to thank the excellent assistance of Luisa Melo and Samanta Sacramento and the careful comments provided by Jeffrey Johnson.

2. Refer to <www.fgv.br/cps> for more details; see also Souza and Lamounier (2010); Souza (2010); OECD (2010); SAE (2012); Neri (1990; 2011) and Neri *et al*. (2012).

into the analysis. An income-based view of the new middle class is only the beginning. Income assessments are combined with a structural approach that takes into account the roles played by human, physical and social assets. The permanent income measure is then calculated, converting stocks of assets into income flows. Comparing current versus permanent incomes allows us to gauge sustainability aspects of income distribution. The assessment of idiosyncratic earnings risks from longitudinal data also helps to assess the durability of different economic classes.

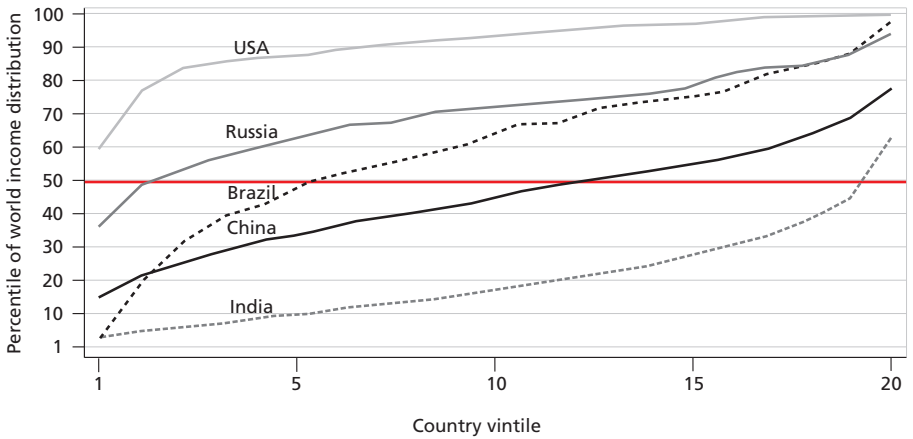
The structural approach pursued here deals with concrete relations between income flows and stocks of assets by looking at households as producers and consumers. The producer's side is based on the field of labor economics, analyzing wages and employment but also entrepreneurship. If employers and the self-employed are workers, they are also firms that live off profit. In a sense they are capitalists, though in most cases without capital, and they live with the associated risks of being a capitalist and most likely without wealth.

Our look at households also draws upon the literature of temporal choice, which is as weak in Brazil as our family savings rates. This perspective helps to go beyond the flat cross-section portraits collected at certain moments in time in favor of visualizing the development of the course of people's lives in a cinematic way. Accordingly, we capture information regarding uncertainties, habits, altruism, capital market imperfections and myopia. If a family does not plan for the future, for example, it will reap the consequences of not doing so over the years.

Of course, flows and stocks of money may or may not bring happiness. In our studies we pair the assessments and expectations of people in relation to their lives as developed in the literature on subjective well-being, which has of late, caught the attention of economists.

Brazilian Income Distribution Parallels the World's – Brazil constitutes a useful example to discuss an income-based middle class on a global perspective because the Brazilian income distribution is relatively close to the world income distribution. This can initially be grasped from graph 1 below adapted from Milanovic (2011). The figure compares the world's income distribution within selected countries. The poorest US vintile have 60% of the world population poorer than it. That is, no vintile of the US income distribution touches the world median income. The lines allow us to compare the same relative position among different countries. The US is richer than Russia that in turn is richer than China, which is richer than India. This is true to any wealth line or conversely any poverty line used.

GRAPH 1
World income distribution, BRICs and the United States (2005)
(In vitiles)



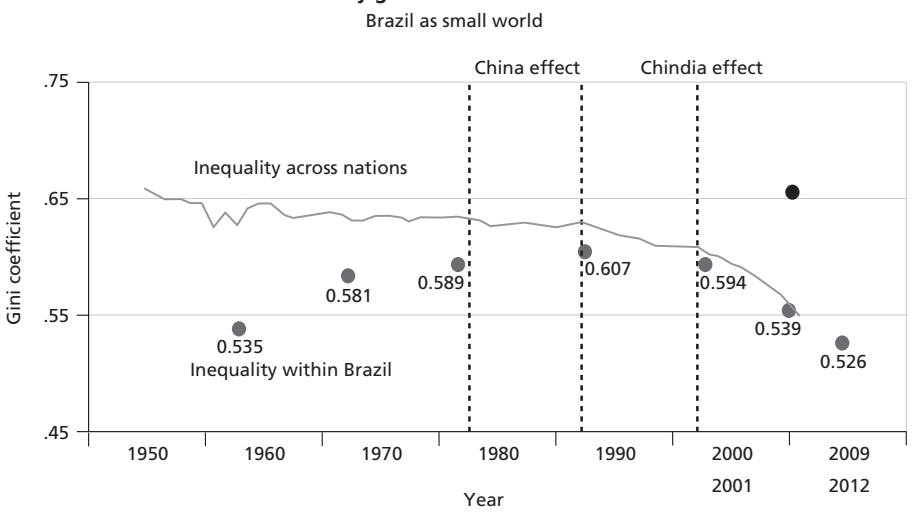
Source: Milanovic (2011).

But where is Brazil? Brazil is everywhere. The poorest Brazilians are as poor as the poorest in India while the richest Brazilians are not far from the wealthiest Russians. Brazilian income distribution is close to an imaginary line with a 45° slope, where world and Brazilian income distributions move hand in hand. In this sense, Brazil is a small world.

Milanovic (2011) also calculates the world Gini coefficient, taking into account the differences in mean income among countries, weighted by their population. For the purposes of that exercise, zero inequality within each country is assumed. Both worldwide income inequality between countries and Brazilian inequality, illustrated in the same figure, did not move much between 1970 and 1990. Over that period, inequality, whether Brazilian or global, ran more or less parallel to the abscissa.

Inequality between countries started to fall with the growth of China, going from 0.63 in 1990 to 0.61 in 2000. Its downward trend becomes sharper from 2000, when the Indian miracle enters into the scene. China and India house more than half of the poor in the global community. The fact is that following "Chindia's" growth in the 2000s, the world Gini fell to 0.54 by 2009. The overall world inequality, which also includes countries whose inequality has grown in 2/3 of the worlds' nations, presents a somewhat milder downward trend in this later period. Its level for the latest year is shown by the black dot in graph 2.

GRAPH 2
Brazil and world cross-country gini coefficient



Source: Milanovic (2011) and Neri (2011).

As for Brazilian decline, it has taken place only since the 2000s. After thirty years of high inertial inequality occurred after the great inequality rise of the 1960s associated with the so-called Brazilian economic miracle, the Brazilian Gini coefficient began to fall in 2001, going from 0.60 in that year to 0.539 in 2009; in 2012, it reached a level of 0.526, little below the starting point of the series in the beginning of the 1960s. To have an idea of the changes observed in the 2001-2012 period, the 5 per cent poorest in Brazil faced and income growth 550 per cent faster than the 5 per cent richest. These changes are close to the levels observed worldwide in those dates. The internal scale of distances among Brazilians is like a mock-up of that observed among the different nations of the world.

The Brazilian Gini coefficient, although one of the highest in the world, is reasonably close to the global Gini coefficient of income inequality between countries. The movement of inequality in Brazil since the beginning of the 2000s is also relatively quite close to the one observed in the world.[3] The same can be observed in GDP level and trends in the 2000s. Brazilian GDP per capita PPP in 2012 was 93.7 per cent of the world average. The mean GDP PPP growth rate in the 2001 to 2012 period was also reasonably close, 3.49 per cent for Brazil and 3.58 per cent for the world according to the World Development Indicators from the World Bank.[4]

3. The same thing works for internet coverage according to the World Gallup Poll in 2010, validated also by Brazilian National Household Survey was almost the same for the two contexts.
4. Available at: <http://data.worldbank.org/data-catalog/world-development-indicators>.

If the starting and end points of Brazilian and worldwide inequality, income levels and trends are equivalent, Brazil is not just a representative photo, but also a movie of the world at the dawn of the new millennium. The saga of the Chinese and Indians on the way to better living conditions is similar to that of Brazilian illiterates, blacks and Northeasterners.

As a result of the resemblance between the Brazilian and world income distributions, the definition of an income-based Brazilian middle class, or a Latin American middle class for this matter, in fact delivers a global middle class. The Brazilian middle class defined here has substantially lower income than the usual definition of the US middle class, namely two cars and two dogs which do not characterize the world middle class as well.

1.2 Middle class definition

Summarizing a long story: our economic classes were defined by the initial period of relative distribution, applying Esteban, Gradin and Ray (2007) methodology and keeping it constant in real terms onwards. Family income in the middle C class bracket lies between R$ 2,004 and R$ 8,640, with an average income of R$ 4,912 at January 2014 prices, adjusted by the local cost of living. Table 1 summarizes the upper and lower cut of income levels for each class.

TABLE 1
Economic classes defined by total household income (R$)
(Calculated originally from per capita terms)

Economic classes	Lower limit	Upper limit
Class E	0	1,254
Class D	1,254	2,004
Class C	2,004	8,640
Class B	8,640	11,261
Class A	11,261	0

Source: PNAD and POF/IBGE.
Obs.: in current R$ January 2014 prices.

2 ECONOMIC CLASSES PAST PERFORMANCE AND FORECASTS

We forecast the size of the economic classes in Brazil through 2014 by extrapolating the actual data based on the 2003-2009 period. During these years, major changes occurred in social welfare, the result of a rare combination in Brazilian lands of sustained growth and reduced inequality.

2.2 Forecasts of economic class size

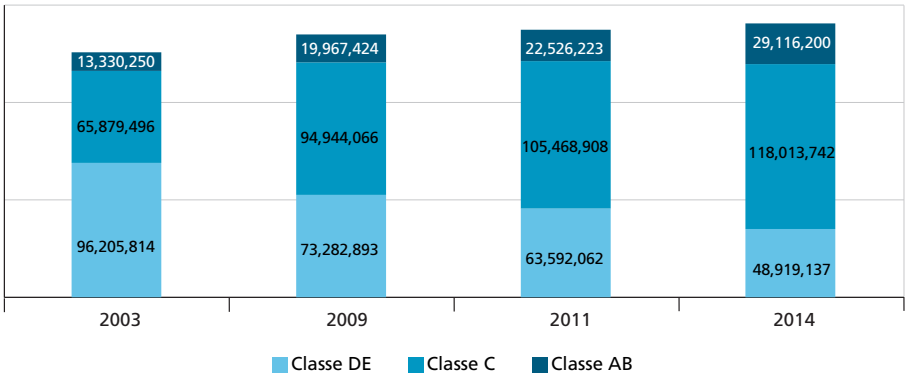
We projected both growth and inequality reduction through 2014 based on trends in the 2003-2009 period.[5] This allows us to forecast the number of people in each economic class. The last step is to adjust each growth factor applied to include inequalities in recent income expansions within Brazilian states. For each state, people were arranged by income and then divided by fifty brackets. The initial year of reference was 2003. It was observed how each bracket evolved until 2009. The relative (not absolute) changing pace observed between 2003 and 2009 was extrapolated for the forecast period.

2.3 Past and perspectives

Class pyramids, whose height measures population size, can be used to illustrate past and prospective aspects; these are shown for several years in graph 3. If we continue the trend of upward growth and downward inequality observed in each Brazilian state since 2003, we will have around 118 million people in class C by 2014 and 29.1 million in classes AB, compared with the 65.8 million and 13.3 million, respectively, observed in 2003. This means that in the period 2003-2014, 52.1 million people will have joined class C, and another 15.7 million classes AB. This totals 67.8 million, all new members of the upper classes of the Brazilian income distribution, which is more than the population of the United Kingdom. This is remarkable, considering the shrinking consumer markets in the developed countries as a result of the current international crisis. The population in classes A and B will grow proportionately more than in class C: the cumulative growth rates are 29.3 per cent and 11.9 per cent, respectively. From 2003 to 2014, despite population growth, the absolute population of classes D and E will decrease by 47.3 million, dropping to almost half of their initial size: Brazil in 2003 had around 50 million poor people (class E) and 96.2 million in the D and E classes, compared to 48.9 million in 2014.

5. A few measurement issues regarding historical trends deserve attention. The magnitude of the resumption of growth in the period 2003-2009 depends crucially on the database used. Even after upward revisions in gross domestic product (GDP) growth in the national accounts, cumulative growth rates are more modest compared to those observed in household survey data. This will be addressed later in this section.

GRAPH 3
Population pyramid and economic classes (2003-2014)



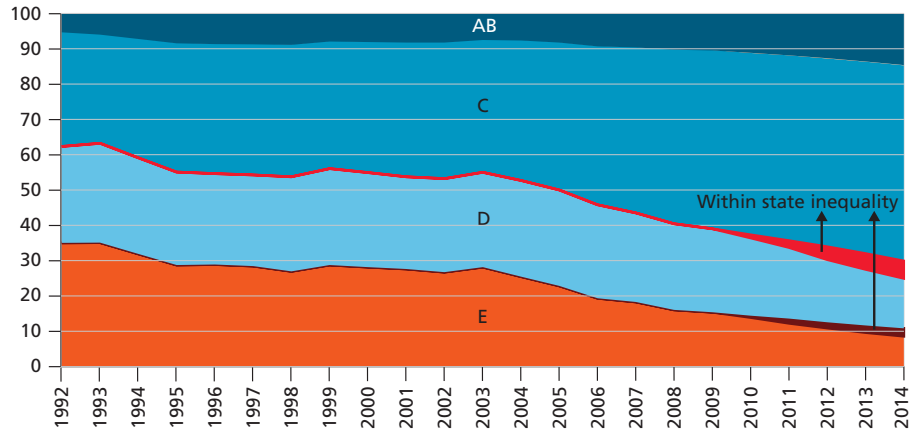
Source: PNAD; IBGE microdata.

2.4 Evolution of population shares

Our projections take into consideration changes in inequality; namely, we forecast on a differentiated basis the growth found for each sub-group of income, and regional trends for each of the 27 Brazilian states. If the state-level rates of inequality reduction observed since 2003 are maintained, the proportion of individuals in class C will have grown from 37.56 per cent in 2003 to 56.89 per cent in 2012. The observed class C share after the release of the PNAD 2012 was 55.25 per cent, a difference of only 1.64 percentage points lower. However, we are interested in a longer period, of 10 years. In a neutral scenario with no changes in the income distribution terms within the states, the middle class will increase in 2014 to 56.22 per cent of the population. If however growth in income were to go hand in hand with the recent drop in inequality, the new middle class will reach 60.19 per cent of the population, a 19.3 per cent rise.

Note that the growth rates of classes A and B are already higher than those of the C class and this discrepancy will increase in the future. In the coming years we will be discussing the new A class just as we are discussing the new C class today. graph 4 illustrates the broad picture of the evolution of population shares of the various economic classes. The graph shows the composition of the economic classes from 1992 to 2014, adjusted by the changes in inequality. In the same graph we show these same forecasts accompanied by a darker area, indicating the specific effect of maintaining the level of inequality within states, keeping the growth rates among Brazilian states. In other words, this is a scenario of balanced state-level growth. That is, we contrast the scenario of uniform income variation within states with one that forecasts changes in inequality within them.

GRAPH 4
Class composition (1992-2014)[1]
(In %)

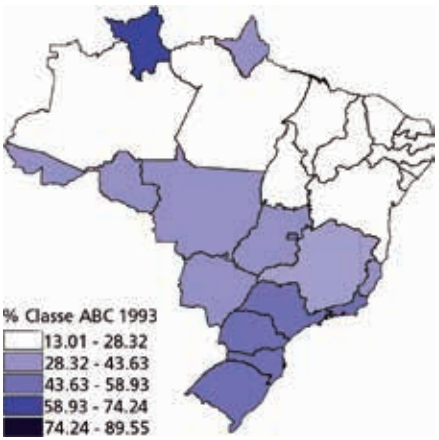


Source: PNAD; IBGE microdata.
Note: [1] class growth forecasted from 2010 to 2014.

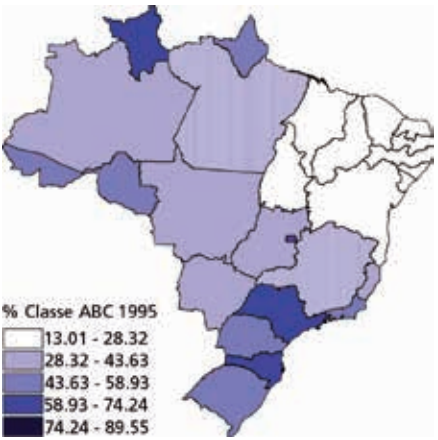
Figure 1 illustrated below presents state-level maps of the evolution of consolidated ABC classes' population shares, incorporating within-state changes in inequality. The 2014 forecast shows that in all states south of the Northeast and North regions, at least three-quarters of the population is in the new middle class or above.

FIGURE 1
Brazilian state maps – evolution of class ABC shares

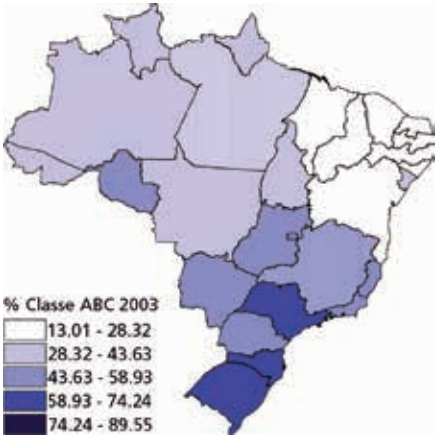
1A – 1993



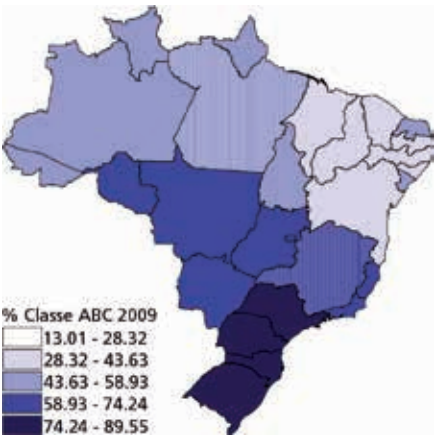
1B – 1995



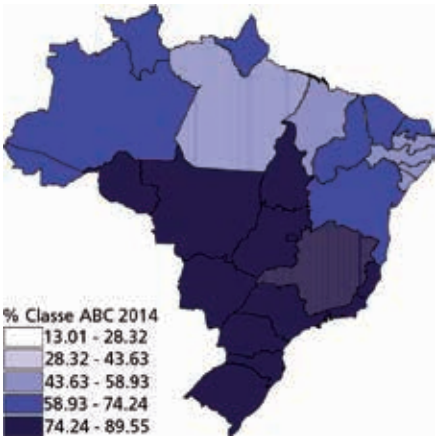
1C – 2003



1D – 2009



1E – 2014 (forecast)



Source: PNAD; IBGE microdata.

2.5 Updates

The first update to be considered is in defining income brackets for the economic classes. Noting that our initial quest was to construct absolute (not relative) measures of economic classes for Brazil after ten years of fast income growth, especially in the bottom half of the distribution, it is expected for the aspirations of the middle class to adapt both in Brazil and globally. The parallel between Brazilian and world income distribution pointed out before is also true for the movements observed in the period, so we must at some point update the middle class concept. The strategy adopted is to keep real income brackets constant for long time spans and then recalculate economic classes comparing new classifications with old ones. The change of aspiration levels is a key application of subjective data (see Neri, 2014).

The reapplication of the EGR methodology to the latest 2012 PNAD yields middle strata of 37.5% starting in the 49th percentile and ending in the 87th percentile. Ten years before the middle strata started in the 52.6 percent poorest and ended in the 91st percentile. That is, in both moments they start close to the median, a useful parameter together with polarization measures to assess middle class performance. In the 2003 to 2012 period the rise of the real per capita median income was 78% in PNAD, or conversely 88% if we chain the 2013 median income growth according to the monthly employment survey (PME/IBGE).[6]

Updates of the pre-2009 income trends are a test of sustainability of the new middle class in itself, given the presence of aggregate shocks associated with the external crisis and its effects on macro variables such as GDP growth. The 2012 national household survey, released three years after the calculations mentioned in this section were made, show changes relatively consistent with the estimates presented above. The large discrepancy between per capita GDP growth and PNAD's per capita household income growth pointed in Neri (2011) is increasing even further. In the period 2003-2012, while household income in PNAD had an average per capita growth of 4.7 per cent per year, the per capita GDP rose 2.7 per cent per year. The main cause of this recent divergence is the discrepancy between their respective deflators. Recalculating real GDP growth using people's cost of living would give an average GDP growth of 4.4 per cent per year instead of the 2.7 per cent for the period 2003-2012.

A simple direct way of summing up the effects of changes in average income and income inequality, particularly relevant to the study of the middle class, is to refer to the median income. Thus, while from 2003 to 2012 the GDP and average PNAD income grew at rates of 2.7 and 4.7 per cent per year, PNAD median income rose 6.6 per cent per year. In other words, in this period the "median Joe" in the middle Brazilian income distribution experienced growth rates similar to those of the Indian economy. In 2003, according to PME, the median rose by 4.7 per cent. This means that the median labor earnings reported by households in the PME increased by around 3.3 percentage points more than observed in the per capita GDP growth rates. In spite of low GDP growth in 2013, if this result is confirmed by the 2013 PNAD, our class structure projection is relatively on track.

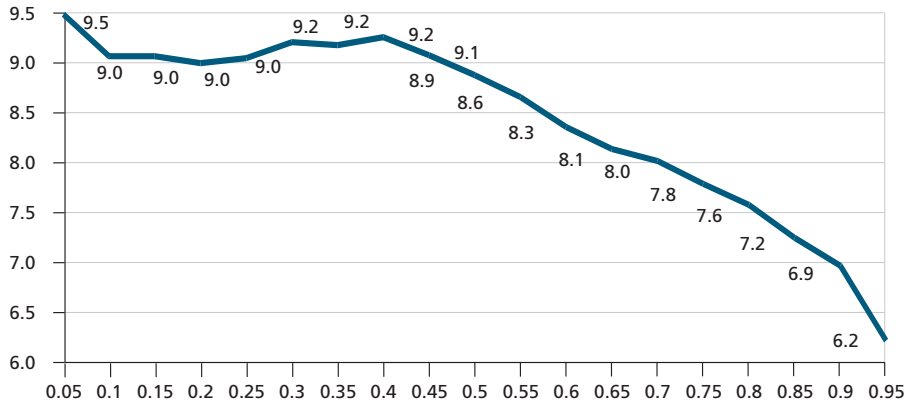
The discrepancy between GDP growth rates and household income collected by PME, both per capita, is still occurring in 2013: while GDP had a 2.3 per cent increase and the per capita GDP had a 1.4 per cent growth, the per capita earnings income of households had an increase 2.04 per cent until September in the comparison with the same period in the year before.

6. PME data is limited in the income concepts and in the geographical coverage it provides (only labor earnings in the six main Brazilian metropolitan regions); nevertheless, all main shifts in Brazilian income distribution over the past thirty years were first detected in the PME data.

According to PNAD data, labor income corresponds to 76 per cent of household income in national terms and 81 per cent in the six main metropolitan areas covered by PME. Furthermore, social security income was boosted by successive minimum wage increases and by the expansion of the Bolsa Família with the incorporation of the Brasil Carinhoso program gradually starting in May 2012. From August 2012 to August 2013, with inflation and population growth already deducted, the per capita real benefits paid by the National Social Security Institute increased 4.1 per cent (MPS, 2013) and the Bolsa Família benefits increased by 13.1 per cent (MDS, 2013). In other words, growth estimates restricted to work income are somewhat conservative.

Quantile regression – we provide an update of the aggregate movements across per capita earnings distribution using PME data. We ran a quantile regression for the 2011 to 2013 period controlled by socio-demographic characteristics such as gender, age, skin color, metropolitan region, position in the household and education, in order to separate the time effects of the changes across the income distribution from those in the observed socio-demographic characteristics. The data presented on graph 5 show that the rate of changes occurred between 2011 and 2013 generally decreases as we move from the bottom to the top vintiles. The cumulative real per capita growth rate peaks with a value of 9.46% at the bottom 5% reaching values above 9% for the bottom half of the income distribution, then there is a monotonic fall of these growth rates reaching 6.19% in the top 5% of the per capita earnings distribution.

GRAPH 5
Quantile regressions – cumulative growth rates (2011-2013)
(In %)



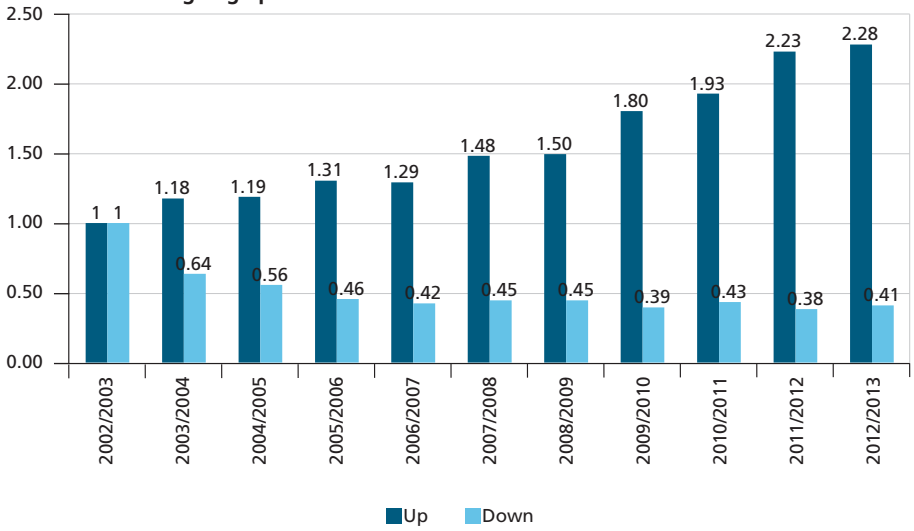
Source: PME; IBGE microdata.

Family earnings risks – another possibility arising from the longitudinal side of PME, which follows the same families across time, is to measure the income risks associated with the newly-acquired living standards. In particular, the proportion of people crossing the median per capita income along a twelve month-period.

The likelihood of crossing the income median in an upward direction, in this period, generally increased from 2002 and 2012 (graph 6), while the risk of downgrade, measured by the probability of moving downward through the median, is weakening as time goes by. Similar to the quantile regression analysis based on the PME longitudinal data, we examined the per capita household income analysis above and below the median, controlled by socio-demographic characteristics such as gender, age, skin color, metropolitan region, position in the household and education, in order to separate the time effects of these changes from those in the observed socio-demographic characteristics. The controlled results demonstrate even more strongly than the uncontrolled results that the transitions to below the median reached their lowest point between 2009-2010, 2011-2012 and 2012-2013, while the upward transitions peaked during the last two-year period.

GRAPH 6

Chances of going up and down across the median – odds ratio



Source: PME; IBGE longitudinal microdata.

In short, considering the median as a benchmark, the probability of a drop in income has flat-lined in recent years at the bottom line of the PME series, while the probability of rising has never been so high. In addition to being a period of relative stability of reported income for each individual, the passage from 2012 to 2013 has been characterized by people having the best chance of moving upwards (128 per cent higher than ten years before).

3 SUSTAINABILITY OF LIVING CONDITIONS

A central question posed by this article – and indeed posed by members of the new middle class – is to what extent this new economic class can drive economic growth by dint of its consumption potential. This in turn depends on the new middle classes' capacity to generate income in a sustainable way. We address each of these questions here using PNAD data.

3.1 Consumption potential and income-generating ability

Economic classes E, D, C, B and A can be described in terms of their consumption potential. The so-called "Brazil Criteria" (*Critério Brasil*) compiles information on the number of consumer durables a household owns (TVs, radios, washing machines, refrigerators and freezers, video players or DVD machines), as well as the number of bathrooms and having a domestic servant, among other indicators. This criterion estimates the weights based on a classical Mincerian income equation (log of total household income) and classifies people according to point ranges. We thus create a consumption potential index that uses income metrics as a connecting thread and unit of measurement. Income is easy to use as a numeraire, because it is part of our daily lives. After defining the model, we quantify the indicator for each characteristic, especially for economic classes based on current income. A reader initiated in economics may relate this approach to the permanent income concept created by Milton Friedman, in 1957, in our consumption potential indicator. Since the seminal work of Robert Hall (1977), we have known that current consumption should contain all the information about future family consumption standards.

People are not intrinsically poor, rich or middle class. They find themselves in these states in different moments of their life cycle. We must test to what extent income and consumption levels will be sustainable in the future. Besides measuring consumption potential based on a large amount of information from household surveys, we propose a complementary conceptualization to measure how the Brazilian middle class evolved from the producer standpoint, using an income equation, a function of productive assets of all family members. That allows us to observe the ability to maintain a middle-class lifestyle by generating and maintaining an income stream over time. The innovation in our methodology is to observe aspects of middle class behavior beyond consumption, incorporating elements connected to family income generation. Those aspects include, for instance, the moment when husband or wife finds a formal job, or when a child enters college, or when the family buys a computer. We then connect those social markers to the demand for certain public social services that were at some point a near state monopoly such as social security, education, health and home financing. We quantify the production side using income metrics from the income equation, which permits integration with the remaining consumer characteristics and income itself.

Choice of variables – we have been exploring the wide range of information relating to the possession and use of assets based on PNAD, using a model of variable selection according to the level of statistical significance in explaining household per capita income. The family/household is taken to be the basic unit of analysis under the hypothesis of its members' solidarity who, on the whole, share the earnings much like the "all for one and one for all" of Alexandre Dumas' *Three Musketeers* (this assumption therefore elides for now questions of intra-household inequality, which are surely important to the welfare of many individual Brazilians).

We omitted socio-demographic and spatial variables from the explanation of per capita income so that we could afterwards infer the equivalent income of households with different characteristics. In terms of statistical significance and explanatory power, the number of toilets, followed by access to mobile telephones, comes well before completed years of schooling of the reference person – typically the highest explanatory power in researches on income inequality and poverty. Obviously, we are not attempting to establish a causal relation between different variables of stock and income flow, because this is a two-way relation. In our interpretation, we will identify variables that are more income-generating related. The exercise helps to gauge the structure of the model that assigns equivalent income and its counterparts in terms of consumption potential and income-generating capacity.

3.2 Consumers versus producers: sustainable or not?

Translating the wealth of data about asset inventories, grouped under two perspectives – consumer and producer – the data allowed us to divide Brazilians into worker ants and consumerist cicadas, using one of Lafontaine's fables as a metaphor. We showed that, in the picture, Brazilians look more like cicadas, but the movie over the last years shows a gradual metamorphosis towards ants. The ability of the Brazilians to generate income increased, according to our index, 31.2 per cent from 2003 to 2009, and potential consumption increased 22.59 per cent. This data reveals that the producer's side increased 38 per cent faster than the consumer's. During the crisis year 2009, these indexes increased 3.05 per cent and 2.49 per cent, respectively.

As a complement, the survey details the importance of different income sources for the advance of social indicators in the country. Results indicate that, despite the strong growth of income from social programs and retirement payments linked to the minimum wage, the growth of labor income is close to the significant total income growth of 4.72 per cent during the 2003-2009 period: average work income increased 4.61 per cent per year per Brazilian, which corresponds to 76 per cent of average Brazilian income, providing a sustainable basis for living conditions, in addition to official income transfers.

4 CONCLUSIONS

"Middle class" has not always had positive connotations in Brazilian social commentary. But the new middle class differs in spirit from the term "nouveau riche", which above all discriminates on the basis of people's socio-economic origins. The new middle class gives a positive and forward-looking meaning to someone who has achieved better living conditions and continues to move ahead. More important than where you have come from – or are – is where you plan to get to. A new middle class is not defined by *having*, but by *being,* and by decisions taken today with a view towards tomorrow.

To be sure, consumer credit and official social benefits are part of the Brazilian new middle class scene, but they play supporting roles. The main role is played by the producer side, formal employment in particular. The miracle of the expansion of formal employment (*carteira de trabalho*) is the most potent symbol of social ascent as a consummated act, more than just a platonic object of desire. Many subsistence entrepreneurs have been absorbed into formal jobs (Neri, 2003; 2008). The small entrepreneur with prospects of capital accumulation and growth, on the other hand, is still relegated to the backstage here, given the difficulties of bureaucracy, tax, credit and their respective values and attitudes. Contrary to the legend, Brazil is not a granary of little entrepreneurs but of large Fordist firms, who after flourishing in a hostile Brazilian business environment, aspire to compete in their own global segments.

There is a chronic deficiency in public policies supporting productive activities in Brazil, from professional training courses to accessible productive credit. This difficulty strongly counteracts the attitude summed up in the title of a well-known play: *Brasileiro, Profissão Esperança* (Brazilian, profession hope). The key instrument to release the productive potential of our worker is education. And education, while still at a class E level, has improved in quantity, quality (58th among 65 countries in the OECD PISA ranking,[7] but among the three with highest growth) and priorities expressed by the population (rising from seventh to second in the list of the Brazilians' concerns – the SIPS survey from Ipea, where the questions from the My World survey were replicated, confirm that education is only after health in terms of population priority). Indifference to education policies in the past placed our economic elite in the worst of worlds. A new middle class moreover looks to consume better-quality public services in the private sector, including private schools, health care and private pension funds.

7. Available at: <http://www.oecd.org/pisa/keyfindings/PISA-2012-results-brazil.pdf>.

Main results – the empirical strategy of this paper was to define an income-based middle class to measure its level and evolution and then to combine it with a subjective approach to capture expectations and attitudes of people with a structural approach that takes into account the roles played by different assets in order to assess its sustainability. Our main results are as follows:

1) We have shown a clear parallel between income distribution among Brazilians and inequality across countries both in levels and changes occurred in the 2000s. For our purposes the definition of an income-based Brazilian middle class in fact delivers a global middle class.

2) Between 2003 and 2012, 42.2 million Brazilians joined the so-called new middle class (C class) and 9.6 million joined the A and B classes.

3) Using 2003-9 trends of state-level growth and inequality reduction, we predict that between 2011 and 2014 the C class will rise by 12.2 million people (while the A and B classes will rise by 7.7 million). This forecast was on track by 2012.

4) The new middle class will comprise 60.19 per cent of the population in 2014, substantially higher than 37.5 per cent in 2003 and 55.25 per cent in 2012.

5) Quantile regressions show that the rate of changes occurred between 2011 and 2013, then falls as we move from the bottom to the top of the income distribution. The cumulative real per capita growth rate peaks with a value of 9.46 per cent at the bottom 5 per cent reaching values above 9 per cent for the bottom half of the income distribution, then there is a monotonic fall of these growth rates reaching 6.19 per cent in the top 5 per cent of the per capita earnings distribution.

6) Using individual longitudinal data, the chances of an individual to cross the median income in an upward direction, in the recent period, increased 128 per cent from 2002-03 to 2012-13, while the risk of downgrade, measured by the chances of moving downward through the median, fell 59 per cent in the same period.

7) The Brazilians' ability to generate income increased, according to our synthetic index, 31.2 per cent from 2003 to 2009, and the consumption potential index increased 22.59 per cent. These data reveal that households' "producer side" increased 38 per cent faster than their "consumer side".

8) The growth of labor income was close to the significant total income growth observed, providing a sustainable basis for living conditions, in addition to official income transfers.

The Brazilian belief that life will get better helped me to understand what the large databases and my field visits showed regarding the new emerging classes. More than the gold, forest and wood that gave color and name to Brazil, the greatest wealth is their reflection in Brazilians' eyes.[8]

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8. In relation to the colors of the Brazilian flag this is the interpretation of playful meanings. Historically, the colors refer to the combination of green of Don Pedro I's Royal House of Braganza with the golden color of Princess Leopoldina's Royal House of Habsburg.

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TECHNICAL SESSION 7

Rapid Urbanization: the Challenge of the Mega Cities

- Rapid urbanization: management, law enforcement and socioeconomic efficiency
- Sprawling urban tissue, conurbation and conflict
- Urban/rural differentials

CHAPTER 12

RAPID URBANIZATION IN INDIA: THE CHALLENGE OF PLANNING THE MEGA CITIES

Jagan Shah[1]

ABSTRACT

This article is an outcome of a presentation at the 6th BRICS Academic Forum, held during 17th-19th March 2014, which focused on a discussion of pace and pattern of urbanization in India, with special emphasis on resource management, governance and socioeconomic efficiency of urban areas, sprawling urban tissue and conflict and urban/rural differentials in the Indian context. The article argues for a greater emphasis on urban planning as a necessary condition for improving urban efficiencies and delivering the public goods that are promises of urbanism.

1 INTRODUCTION

The UN-Habitat defines mega-city as a metropolitan area that has more than 10 million inhabitants. By this criterion, India has three mega-cities: Delhi, Mumbai and Kolkata, with Chennai and Bengaluru rapidly approaching the status. Mega cities extend beyond administrative boundaries, absorbing semi-urban areas and rural hinterlands that eventually merge with the mother city to become sprawling city-regions. Mega cities have a high demographic concentration, significant economic capacities, substantial innovative activities and a large number of skilled workers. In his First Megacities Lecture in Rotterdam in 1997, Peter Hall described the mega city as exhibiting rapid growth in a few related sectors: business services, both financial and non-financial, including fast- growing design services like architecture, engineering and fashion; command and control functions, such as company head-quarters, national and international government agencies and the associated web of activities; cultural and creative industries, including the live arts and the electronic and print media, and tourism. Hall characterised megacities as "highly synergistic," that is, catering simultaneously for local, national and international markets, and, significantly, "exhibiting productivity gains associated with the injection of information technology." Because of the last, megacities often produce jobless growth, as machines tend to replace human beings in delivering the operations of the megacity.

1. The author would like to thank the following for their inputs on the paper: Dr. Debolina Kundu, Associate Professor, and Ms. Sushmita Singha, Research Associate Director, National Institute of Urban Affairs, New Delhi, India.

In 2007, the UNFPA reported that 23 megacities around the globe accounted for 8.6% of the total urban population (UNFPA, 2007). In 2011, the population size of the 23 megacities shot up to reach 9.9% of the total urban population, with the total urban population increasing by 322 million over the preceding four years. These urban agglomerations generated 14 % of global GDP (McKinsey, 2011). The *State of the World's Cities* report of 2010 published by UN-Habitat calculated that the 40 largest mega-regions of the world accounted for 18% of the world's population while being the centres of 66% of global economic activity and about 85% of technological and scientific innovation (UN-Habitat, 2010). The trend has continued unabated, and it was reported that megacities will continue to dominate the growth of urban population (UN, 2012).

In 2011, of the 23 megacities of the world, 10 were found in the BRICS countries. The megacities within the BRICS nations have experienced very different growth rates over the last two decades (table 1). While cities like Shenzhen, Guangzhou-Guangdong and Beijing in China, Delhi in India and São Paulo in Brazil faced considerably high rates of change (at least 4% or higher), the remaining half witnessed moderate change (1-2%) during 1990-2011. For the next 15 years or so, the average rates of change are expected to plummet significantly, as megacities saturate their resource base and growth shifts to medium-sized and smaller cities. This, however, would not translate into reduced complexity or pressure on the megacities as their sheer size and natural growth of population would continue to test the limits of existing infrastructure and the demands on resources would have to be constantly supplemented, triggering contestations over access and availability of resources.

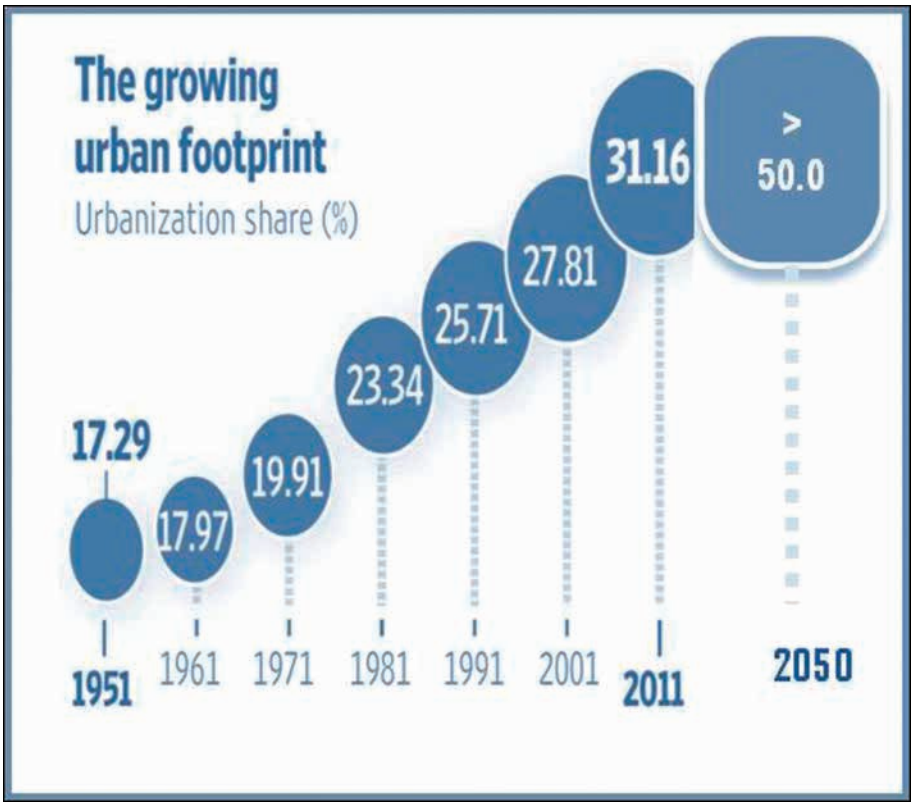
TABLE 1
Population of megacities in BRICS (2011), and their average annual rate of change

Urban agglomeration	Population 2011 (in millions)	Average annual rate of change (%) 1990-2011	Average annual rate of change (%) 2011-2025
Delhi	22.65	4.03	2.67
Shanghai	20.21	1.42	1.08
São Paulo	19.92	4.52	2.43
Mumbai	19.74	2.20	2.12
Beijing	15.59	3.96	2.66
Kolkata	14.40	1.33	1.87
Rio de Janeiro	11.96	1.05	0.93
Moscow	11.62	1.22	0.56
Guangzhou, Guangdong	10.85	6.01	2.54
Shenzhen	10.63	11.89	2.71

Source: UN (2012).

While the UN's estimation of population in 2011 was at variance with the data generated by the Census of India, 2011 – as per the Census, the Greater Mumbai urban agglomeration had 18.4 million population, followed by Delhi UA at 16.3 million and Kolkata UA at 14.1 million – it captured the broad trend of urban growth in India. Urbanization in India has assumed particular significance after the Census of 2011, which revealed for that the growth rate of cities has come down for all size classes. Incidentally, some districts of Mumbai and Delhi have reported negative growth rates. In spite of the slowdown in their growth rates, the cities still face the impact of unplanned development. The urban population accounted for less than a quarter of the total population until 1991 (graph 1). However, in the past two decades, India developed a total of 53 Urban Agglomerations with more than one million in population and three of the 23 megacities worldwide.

GRAPH 1
India's urbanization trend



Source: Census of India.

2 KEY ISSUES OF INDIA'S URBANIZATION

World economic growth was 3.9% in 2011, 3.1% in 2012 and 3.0% in 2013. India is one of the fastest growing economies in the world, recording an average growth rate of over 5% per annum during the last two decades of the 20th century. GDP grew at 7.7% per annum during 2001-11. The year 2013 recorded about 5% growth. Urban India saw a deceleration in the growth of population during the last three decades, dismissing the spectre of over-urbanization or an urban explosion. This made policymakers at the national and state levels concerned about the slow pace of urban growth, particularly at a stage of rapid economic growth that accentuated rural-urban disparities in the economic and social spheres.

The annual exponential growth rate (AEGR) of urban population in the country during the 1950s was 3.5%. This was the highest the country had seen until that time, which led to the emergence of theories of over-urbanization. Formalisation of the criteria for identifying urban centres in the 1961 census resulted in a dramatic decline in urban growth figures in the 1960s. The 1970s, however, following the same methodology for identification of urban centres, saw a very high urban growth of 3.8%. The growth rate reduced to 3.1% in the 1980s. It went down further to 2.73% in the 1990s. Correspondingly, the percentage of population in urban areas has gone up from 17.3% in 1951 to 23.3% in 1981, and then to 27.78% in 2001. The level of urbanization in the country increased to 31.16% in 2011 and the urban population recorded an annual growth rate of 2.76% during 2001-2011.

The 2011 census reported a dramatic increase in the number of urban agglomerations: 91 new UAs came up in the past decade alone. The Class I UAs/ towns accounted for over 70% of the urban population, their number increasing by 74 during 2001-2011 from 394 in 2001 to 468 in 2011. The 2011 census also recorded an increase of million-plus UAs/ cities from 35 in 2001 to 52 in 2011. These accounted for 42.6% of the urban population (Kundu, 2014). The urban growth rate was much lower compared to other developing nations but amounted to a large number of urban dwellers being added to the urban population base. The Census of India of 2011 revealed an explosive growth of census towns – from 1362 in 2001 to 3894 in 2011, an almost threefold increase – which are rural settlements that have the characteristics of towns but are not officially recognized as urban areas.

Twenty seven out of the top fifty most densely populated cities of the world are in India, whereas China has just three such cities, and none of the remaining countries of BRICS have their cities featured in the Top fifty list (Cox, 2014). With 52 cities reporting million plus population, India is already facing major challenges with respect to limited space – chronic overcrowding, service delivery of civic amenities and mounting pressure on resources, especially food, water, energy, and clean environment. On an average, 17.6% of India's urban population is housed in slums and squatter settlements as per the 2011 Census.

Most cities do not have land use master plans, and the preparation of city development plans – infrastructure improvement and financial provisioning plans – for 65 cities under the JnNURM (Jawaharlal Nehru National Urban Renewal Mission) has not contributed to redressing this severe deficit in planning. Combined with severe shortages of human resource capacity in urban local bodies, lack of fiscal balance and accountability and effective governance mechanisms, the unplanned growth of cities and the resultant urban sprawls in India have begun to stifle the urban economy. The cities are not found to be worthy of investment, with high perception of risk. All these factors are resulting in inefficient use of resources and hence depletion of the existing limited stock. This, in turn, translates into environmental degradation causing health concerns, while at the same time hampering economic growth. Our paper argues that the spiraling and vicious cycle of poor planning resulting in bad performance, which in turn undermines planning efforts, calls for urgent improvement.

3 WHY IS URBAN PLANNING SO IMPORTANT FOR INDIAN CITIES

Urbanisation in India is not as rapid as in the case of its BRICS counterparts. But, its scale of urbanisation is probably comparable only to that of China because of the sheer volume. The need for better urban planning has become crucial and enforcement of these plans is even more important. Planning is required for aligning the land use pattern with economic and social needs and in order to avoid haphazard growth of settlements.

A study was conducted in 2010/2011 by the European Space Agency with support from the World Bank for mapping twenty years of urban expansion in the metropolitan areas of Delhi (southeast part of Delhi NCR), and in the Metropolitan Region of Mumbai. It was found that 73% of the land use in Delhi was for agriculture, and 20% of land cover was represented by urban settlements. For Mumbai, only 15% area was found urbanized, with the share of non-urbanized area divided between agriculture land (34%), (semi-) natural vegetation (28%) and forest (17%). Urban sprawl was found to be hastened in both the cities by industrial development (especially in Delhi during 2003-2010). Furthermore, an upward trajectory of urban sprawl is predicted because of the boom in construction activities, especially in the semi-urban fringes (Gisat EOWorld, 2011).

Land is a scarce resource and with expansion of urban boundaries, more and more arable/cultivable hinterlands are going to be converted for residential or commercial purpose. With increase in loss of such land, cities might face a potential threat to food security. Also if current consumption patterns are any indication of the future, the demand from the ballooning numbers of the middle class is going to keep increasing. Another important issue is that urban land distribution is excessively skewed with the urban rich possessing the largest chunk

of land assets. The Indian government made an attempt in achieving equitable access and distribution of land through the Urban Land Ceiling (and Regulation) Act of 1976. However, the Act was a failure because of lack of political will at the local and the State government levels and there were no attempts made to change the provisions of the Act to make it more effective. After a lot of hue and cry and lobbies and pressure groups hostile to the Act, it was repealed in 1999. The failure of ULCRA revealed that reallocation of land ownership is a politically tricky proposition. Regulation of land use is one of the significant regulatory instruments that can substitute for acheving the aims of such reforms, but this form of regulation, when it assumes the form of social engineering, becomes unsustainable. Overly strict segregation and designation of land use amounts to an exclusionary principle. An example is the manner in which zones and areas that can accommodate the working classes are invariably at a distance from the centres of economic activity where the working class earns their livelihoods, forcing them to travel inordinate distances without proper provision of public transport, thereby destroying their social lives and, as a consequence, the dignity they assume from having the livelihoods in the first place.

4 SUPPORTING ROLE OF URBAN FINANCE AND GOVERNANCE IN PLANNING

Planning can deliver benefits and become functional only with the dual support of effective urban finance and urban governance. The funds currently available in municipal coffers are insufficient even for operation and maintenance of municipal assets. There is disparity in the level of municipal earnings across size class of settlements. The small and medium towns have poor revenue generating capacities, with per capita revenues equivalent to a fifth or sixth that of large cities. Also, such towns rely on grants for the operation and maintenance of services. These towns have limited capacity to take up capital investments, thereby obviating the very development plans and provisions that could enhance their revenues.

Property taxes and user charges are the most important sources of own revenue for municipal bodies in India. In 2007-2008, own share of revenue (tax and non-tax) of urban local bodies accounted for 53% of the total revenue available to them. This is just about enough to cover the revenue expenditures of salaries. The remaining O&M expenditures are supplemented by grants, loans or transfers from the higher tiers of the government or private sectors and external agencies (very small fraction). The per capita capital expenditure is far below the minimum level that must be incurred for delivering and maintaining services at some basic minimum levels. The High-Powered Expert Committee's report on infrastructure investment for urban India suggests that ULBs in India spend about 27-28% of what they need for efficient delivery and management of services

(HPEC, 2011). Even if the HPEC norms are assumed to be long-term goals, the gap in spending is far too large to be ignored. Similar findings on inadequate urban infrastructure spending were reported in the McKinsey Report of 2010.

Indian municipalities are functionally headed by appointed officials rather than directly elected representatives, such as in other BRICS countries like South Africa and Brazil. These urban local bodies have limited powers, with the crucial power to prepare functional and spatial plans being distributed amongst a number of agencies, such as development authorities and state town planning departments. Excessive division of power between parallel developing authorities provokes conflict of interests between the heads of such authorities and the elected representatives. There is no coherence in the planning of different departments and this results in highly reduced resilience of cities to deal with external shocks.

Dearth of municipal finance and absence of good governance is reflected in the poor quality of life in the Indian cities. Indian cities have a dismal record when it comes to performance of key quality of life indicators. This is particularly true for water supply, public transport, availability of open space, sewage treatment, solid waste management, and existence of slum population (McKinsey, 2010) (table 2). India's per capita annual expenditure on urban infrastructure is US$ 17, whereas most benchmarks suggest a requirement of US$ 100. If Indian cities are to augment the quality of life, major policy reforms are required to improve the environmental quality, and to sustain economic growth.

TABLE 2
Performance of Indian cities in key quality of life indicators

Sector	Current	Basic standard	Best in class
Water supply quantity (lpcd)	105	150	220
Piped water coverage (% population)	74	100	100
Sewage and septic tank coverage (% population)	63	100	100
Sewage treated (% of sewage generated)	30	100	100
Solid waste collected (% of total waste generated)	72	100	100
Storm water drains (% of road coverage)	20	100	100
Public transport (% of total trips)	30	50	82
Vehicular congestion (peak vehicles per lane km)	170	112	85
Healthcare (hospital beds per 1000)	2	4	7
Slum population (% of total population)	24	0	0
Parks and open space (m_2 per capita)	2.7	9	16
Education (student-teacher ratio in primary school)	48	30	16

Source: as cited in (McKinsey, 2010). The study evaluates 66 largest Indian cities (in terms of economic and demographic importance).

5 ENVIRONMENTAL WOES

The pressures on environment have enormously increased with the urban transition. The spatial expansion of cities renders increase in the average trip length, and excessive dependence on automobiles leads to traffic congestion, air pollution, rising greenhouse gas emissions, and poor public health. There is an increase in the incidence of urban health related issues because of the poor quality of air, drinking water, improper sanitation facilities, open defecation and inadequate solid waste management.

According to the 2014 WHO report on ambient air pollution which estimates the PM_{10} and $PM_{2.5}$ levels for 1,600 cities, India is home to thirteen of the dirtiest twenty cities of the world. The PM concentrations in Indian cities are much higher than in the remaining BRICS countries, the average being 27 mg of $PM_{2.5}$ and 53 mg of PM_{10} (BRICS average excluding India); and way above the levels of cities in developed nations as opposed to Indian average of 46 mg for $PM_{2.5}$ and 102 mg for PM_{10} (WHO, 2014) (table 3). The particulate matter is able to penetrate deeply into the respiratory tract, creating health risks by increasing mortality from respiratory infections and diseases, lung cancer, and selected cardiovascular diseases. Similarly, inadequate solid waste management, clogged drains and open sewers are increasing the incidences of vector borne diseases. These are exacerbated at the time of the monsoons with many cities having water logging issues. The urban poor are the worst victims of these environmental hazards.

TABLE 3
Ambient air quality of urban India vis-à-vis global standards

City/country	$PM_{2.5}$ (mg)	Year of data	PM_{10} (mg)	Year of data
India average	46	2009-2012	102	2012-2013
New Delhi	153	2013	286	2010
Mumbai	45	2012	136	2010
Kolkata	43	2009-2010	97	2009-2010
Brazil	20	2010-2012	36	2010-2012
China	40	2010	88	
Russia[1]	22	2009	33	
South Africa	25	2011-2012	53	2012
London	16	2011	22	
Paris	17	2011	24	
Zürich	14	2011	20	2011

Source of data: (WHO, 2014).
Note: [1] Data only for Moscow available.

6 SUSTAINING URBAN ECONOMIC GROWTH

Megacities, potential megacities, and cities with million-plus populations have started to respond to economic opportunities and to acknowledge the economic power of cities that contribute close to two-thirds of the country's GDP, expected to increase to three-fourths in the next two decades. Growth in Indian cities has been mostly driven by the domestic demand. While the growth rates are very promising for cities like Surat, Bangalore, Ahmedabad, Mumbai, New Delhi, etc., cities like Kolkata have been experiencing sluggish growth rates.

The informal sector contributes significantly to the growth of the city economies of the BRICS nations. As of 2009-2010, 185.88 million people were engaged in informal employment[2] in India, while Brazil had 32.5 million, and China (estimate of only six cities) accounted for 36 million. Persons employed in the informal sector[3] were estimated at 150 million for India, 18.7 million for Brazil, and 24.2 million in China. In India, the highest share of informal employment is seen in the construction sector (97.6%), followed by trade (97.2%), manufacturing (87.1%), transportation (84.5%), and services other than trade or transportation (59.9%) (ILO, 2012). There is a need to put in place a mechanism to incorporate the informal sector into the mainstream, and this once again requires a strengthening of planning provisions, including space for the informal sector and infrastructure and services that can support its systematic and regular growth.

7 INTERVENTIONS FOR IMPROVED URBAN GOVERNANCE

India has had quite a considerable number of attempts to improve the performance of the cities, starting with a constitutional amendment, a number of schemes for improving capacity to raise and manage sustainable funding and the incentivised reform programmes, where funding was offered by the Government of India to cash strapped state and city governments to undertake urban renewal efforts by committing to undertake reforms in the administrative, financial and management aspects of local governments. A few of the most significant efforts are described below.

8 74TH CONSTITUTIONAL AMENDMENT ACT

This Act which was passed in 1992 is the genesis of present day decentralized urban governance in India. The Act provided for constitution of municipalities to enable them to function as an effective democratic institution for local self governance. It also took due cognizance of the efficiency/effectiveness of local

2. Informal employment is a job-based concept and encompasses those persons whose main jobs lack basic social or legal protections or employment benefits and may be found in the formal sector, informal sector or households (ILO, 2012).

3. Employment in the informal sector is an enterprise-based concept and covers persons working in units that have "informal" characteristics in relation to, e.g., the legal status, registration, size, the registration of the employees, their bookkeeping practices, etc. (ILO, 2012).

power over a centralized competent authority to deal with all kinds of local issues. The Amendment empowered the urban local bodies with unprecedented powers to plan, fund, implement and manage their own infrastructure and service needs. The comprehensive and almost revolutionary nature of the Amendment has still to show its full potential, as state governments are reluctant to devolve such powers to urban local bodies.

9 URBAN FINANCIAL REFORMS

The first generation of financial reforms started around 2002-2003. The City Challenge Fund was set up in 2003 as an incentive based grant facility that supported cities to fund transitional costs of moving towards sustainable and creditworthy institutional systems of municipal management and service delivery. This fund was to meet the expenses to be incurred by the cities to finance the cost of developing a reform programme and its implementation, provide partial financing of the cost of the developing an economic reform programme, and financially viable projects to be undertaken by urban local bodies. The Pooled Finance Development Fund was also set up in 2003 by the Central Government to facilitate development of bankable urban infrastructure projects through appropriate capacity building measures and financial structuring of projects. The Fund was to enable access to capital and financial markets for investment in critical municipal infrastructure by providing credit enhancement grants to State Pooled Finance Entities and to facilitate the development of a Municipal Bonds market in small and medium towns. The Urban Reforms Incentive Fund was set up in 2002-2003 to provide incentives to state governments to carry out reforms. Each reform area was assigned a special weightage. The states would enter into Memoranda of Agreement with the Government of India for carrying out the reforms (NIUA, 2004).

9.1 Jawaharlal Nehru National Urban Renewal Mission (JNNURM) Scheme

The Central Government, with an investment of USD 20 billion over seven years, introduced this scheme in 2005 and it aimed at revamping the quality of living and infrastructure of 65 cities. The scheme involved a wide range of urban sector reforms to strengthen municipal governance as well as provide basic services to the urban poor. The main thrust of this mission was to ensure improvement in urban governance so that the ULBs become financially sound with enhanced credit rating and ability to access capital market for undertaking new projects. The mission was the single largest initiative of the government of India for planned urban development that integrates the two pressing needs of urban India: massive investments required for infrastructure development reforms that are required to sustain investments.

9.2 13th Finance Commission

The wealth generated in Indian cities because of economic growth is also not being shared in proportion with the higher tiers of government – Centre and State. Whereas the 11th and 12th Finance Commission had only recommended ad hoc grants to local bodies, the 13th Finance Commission (2010-2015) first suggested sharing of funds with the local government from the divisible pool of income tax. The 13th FC also recommended performance and basic grants, the former to be transferred to ULBs on compliance of certain conditions that reinforced self-governance, efficient fiscal transfers and greater transparency in the functioning of the urban local bodies.

10 WHAT IMPROVED GOVERNANCE MEANS FOR URBAN INDIA

Better governance for India would involve getting rid of inefficiencies in the urban system, and creating a robust atmosphere for the economies to grow. The immediate urban development priorities for India are to achieve the minimum benchmark of service delivery and aim for an improved resource use scenario with respect to land, water, logistics – transport demand; energy; and food. Planning for better use of urban space, provision of affordable housing for the economically weaker sections, maintaining a balance between use of land for developmental purpose and that for sustaining the fragile ecosystem in terms of agricultural land, forest land, grazing grounds, protected land for flora and fauna, are all areas that need to be stressed.

Public transport has been at the center of transportation issues in India. However, with average household incomes rising, and insufficient public transport available to cater to the demand, there is an alarming rise in the ownership of private vehicles. Each megacity has its own character and transportation problems and challenges. Delhi and Mumbai have similar population and high per capita GDP, but private car ownership is higher in the former, while the share of public bus transport and suburban railway systems is higher in Mumbai. This results in 60% less energy consumption and emissions in Mumbai compared to Delhi (Das and Parikh, 2004). A study on future urban mobility for 84 cities across the world found Kolkata to perform the best in terms of public transport availability vis-à-vis the other six Indian cities. While Mumbai (rank 41) comes second, Chennai (54) comes third followed by Hyderabad (55), Bangalore (65) and Delhi (79) (Little and UITP, 2013). With effective transit-oriented development and provision of appropriate systems of public transportation supported by adequate and appropriate land uses and integrated planning, a higher modal share of public transport can be achieved.

A key challenge in urban planning in India is to bring about integration across knowledge domains and expertise. The onus of spatial planning

lies with the architects and planners, while transport planning is performed by specialist engineers. Likewise, housing design is a separate discipline and environment management is another. Integrated planning is the answer to overcome the challenges of urban India and to achieve optimum outcomes in terms of balanced development with convergence of resources and enforcement of inter-sectoral priorities.

11 WAY FORWARD

BRICS has already recognized the importance of coordinated urban planning, effective urban governance through a smart city approach, and creation of a sound fiscal base for the cities. We emphasize increased dialogue and cooperation between BRICS countries in addressing these specific challenges through knowledge exchange. Strengthening of research collaborations and enhancing twinning arrangements between cities will allow us to concentrate on shared needs: participative planning, sanitation, mobility and ICT-based applications. The BRICS Academic Forum can facilitate such cooperation, especially where it leads to innovative solutions that are appropriate for the context and sustainable over time.

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CHAPTER 13

CHARACTER OF URBANIZATION IN AFRICA: THE FATE OF MEGACITIES

Alexey Vasiliev[1]

Urbanization is a worldwide phenomenon, and Africa is no exception. However, the continent occupies a special place in the global economic and social order. The same can be said about the process of urbanization in Africa: while replicating with varying degrees of accuracy many tendencies inherent to other countries, this process, however, reveals a number of specific features that are peculiar to the African context.

The rate of urbanization in Africa is 3-4 times higher than the corresponding figures for Europe at the time of the Industrial Revolution and has not yet decreased for four decades. Despite the fact that in 2012 the level of urbanization in Sub-Saharan Africa amounted to only 38.6% (for comparison: the figure for developing countries is 45.9%, for North African countries - 54.6%), the growth rate of the urban population in Sub-Saharan Africa was the highest (4-5% in the 1980s-1990s and over 3% in the 2000s).

Currently, the African continent is undergoing a phase of quantitative and qualitative demographic changes. In 1990, two-thirds of the African population lived in rural areas, but by 2030, 760 million Africans, or more than 50% of Africa's population, will live in cities. By 2050, the continent's urban population will exceed 1.2 billion people - more than the entire population of the West.

As seen from table 1, the least urbanized sub-region of Africa is East Africa, where less than a quarter of the total population lives in cities, although the rate of urban population growth there is higher than in Africa as a whole. Only in North Africa and Southern African countries most of the population lives in cities, while the rates of urban population growth and total population growth here are the lowest.

1. Russian Academy of Sciences.

TABLE 1
Key indicators of urbanization in Africa's sub-regions

Sub-region	Level of urbanization in 2012 (%)	Rate of urban population growth 2005-2012	Population in 2012 (million)		Rate of population growth in 2005-2012
			Urban population	Total population	
North Africa	54.61	2.45	116.258	212.927	2.20
West Africa	44.85	4.05	137.271	306.067	3.5
East Africa	23.6	3.86	77.194	327.093	3.4
Central Africa	43.1	5.9	55.592	128.909	3.8
Southern Africa	58.7	2.1	34.021	57.957	1.47
All Africa	40.6	3.71	420.336	1,033.034	2.6

Calculated by the author based on: State of World Cities 2012/2013: prosperity of cities, 2012 and The State of African Cities 2010: governance, inequality and urban land markets, 2010.

TABLE 2
Distribution of African cities by size in 2010 and 2025

Size	> 10 million	5-10 million	1-5 million	0.75-1 million	< 0.75
Number of cities in 2010	2	3	45	20	No data
Population (million)	21.579	24.504	97.917	17.053	259.271
Share in the total urban population	5.13	5.83	23.30	4.05	61.68
Number of cities in 2025	3	8	73	34	No data

Calculated by the author based on: The State of African Cities 2010: Governance, Inequality and Urban Land Markets, 2010. p. 244-247.

In absolute terms, the population of major cities will increase most significantly in the coming years. They will account for over one third of the total increase in Africa's urban population.

In 1950, Africa had only two cities with the population of more than 1 million people – Cairo and Alexandria. In 2010, there were fifty such megacities. At that, the average number of inhabitants of the African megacities was 2.8 million, while the entire population of these cities exceeded 144 million. By 2015, there will already be 59 megacities on the continent, with an average of 3.1 million residents, and the entire population of Africa's megacities will exceed 170 million.

Currently Africa's biggest agglomerations are Cairo (Egypt), Lagos (Nigeria) and Kinshasa (Democratic Republic of the Congo). The growth rates of these megacities are among the highest in the corresponding global category of cities. Today, Cairo (without Giza and other suburbs) has 12 million people, Lagos – 10 million, and Kinshasa – 8 million. In 2015, Cairo will have 13.5 million residents, Lagos – 12.5 million, Kinshasa – 11.3 million, and they will occupy the 11th, 17th and 19th places, respectively, among the twenty largest urban agglomerations in the world.

The largest absolute contribution to the growth of the urban population in the coming years will be made by Kinshasa, the capital of the Democratic Republic of the Congo (more than 4 million people), Lagos, the largest city in Nigeria (+3.6 million), and Luanda, the capital of Angola (+2.3 million), while the population of Cairo, which is currently the largest city in Africa, will grow by only 1.5 million.

In addition to the accelerated growth of megacities, in Africa there is a tendency for the formation of large urban systems that concentrate around one, two or three major cities and gradually pull surrounding towns and the countryside into their orbit of influence. This process has a strong synergistic effect: the addition of numbers, in this case the populations of towns and cities, leads to important qualitative changes in their development, which manifests itself in an accelerated socio-economic growth of urban areas and their simultaneous isolation from the rest of the country or group of countries.

The examples of such urban systems include the following: the Nile Delta area in Egypt with a population of 67 million people, which includes the Greater Cairo (more than 20 million inhabitants), Alexandria, Port Said and Suez and many medium and small cities; Gauteng area in South Africa with the population of 10.5 million inhabitants, which incorporates Johannesburg, Pretoria/Tshwane and Emfule/Vereeniging.

The process of urbanization is usually accompanied by an increase in per capita income and the development of industry and economy in general. This trend has been observed in Europe, North and Latin America and in much of Asia. However, Africa, unlike other regions of the world, has not demonstrated this trend in all countries and for all time periods. Particularly negative in this regard was the period from 1970 to 1995. During this period, Africa's urban population grew on average by 4.7% annually, while per capita gross domestic products (GDP) declined by 0.7 % per year. This inverse relation between indicators of urbanization and per capita income is a unique phenomenon even for the world's poorest countries.

Africa experienced a destructive process of structural adjustment, which was imposed on the continent. At the same time, the accelerated growth of African cities was not accompanied by an increase in industrial production, as it was the case in the developed countries of Europe and America. On the contrary, what at times accompanied it in Africa was the process of deindustrialization. Indeed, in assessing Africa, we must not ignore South Africa's special place on the continent.

Until the 21st century, a peculiarity of the African urbanization was that the continent's urban population continued to grow rapidly despite low and (in some cases) negative growth of public production. Stagnation in the African economy did not restrain urbanization, whilst the latter, in turn, did not stimulate economic growth.

In this connection, in the 1980s-1990s, there was a fairly widespread concept of the so-called "false urbanization" or "pseudo-urbanization". Nevertheless, despite all its inconsistency, the process of urban growth in Africa stimulates socio-economic development, albeit in distorted and non-traditional forms, and cities themselves, amid limited material, financial and other resources, are becoming a sort of "outposts of growth", simultaneously linking African countries to the global market.

At the same time, the trend we see in Africa towards urbanization in the absence of economic growth can be partly explained by distorted incentives that encourage workers to move to the city in order to receive subsidies and other social benefits rather than to have an opportunity to find a better paying job.

Substantial funds were invested in the development of the public sector, which was characterized by low efficiency but created a significant number of jobs. Besides, subsidizing basic goods in cities was done for political reasons: it ensured relative social stability.

What lay at the heart of rural-urban migration in Africa was not just economic "pull" of cities, but also, to a large extent, factors pushing people out from the countryside, including widespread farm bankruptcies, land scarcity, and the relative and absolute overpopulation in agrarian communities, as well as natural disasters.

Furthermore, wars and civil unrest on the African continent for decades have been forcing millions of people to flee to cities.

Yet, since the beginning of the 1990s, the proportion of migrants in the total urban population growth has begun to decline, and now it does not exceed 40%. African cities are increasingly relying on own resources for growth, i.e. natural growth of the urban population.

Migration flows do not decrease during structural economic adjustment or social and economic upheavals. Conversely, the scale of migration, both legal and illegal, increases significantly. Another thing is that these flows in the context of globalization are increasingly beginning to rely on foreign labor markets, overcoming not only national but also continental boundaries. The bulk of these flows will be absorbed by the "global city".

Urbanization processes in Africa under the conditions of weak economy, high rates of population growth and high population mobility increasingly acquire crisis outlines.

The crisis has affected almost all aspects of life in African cities – employment, education and health, food and welfare benefits, environment and the access to urban social services, and many other areas.

The problem of widespread urban poverty has come to the forefront in all its complexity and severity. By the end of the first decade of the 21st century, more than 15% of the urban population of Africa continued to live on $1 a day. As a result of the global financial and economic crisis, the number has undoubtedly increased.

Absolute poverty is the inability to satisfy basic needs. The growth in relative and absolute poverty in African cities continues against the backdrop of the widening gap between the richest and the poorest segments of the population.

Filth and unsanitary conditions reign in African slums; electricity, water supply, sewages, and garbage disposal are completely absent. Population density here is uncontrollable, and thousands of homeless sleep in the streets.

However, the rapid growth of the urban population leads to an increase in the proportion of people of working age in cities, i.e. of potential workforce. The workforce in African cities is growing rapidly, which provides cheap labor for the economy, including its informal sector (IFS).

In some African countries, especially the poorest, the IFS absorbs up to 60% of urban employment.

As a rule, income levels of most of the people employed in the IFS do not exceed the survival threshold.

Visible growth of employment in the IFS does not eliminate the problems of urban poverty and pauperization. The city becomes the base of a marginal social category.

Indeed, there exist upper layers of the IFS linked to the modern sector of the economy (small business, etc.), which form social groups that are in transition to modern social groups.

Cities also contribute to improving the quality of labor by educating and training it. Urbanization significantly expands the scope of hired labor in the economy, thereby making a substantial contribution to the modern structure of employment. In African cities female employment also increases: cities provide women with more opportunities to work and study.

Thus, the formation of modern economic sectors and types of employment in African cities is continuous.

However, the process is increasingly taking the form of a crisis. Youth is in a particularly difficult situation. Most of the urban unemployed (50-75%) are people under 25 years of age. Young intellectuals – recent graduates – who have difficulties finding suitable jobs after the abolition of the system of work assignment that existed in several countries in the 1980s - 1990s are also lumpenized.

Women and children are the worst off. The increasing number of angry and desperate people in African cities and swelling to a critical mass lumpenized population which, complicate the general socio-political situation in many African countries.

Marginal masses of urban residents are involved in riots and unrest of the general urban population, which have become ubiquitous on the continent. Suffice it to recall the events of the winter and spring of 2011 in North Africa. African conflicts increasingly often cross national boundaries, and African refugees and illegal migrants have become one of the world's major problems. The events of 2011-2014 in Arab countries may repeat themselves in Sub-Saharan Africa.

An ideal government policy would be to ensure a level playing field so that large, medium and small cities and rural areas compete with each other on an equal footing. However, the implementation of such policies would require not just the removal of subsidies and tax incentives. The process of urbanization also demands an increase in investment in public infrastructure.

Mounting contradictions in African urbanization and a peculiar intersection of traditional and modern, internal and external factors determine the need for a radical transformation of many components of the socio-economic structure of African countries, as well as of their position in the world economic system.

In this sense, extensive cooperation between BRICS countries and African states can have a positive effect on solving the problem of megacities, and facilitate their transformation. Such cooperation can contribute to Africa's economic development, including the development of industrial production drawing on its huge workforce, improving social infrastructure, raising the level of education and health care, and subduing the crisis of urbanization. Africa and African megacities possess the potential for qualitative and quantitative development and for overcoming current socio-economic difficulties.

CHAPTER 14

RAPID URBANIZATION: THE CHALLENGE OF MEGACITIES – TOWARD THE PRODUCTION OF LOCALITY

Iain Low[1]

ABSTRACT

The advent of mega cites is a phenomenon confronting all nations competing in the current wave of globalization. Mega cities have emerged as a result of rapid urbanization accompanying current economic shifts and serve to compound the socio-economic problems associated with urban concentrations. Despite that South Africa has not yet an "official" mega city, the country is confronted by similar challenges to other States. However, in South Africa this is compounded by local exigencies, most specifically the legacy of apartheid with its spatial and demographic segregation.

Consequently, the concomitant extreme poverty, inequity and underemployment complicates the problems that accompany mega city immigration, posing a significant challenge to the future development of South African cities. Yet, the relative "small size" and our distinct spatial character in fact afford opportunity to simultaneously manage growth and inform spatial configurations that leverage socio–economic and developmental advantage. It is time for South Africa to become active regarding the re-imagination and shaping of its spatial future.

The National Planning Commission's "National Development Plan – vision for 2030" directly addresses these concerns, particularly with regard to national re-spatialisation through strategic planning and design around human settlement. However, it is now two years since its publication and little progress is been evident in implementing it as a program of action. Whereas South African cities might still emerge as mega conurbations, there is evidence that its realization demands our own local production, demonstrating need for both capacity and political to engage spatial transformation.

The task of effecting this at a national scale will require considerable capacity and creative innovation, particularly in reassessing and transforming existing institutional approaches to spatial design and delivery. The diversity of experience

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represented by the BRICS cohort could afford productive ground for collective cross-learning.

Keywords: mega city; spatial transformation; innovation; human development; infrastructure; city-region ; local production; National Development Plan.

1 BACKGROUND

The turn of the century was marked by two significant but antagonistic forces, which have had a singular impact on the shape and size of urban development in South Africa. On the one hand the advent of democracy and the prospect of a more equitable society within which difference might co-exist, and on the other, the advent of globalization and its attendant drive for heightened capital accumulation and material consumption at particular nodes of concentration within a collection of highly networked cities across the globe.

The multiple opportunities afforded by cities render them as attractors of human migration, with adverse effect for rural areas, peripheral towns and less developed countries. One of the main consequences of these forces has been the intense pressure and demand on cities to perform in ways for which they were not originally designed. This intensification has enforced rapid change in the shape and size of cities with the emergence of Mega Cites across the globe. The concomitant technological innovation and global connectivity is likely to permanently alter the nature and experience of human settlements, with adverse effects for a growing underclass, unless strategic interventions are affected timeously.

This advent of mega cites is a phenomenon confronting all nations competing in the current wave of globalization. Despite that, South Africa is not yet an "official" megacity, we are confronted by similar challenges to other States. However, in South Africa this is compounded by local exigencies, most specifically the legacy of apartheid with its spatial and demographic segregation. Consequently, the concomitant extreme poverty, inequity and underemployment complicates the problems that accompany megacity immigration, posing a challenge to the future development of South African cities. Yet, the relative smallness and our distinct spatial character afford opportunity to simultaneously manage and leverage urban growth toward socio-economic and developmental advantage. It is time for South Africa to become serious regarding the re-imagination and shaping of its spatial future.

1.1 The megacity and the South African condition

A megacity is conventionally defined as a metropolitan area with a total population in excess of ten million people. A megacity could be a single metropolitan area or two or more metropolitan areas that converge, with the terms conurbation,

metropolis, and metroplex being applied to the latter.[2] These mega cities are rapidly emerging as a consequence of global interconnectivity and its facilitation of rapid urban immigration.

Currently Africa has only two megacities, Cairo in Egypt and Lagos in Nigeria, comprising populations of 16 and 13 million people respectively.[3] Kinshasa, in the Democratic Republic of Congo (DRC), maybe included by virtue of the badly defined nature of the city's limits and the absence of reliable statistical records. South Africa has a population of approximately 50 million people. Johannesburg, Cape Town and Durban represent its three major metropolitan areas, however, with populations ranging between 3.5-4.5 million people, they are still approximately only one third of the size of Africa's mega cities.

TABLE 1
Population statistics for South African cities

City (2011 census)	Johannesburg	Cape Town	Durban/Ethekwini	Erkhuleni	Pretoria/Tswane
Population	4,434,827	3,740,026	3,442,361	3,178,470	2,921,488
Growth rate (%)	3.18	2.57	1.08	2.47	3.1
Density (p/km^2)	2,696 p/km^2	1,530 p/km^2	1,502 p/km^2	1,609 p/km^2	464 p/km^2
Unemployment (%)	25	23.9	30,2	28,8	24,2
Household size	2.8p	3.3p	3.4p	2.9p	3.0p
Formal dwellings (%)	81.4	78.4	79	77.4	80.7

Source: Statistics SA; Census 2011.

Despite this, South African cities still display most of the characteristics of megacities; informal settlements, homelessness, built environment sprawl and a disconnection with the rural, inequity and segregation (gentrification), extreme congestion impacting on ease of movement and mobility, and significant environmental problems – pollution, service delivery problems (sanitation, water supply and refuse removal), conditions that are severely exacerbated by the spatial legacy of apartheid. This phenomenon is predominantly accountable to the rapid and uncontrolled urbanization that we have experienced to in the past two decades since democratic independence and the current wave of civil unrest.

Whereas South African cities are not expected to reach the population size of the global leaders, an overreliance on measures of economic progress, as opposed to human development, has exacerbated certain contradictions that confront emerging countries such as ours. Increased poverty, inequality

2. Wikipedia - <http://en.wikipedia.org/wiki/Megacity>. Accessed 20 Feb. 2014.
3. State of African Cities Report – 2014; United Nations Habitat, Nairobi, 2014.

and underemployment have become the primary indicators or by products of globalization. Most notably urban immigration is rapidly causing rural areas to loose their economic and cultural base thereby contributing to a vicious cycle of accelerated urbanization. Without the inclusion of human development factors in the definition and measure of megacities, the rates of inequality and urban insecurity will increase in parallel with immigration.

2 THE PRODUCTION OF LOCALITY

In recognition of conditions such as this, the Government of South Africa established the National Planning Commission (NPC) to undertake research and position a National Development Plan (NDP) – a vision for 2030[4] to identify and guide critical development. Chapter 8 of this document addresses the issue of the transformation of human settlements. Representing the most ambitious and coherent policy statement to come out of post apartheid South African, despite any imperfections, the NDP identifies the importance and the role of space as a socio-physical phenomenon in shaping and informing the experience of citizen's lives. Most particularly it identifies this as a national problem (p. 235-236) that requires macro intervention to afford a transformed spatial economy for the country.

The value of urban agglomerations, as places of economic and livelihood opportunity, is recognized as fundamental in the dislocation of rural areas, and the consequent challenge this has brought to agricultural production and national food security. Consequently, the prospect of the NDP must be considered in the face of a culture of inferior spatial planning discourse and the associated inability of local governments to deliver and implement policy. Furthermore, whilst the NDP represents a long-term spatial project, one of its primary tasks is to identify the absolute non-negotiables, or necessary preconditions, that will ensure its temporal rollout.

In his publication *Modernity at Large*, Arjun Appadurai devotes a chapter to the *Production of Locality*. In his critique of the modern project Appadurai elevates the cultural, as contextual and relational practice, as the critical dimensions of human action, above those of the spatial and the scaler. The shape and size of things becomes subservient to the flows and interconnections necessary to structure and support human existence. Complementing this sentiment, Maliq Simone has argued *For the City Yet to Come*,[5] opining for a privileging of the socius over the

4. Available at: <http://www.npconline.co.za/medialib/downloads/home/NPC%20National%20Development%20Plan%20Vision%202030%20-lo-res.pdf> (Chapter 8).

5. Simone; A-M; For the City Yet to Come – changing African life in four cities; Durham: Duke University Press, 2004.

physical. Implicit is a proposition that the *building of community* should precede that of the building physical fabric. Where community pre-exists, it should form the basis for interpreting and implementing the NDP. Whereas his predilection is to identify "people as infrastructure", a more productive trope would be to define the interrelation between culture and infrastructure.

This approach suggests that we avoid the "best practice" "one size fits all" approach to problem solving and engage in a process of local production whereby our own history, memory and existing situation become critical informers of policy interpretation and implementation. Solutions should be grounded and not imposed.

3 SPATIAL TRANSFORMATION: TOWARD SPATIAL RECONFIGURATION

What seems lacking from discourse around the megacity is the interrogation of its spatial form and its relation to cultural practice(s). This consideration is fundamental to the South African condition where spatial dislocation and the "arrested development" of apartheid era negatively impacts on both economic and human development. The rise of so-called informality and the loss of coherency in megacity environments can be directly associated with the failure of city form to respond transformatively. Shape and size are interconnected and their separation has negative consequences for sustainability and inclusivity in urban growth.

In the absence of concomitant spatial questioning, a process of systemic improvement, as opposed to systemic innovation, drives urban development. In achieving innovation we require a reconceptualization of the spatial economy of human settlement predicated on the re-visioning of the built environment as an integrative terrain or fieldwork of interconnectivity; that is – urban form as public infrastructure fabric and not a series of intensifications connected by transport routes.

To reimagine a different form of conurbation as a horizon of interconnectivity, rather than a hierarchy of places? This requires a moment of interpretation, which resides in spatial literacy, and not simply in the application of conventional technical and economic planning skill.

4 SOME EXPERIMENTAL POTENTIAL IN THE SOUTH AFRICAN LANDSCAPE; THREE INTERRELATED SPATIAL PROJECTS

4.1 Gauteng: City-Region / Johannesburg-Ekhurleni-Tswane+ (urban morphology)

FIGURE 1
Proposed Gauteng city region

Source: GCRO (2013).

In South Africa, the potential of its densest and richest province, Gauteng, to establish within itself a city-region conurbation renders it as an emerging South African situation whereby a megacity might "come into being" through design intent. Predicated on re-territorialisation of separate local municipal areas, it proposes a pro-active response to rapid urbanization, whereby government leads on the ground.[6] This pro-action is aligned with the NDP and could support a cross-integrative approach to urban reformation. Capable of comfortably enmeshing competing municipal areas with diverse but segregated functions, its innovative spatial transformation would integrate transport and public space, living and working, learning and recreating and etc. to become productively entangled at the scale of a region. Establishing ground for more settlement coherence, its reconfiguration would affect human interrelations and the necessary security for productive co-existence, particularly with respect to abandoned mining sites, disused industrial zones and underproductive agricultural land.

This type of intervention relies on Terrain Innovation Modelling (TIM) to reconfigure terrain,[7] enabling potential for multiple individual interventions to cohere through their morphologic connectivity. When exercised through systemic innovation (as opposed to systemic improvement) this type of thinking and making could be replicated across a national scale. One necessity will be the evolution of new institutional relations as frameworks for expediting and managing terrain configuration, and thereby potentially reimagining the nation as fieldwork of difference, as opposed to separate geographically bound provinces competing with each other.

6. Gauteng City-Region Observatory; <http://www.gcro.ac.za>. Accessed 2014, Feb. 20.

7. Moulaert, F. and Mehmood, A; Analysing regional development and policy: A structural-realist approach; Regional Studies, Mar. 2008.

The Gauteng Province's leadership in this field is intimately associated with its economic power, and its historic capacity to innovate new institutional mechanisms.[8] In replicating this, our other regions require economic support, intellectual leadership and spatial innovation, for it is only through the creative translation of policy into built form with associated new public institutions that peoples' lives become transformed.

4.2 Western Cape: Township / Khayelitsha – VPUU (urban typo-morphology)

The Violence Protection through Urban Upgrading (VPUU) project in Khayelitsha,[9] South Africa's second largest township after Soweto in Gauteng, represents an attempt at system innovation through co-production. An alignment exists between the City of Cape Town (CoCT) as local government, the German Foreign Aid Development Agency – KfW as foreign donor and the Khayelitsha Development Forum (KDF) as community representation. Working at the neglected wasteland of the townships interstices, the project seeks to reinforce and develop community through collective action operating across five interrelated developmental measures.

1) Infrastructure development (as a means of establishing safe places).
2) Social development (in support of victims of violence and future victimhood).
3) Institutional development (to manage local community delivery of services, training and mentoring).
4) Community participation (through Community Action Plans (CAP's) to evolve partnerships in development between stakeholders).
5) Knowledge management (for monitoring and evaluation with the purpose of capacity building and experience sharing).

The VPUU project has achieved considerable success and recognition for its integrative approach to urban development and interventive upgrade. This community action based model has demonstrated productive capacity in building community through public infrastructure delivery. Currently it is being replicated in other townships across Cape Town, to provide a viable and alternative to the conventional hierarchic disciplinary and sector driven approach. In establishing a horizon of interconnectivity it has enabled equitable networking between a range of stakeholders who might previously have been marginalized or excluded.

8. The Johanesburg Development Authority (JDA), the Johannesburg Housing Authority (JHC) and Blue IQ the Provincial Development Authority are three such instances of socio-economic institutions developed through post 1994 political process.

9. isiXhosa – translates as: *new home.*

FIGURE 2
Violence protection through urban upgrade (VPUU)

Source: Khayelitsha – SUN (2012).

Its success is predicated on the pre-existence of community structures, (KDF) which have the capacity to negotiate with the power of government and financial sectors and the local authorities. Its careful urban renewal approach is locally grounded and fosters resilience and strengthens community interaction with direct benefit for inclusivity and longer term sustainability. This form of urban development may be construed as typo-morphologic in that its form transcends the type/structure divide, effecting hybrid innovations that are highly situated and specific to a particular space-time conjunction. This strategic approach has value in supporting the city-region approach to spatial re-configuration of rapidly emerging built environments, and maybe be deployed pro-actively, as opposed to remedially.

4.3 Johannesburg: Social Housing Block / JHC (urban typology)

The Johannesburg Housing Company (JHC) was established in 1995. One of its primary intentions was to engage the transitionary social flux of the post apartheid moment in order to support urban inclusivity through the development of viable inner city social housing. Through the identification of abandoned sites and buildings, a process of careful urban renewal has introduced 4,000 low-income rental units into Johannesburg's inner city. In addition to represencing the absence of previously marginalized communities, this program has increased density and aided economic development by attracting additional investment and transforming blighted areas, whilst boosting property value. Reliance on building conversions and slum clean-ups has promoted entrepreneurial activity and produced a range of experimental projects that demonstrate design innovation as well as socio-economic sustainability.

The JHC's track record has ensured sustained public private investment resulting in new partnerships between government and civil society. The Social Housing Institute (SHI) provides a mechanism through which to mediate conflict whilst enabling local communities to flourish through sponsoring social negotiation around common interest.

FIGURE 3
Brickfields social housing intervention, Johannesburg Housing Company

Source: JHC (2009).

This model of urban intervention privileges the production of individual building complexes as mixed-use and self-regulating hybrids. This typological approach supports the necessary *re-writing of architectural type* as a direct reflection on the transformation of society and urban space.

These three approaches demonstrate projects that represent urban experiments expedited under the rubric of spatial transformation in post apartheid South Africa. Not subscribing to any meta-approach to policy interpretation and implementation, they may be considered as catalytic experiments whose cumulative and interrelated experience is capable of contributing valuable knowledge in the research and development (R&D) required to translate the NDP into action plans. Their importance resides in a capacity to link formal with practice, particularly in

the realm of spatial configuration. Furthermore, their value lays in the demonstration of both a capacity to apply policy change and innovatively integrate across traditional divides, as well as to concretizing the reality of democratic practice in South Africa in fulfillment of our constitutional responsibilities.

5 SOME CONCLUSIONS

In the absence of a critically transformed conception of urban development, the advent of the megacity in South Africa will emerge from the predominant global model.[10] Privileging capital accumulation over human development, it will most likely continue to reinforce the excessive disparities between rich and poor, ghetto-izing them to the periphery and excluding them from participation in the ordinary practices in everyday life. This form of development will exacerbate civil unrest, reinforce the urban-rural divide and undermine human and environmental sustainability.

In contesting the inevitable, South Africa can reposition space as a medium in socio-economic development and re-imagine a transformed inclusive political economy for its national reconfiguration, aligned to the principles of democracy and the freedom charter. The National Development Plan and South Africa's emphasis and investment in public infrastructure development could provide the impetus for such a shift. However, the prerequisite to its success will require new institutional instruments and critical agency in order to counter the threat of established practices.

What is the role of the city-region making in transforming the spatial legacy of apartheid and achieving a transformed territory that integrates, as opposed to segregates? How can we productively engage the reality of the megacity whilst continuing to participate in the global economy? Whereas the National Development Plan's vision for 2030 addresses these concerns, it is now two years since its inception and remarkably little progress has been made in implementing it as a program of action. Given the history of the country's inability to translate policy into action plan, South African *cities yet to come* might indeed become vast, sprawling mega conurbations characterized by numbers (quantitative measures) as opposed to that of human experience (quality of life).

These perspectives demonstrate the value of alternative institutional arrangements that consciously integrate sectorial difference through the promotion of creative human agency. This shift is considered as a precondition in genuinely re-imagining new spatial arrangements grounded in critical alternatives within the necessary interpretation of the NDP?

10. As a quantitative measure (10 million inhabitants), as opposed to as a qualitative measure relative to human opportunity for inclusive participation and meaningful experience of the everyday.

The task of effecting this at a national scale will require considerable capacity and creative innovation, particularly in reassessing and transforming existing institutional approaches to spatial design, procurement and implementation in the built environment. In shifting from a technocratic toward a more humane process, social activism can become the means for attaining inclusive and sustainable development. Whereas South Africa has time on hand, the diversity and experience represented by the BRICS nation cohort could afford productive ground for sharing across nations, particularly during the iteration of the BRICS second cycle.

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CHAPTER 15

INCLUSION OF MIGRANT WORKERS: CHALLENGES FOR CHINA'S LARGE CITIES

Bing Shen[1]

1 RURAL-URBAN MIGRATION IN THE CONTEXT OF CHINA'S URBANIZATION

The urbanization of China[2] has been accelerated as a result of rapid economic growth, since the late 1970s when the country was opening up and market-oriented reform policies were adopted. At the end of 2012, China counted over 711.8 million urban dwellers, or 52.6% of the country's total 1.354 billion people. The urbanization rate rose 34.7 percentage points from 1978 to 2012, compared with 14.0 percentage point increases of the world average during the same period.

Like most economies, China's urbanization is accompanied by rural-urban migration, yet, as one of the most populous nations in the world, China has been experiencing the most extensive internal migration. There were 262.61 million rural migrants by the end of 2012, among whom 163.36 million sought jobs away from home lasting at least six months who were counted as urban population by Chinese statistics. Shown by graph 1, around three quarters of the total migrants are between 21-50 years old. Additionally, there were 22.9 million children aged 14 years or below who migrated to cities with parents, accounting for 10% of the national population of children within this age range according to the census in 2010. More than half of the working age migrants concentrated in manufacturing and the construction industries (see graph 2).

In contrast to some developing countries, where rural migrants live in cities without adequate job opportunities, Chinese rural migrants are employed in city's non-agriculture industries but are excluded from the urban public-service system such as education, medical care, housing, and social security, due to the unique household registration system, known as the *hukou* system. This system differentiates Chinese people into rural and non-rural residents, preventing rural migrants working and living in cities from enjoying equal access to urban public services as other urbanites who hold a city *hukou*. The rural migrant is referred to as a "migrant worker" in China, implying they are only working people in cities rather than actual citizens.

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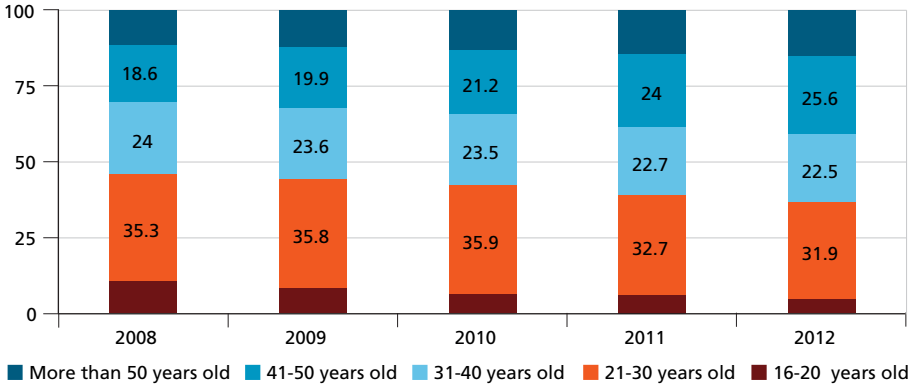
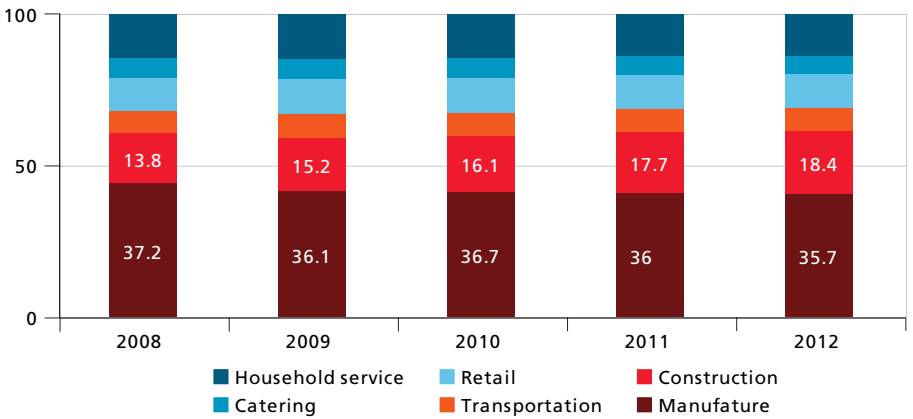
2. In this paper, China refers to mainland China.

GRAPH 1
Composition of migrant workers by ages
(In %)



Source: National Bureau Statistics – National Migrant Workers Survey Report of 2012.

GRAPH 2
Composition of migrant workers by employed industries
(In %)



Source: National Bureau Statistics – National Migrant Workers Survey Report of 2012.

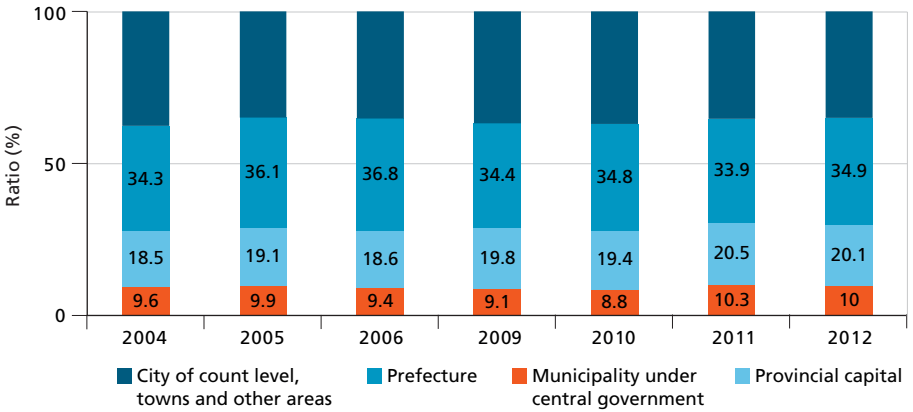
Rural migrants have become an important and integral part of the Chinese industrial workers and have made a great contribution to the country of evolving into "the world's factory". They have increased welfare for rural and urban residents and created wealth for society, but have not been fully accepted by cities, with a large number of rural migrants acquiring a "semi-urbanite" status. China's urbanization is an unaccomplished process. The major task for China's urbanization lies in accommodating the large number of migrant workers into cities, providing them with the same public services as the residents with urban *hokou*.

2 CHALLENGES FACING LARGE CITIES IN ACCOMMODATING THE MIGRANTS

2.1 Large cities are the major destination of migrants

About 57.4% of migrant workers in China are from the less-developed central and western regions and are employed in the developed eastern (coastal) areas and nearly two thirds of the migrants search for jobs outside their home provinces. Furthermore, as shown by graph 3, more than 30% of migrant workers prefer working in the four municipalities[3] and 28 provincial capitals, which are all the large cities among China's total 657 cities. Another 34.9% of the workers find jobs in 285 prefectures, most of which are still large cities.

GRAPH 3
Composition of migrant workers by destination cities



Source: National Bureau Statistics – National Migrant Workers Survey Report of 2012.

According to a survey,[4] more job opportunities, well-paid jobs, and cultural activities are the most-cited reasons behind rural migrants' preference for large cities, and first-tier cities such as Beijing, Shanghai and Guangzhou are the most popular. The three largest eastern cities witnessed a fast-growing population of non-*hukou* migrants in the reform era. Table 1 illustrates that more than one third of the population are in Beijing and Guangzhou, and more than 44% from Shanghai migrated from other regions in 2010 and most of them are rural migrants.

3. Four municipalities directly under the central government include Beijing, Tianjin, Shanghai, and Chongqing.
4. See Shen *et al.* (2010).

TABLE 1
Population in Beijing, Shanghai and Guangzhou (2010)

	Beijing	Shanghai	Guangzhou
Resident population (million) (1)[1]	19.61	20.31	12.70
Resident from the regions other than the cities (million) (2)	7.04	8.97	4.76
(2)/(1) (%)	35.9	44.2	37.5

Source: The sixth population census bulletin of the three cities.
Note: [1] Resident population refer to these who inhabit the cities for at least six months.

2.2 Pressures for large cities to accommodate migrants

China is a typical urban-rural dualistic economy and society, which leads to big gaps in public service provision levels between rural and urban areas as well as between farmers and city dwellers. Granting the same level of public service to the rural migrants as well as the urbanites – also denoted as "citizenization" in China – could cause a large increase in government fiscal expenditure.

In a case study of Ningbo city,[5] the second largest city in coastal Zhejiang province, that has 3.23 million rural migrant workers from other regions in 2010 among its total population of 7.61 million, it was found that the costs for per person would be 61.5 thousand yuan if the rural migrants were granted the same level of public service as their urban counterparts in Ningbo (see table 2). The annual expenditure would be 58.2 billion yuan, accounting nearly 49.6% of Ningbo city government's annual fiscal general budgetary revenues in 2010. This indicates that citizenization of rural migrants could be a large fiscal burden to the city and the local governments usually show their reluctance to bear the pressures.

TABLE 2
The cost estimation of citizenization in Ningbo

	Compulsory education	Public health	Employment support	Social security	Housing	Total
Per person (yuan)	8,953.7	919.7	1,120.0	32,514.0	18,000.0	61,507.4
Per year (billion yuan)	8.5	0.9	1.1	30.8	17.1	58.2

Source: Shen *et al.,* 2010.

There are several institutional reasons underlying the unwillingness of the city governments to pay the estimated expenditures. Firstly, public services are mainly provided by the local governments in China instead of the central government. Localization in the provision for public services lowers the city governments' willingness to equalize the public service level between the local residents and rural migrants from other regions. In a city, to grant the right of enjoying public service

5. See Shen *et al*. (2010).

to the migrants within its own administrative jurisdiction, the social benefits would be internalized in the city. If, on the other hand, the governments incorporate the migrants going outside the cities, the resulting externalities are regarded as merely losses for them.

The second reason is related to the taxation system and local government performance evaluation system. In China, the fiscal revenues of local governments mainly generated from value added and sales taxes. And the economic growth indicators account for large shares in assessing local governments' performance. These two institutional arrangements stimulate the local governments' preference for industry development to public service provision. While these contribute greatly to urban economic vigor and national economic growth, they also bring about the shortage of public infrastructure construction and service provision in cities. Many cities still lack the capacity to provide adequate public goods to the local urbanites, let alone to cover the migrants.

The third reason involves inland administrative and ownership systems. Under the current urban land administration system, the city governments need to get construction land quotes from provincial or central governments. The distribution of the quotes to the large cities does not fully encompass the large number of migrants into account and land use for public services creates even more shortage due to the limitation of usable land. Meanwhile, the land ownership system in China is also urban-rural dualistic. In the urban areas, land is nationally owned while in the rural areas the land is collectively owned. The rural migrants need to give up the contracted land if they convert their rural residential *hukou* to an urban one. When they were granted *hukou* of the city working, the land they would hand over is still within the region whereof they move out. The cities taking in migrants therefore had little motivation to truly accommodate the rural comers, for in these cities perspective, it was the migrants' home regions that benefitted from farmers' giving up rural land.

Nowadays, even though the pressures are enormous, the expenditures for a city to extend public services to rural migrants in large cities has become ineluctable as the "second generation" migrant workers, the children of the first generation, are emerging in China. Born in the late 1980s and early 1990s, some children were not only born but also grew up in cities; these young migrants have become more involved in urban life, and are indifferent to farmland. Unlike their predecessors who flooded into cities to make money and went back to their village after getting old, the younger generation, no longer fit into their villages and long for a decent life in the cities, this generation have already become permanent residents in cities no matter what kind of *hukou* they hold.

2.3 Measures taken by the local and central governments

It is anticipated that the urbanization rate would be 70% in 2030 in China. As another 300 to 400 million famers would be urbanized in China, measures and policies to enable migrant workers to get urbanite status need to be taken. In fact, local and central governments have strengthened the public policies to address the problems. Since citizenization of rural migrants cannot be accomplished in one go, the government has made it a gradual process but at a quickening pace.

Chinese government is now paying much more attention to social development rather than merely focusing on economic growth; in the last ten years a harmonized society has been built and that has become the social consensus. Marginalization in urban life and exclusion from urban welfare of the rural migrants would not be healthy to long-term social development.

A second reason arose over the changes of rural migrant labor supply. Aforementioned graph 1 shows a tendency that the amount of migrants between ages of 21-50 began to decrease, indicating that the supplies of working aged migrant workers are declining while the demand for laborers is still large in China. Since 2005 the phenomenon of "shortage of migrant workers" has been occurring in eastern large cities, which leads to continuing raising of migrants' wages and improvement of their welfares.

3 MEASUREMENTS TAKEN BY CITY GOVERNMENTS

Measures or public policies for accommodating rural migrants have been taken by both local and central governments. Local governments tailored the policies according to their fiscal capacity and the number of migrants in their cities. Summarized from experience of several cities, the measures mainly include:

1) Establishment of "score-accumulation system". The system is designed for rural migrant "naturalization" by evaluating the eligibility of migrant applicants to access urban welfare and gain urban *hukou*. In such cities with large numbers of rural migrants such as Ningbo, Shanghai, and Guangzhou, in a bid to extend the coverage of a social safety net to migrant workers, the migrants were rated and marked according to their education, years spent working in the city, skills, employment performance, etc. The higher score a worker gets, the more urban welfare could be granted. When reaching a certain score, for instance, children of the migrants could be eligible to enroll in a higher-quality public school. When the score accumulates to the required point the migrants can transfer their rural *hukou* from their home village to the city. Through this system, the large city gradually opens its gates to allow current migrant workers entitlement to more public services and even obtain urbanite status.

2) Improvement of schooling for migrant children. In China, the provision of compulsory education falls into the responsibility of city governments. In the early period, children of rural migrants used to go to unregistered informal migrant worker schools, which were set up especially for child migrants due to the lack of public schools. In recent years, many cities, like Beijing and Shanghai, tried to have all the child migrants study in public schools. In Shanghai, for instance, beginning in 2008, the government launched a three-year campaign aimed at incorporating at least 70% of migrant children into primary education, and 100% into secondary education.[6] Other cities provided subsidies to schools agreeing to accept migrant children.

   As migrants usually live in the suburbs, the city of Ningbo built new public schools especially for the migrant children.

3) Improvement of housing conditions. In China, low-rent housing is subsidized by city governments and is only available for urban *hukou* holders. Most rural migrants rent houses in the suburbs, where living conditions are poorer but the rent is affordable, many young workers also live in the factory dormitories. There are three ways for local government to improve the migrants' housing conditions. The first one is improving public services in the migrant areas, facilities such as roads, garbage collection, lighting, etc. The second one is to provide subsidies to the factory owners so they can build more dormitories. And the last one is to grant eligible migrants the public housing.

4) Improvement of city governance. With more diversified residents, city governance becomes important. In rural migrant areas, the migrant workers are allowed to participate in community management. Moreover, non-government organizations have begun to play a role in helping migrants integrate in cities. With the financial support of local governments, agencies for law assistance, job searching and training have been established at city and county level specifically to provide assistance to rural migrants.

4 POLICIES TAKEN ON BY THE CENTRAL GOVERNMENT

Although responsibilities for citizenization of rural migrants mainly belong to city governments, the central government also made efforts to guide and support local governments.

6. See Lan (2014).

1) Establishment of coordination organization. The State Council set up a Joint Committee in 2006 to coordinate rural migration affairs among ministries. An office was especially created to deal with daily works relating to migrant workers.

2) Launch of training programs. Since 2004, the central government had initiated programs for training rural migrant workers, which were implemented at ministerial level, and training costs are shared by the central government and provincial governments. A "Sunshine Project" was started in 2004, for example, which aims to train more than 10 million migrant workers. The subsidies to each trainee have been increased over the years.[7]

3) Increase fiscal transfer payments to city governments. As the schooling of child migrants created pressures for city fiscal coffers, from 2008, the central government transferred special payments to the large cities with more rural migrants. Ningbo, for instance, received 50 million yuan payments in 2009 from the Financial Ministry. The central government also increased subsidies to large cities in health and social security for migrant workers.

5 CONCLUSION: PROSPECT FOR FURTHER REFORMS

It seems that *hukou* (household registration system) is the barrier between the status of migrant workers and citizens in China. Both central government and local governments are strengthening reforms on the *hukou* system with an objective of merging urban and rural *hukou* into one type of registration system. For the central government, documents have been issued in recent year to encourage the small and medium cities to unified rural and urban *hukou* and grant *hukou* to migrants outside the cities, yet, still leaving large cities to maintain much stricter *hukou* conversion application standards to avoid faster population growth in large cities.

For local governments, several provinces and cities have abolished the dual-type *hukou* system and issued identical *hukou* to both urban and rural residents within these provinces or cities. However, some cities had to go back to their original plans, such as Zhengzhou and Shijiazhuang, the capitals of Henan and Hebei provinces with a total population of 9 million and 10 million respectively, by conducting reforms to grant more rural migrants of the city urban *hukou* and opened public schools to the new migrants in the early 2000s. The reform was suspended soon after the realization that there were not enough schools available to accommodate the large influx of rural children.

7. See Li (2008).

The experiences might imply that the inclusion of migrant workers should not be as simple as granting them urban *hukou*. The above-mentioned analysis indicated that the large costs for expanding urban public services to rural migrants could be the most important hindering factor. Therefore, establishment of costs co-sharing mechanism between the central and local government would be critical for speeding up the process of citizenization of migrant workers in China. The central government needs to increase transfer payments in the fields of public service to large cities

Related institutional reforms are also essential. For instance, the establishment of a unified urban and land market by granting farmers the right to trade their rural land would ensure that they cashed in on their land's market value, enabling them to use the capital to go into business in the cities, which would help them to settle down in cities. Furthermore, land using quotes distribution should be linked with the number of migrant workers moving into cities in order to incentivize large cities to embrace more rural migrants. As for the taxation system, more taxes need to be left with local governments by modifying the current tax sharing proportions between central and local governments. Moreover, the central government should take on more responsibility of providing public services. If, for example, a central government funded and nationally unified endowment and medical insurance system took the place of the current urban-rural dualistic and regional varied system, rural migrants would find it easier to survive in cities.

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CHAPTER 16

BRICS-CITIES AND THE ISSUE OF SOCIAL MOBILITY: ATTRACTION OF CAPITAL AND THE RIGHT TO THE CITY

Sérgio Veloso[1]

1 INTRODUCTION

Born as a compass for new global investments, BRICS (Brazil, Russia, India, China and South Africa) entail a metaphor of mobility that nourishes and strengthens throughout the globe, in the hopes of reducing poverty and social inequality, as well as constructing a new world order marked by new centers and protagonists. The consolidation of a group of countries, like the BRICS nations, as strong global players demonstrates to the whole world that mobility is a real possibility in the international arena. What the BRICS grouping does not make clear, however, is wether this mobility will result in profound systemic changes towards a more equal and democratic world.

Mobility denotes motion, flow, movement and revolution. In the Oxford dictionary, it is defined as "the ability to move or be moved freely and easily". One moves from one place to another, from one condition to another, and from one state to another. Mobility is an inherent condition of life on Earth. As inhabitants of a planet orbiting continuously around a sun, we move constantly, or, in other words, are in constant movement. Mobility, however, does not denote any inherently positive meaning. It simply denotes motion.

When applied to the challenges and obstacles of social life, the term "mobility" comes accompanied by the adjective "social". As the most general definition of mobility, social mobility also denotes motion. However, often this motion is marked by a positive connotation. Social mobility is often synonymous with or refers to the reduction of social inequality and poverty. In this case, mobility no longer simply means motion; it acquires a positive connotation. This paper would like to argue, however, that this is not always the case: social mobility does not always entail a reduction of social inequality and poverty.

This short paper discusses, through the concept of *BRICS-Cities*, two different agendas of urban development. Each of these agendas leads to distinct

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notions of social mobility, which, in turn, leads to different conditions of urban life. This paper is organized as follows: The first section briefly analyzes the relation between the urban as a socially constructed process and social mobility. The second section introduces the concept of *BRICS-Cities*. This concept seeks to express a process of mobility in which *megacities* assume certain attributes of *global-cities*, performing more important roles in the global economy. The third section analyzes two agendas of urban development in BRICS-Cities – attraction of capital and the right to the city – and the different connotations of social mobility arising from each of these agendas. In conclusion, this paper will argue in favor of the complementarity of both agendas in order for the BRICS to become a vector for the consolidation of an inclusive and democratic order through the development of their cities.

2 URBAN PROCESS AND SOCIAL MOBILITY

In his studies, Henri Lefebvre (1991; 2003) highlights the procedural nature of urban spaces. Cities are more than their streets, buildings, resources and wealth; they are socially-produced spaces. By noting this procedural nature, Lefebvre (1991; 2003) stresses the importance of diverse relationships and articulations in the daily urban life. The social production of space, system of values, interests and discourses that giver shape and organize the everyday of urban life, is the result of relationships and disputes between various actors inhabiting the city.

This perception is important because it demonstrates that cities are open and unpredictable spaces. The materiality of cities, as well as their systems of values, interests and discourses, is the result of social interaction. Urban life can, thus, take many forms. The point is that none of these forms are given; they are continually produced and reproduced through daily life (Lefebvre, 1991; 2003). Due to this reason, and also to their material capabilities and structures, cities are strategic sites for concentration of productive forces as well as for the accumulation, management, and distribution of resources (Lefebvre, 1996; Harvey, 2008; Brenner *et al.*, 2012).

In all its procedural, social, and material complexity, cities are thus suitable spaces for different types of mobility, including, of course, social mobility. They can provide mobility towards the democratization of capabilities, giving to a greater number of their dwellers real chances to take part in the enjoyment and management of their resources. However, a city can also do the opposite, restricting to a smaller number of its dwellers a chance to take part in the enjoyment and management of its resources. These two scenarios shed light, therefore, to the ambivalent aspects of social mobility in the urban space. While, in the first scenario, there is an inclusive and universal social mobility, in the second, there is an exclusive and particularist social mobility.

3 BRICS-CITIES: MEGACITIES WITH ATTRIBUTES OF GLOBAL-CITIES

The idea of BRICS-cities refers to this procedural nature of the urban space, and the possible outcomes of social mobility inherent to it, as well as to the metaphor of international mobility entailed by the BRICS. The term "city" in BRICS-cities stands for the process of the social construction of urban space and the possible outcomes of social mobility inherent to it. The term "BRICS", in turn, stands for the metaphor of international mobility in which the BRICS increasingly gain more value in the global economic and political arena. The concept of BRICS-cities, therefore, tries to shed light to the fact that the BRICS guarantees global mobility through the development of its cities, through which its megacities acquire particular attributes of global-cities.

According to the definition of the United Nations (UN-Habitat, 2008), a megacity is determined in terms of people, referring to urban centers with a population over 10 million. In turn, authors like Bugliarello (1999) and Van der Ploeg and Polhekke (2008) consider it to be more appropriate to define megacities according to their general features. According to this authors, the concept of megacity applies to cities in developing countries marked by high rates of poverty, precariousness in infrastructure, and the high concentration of people in areas of spontaneous and unplanned development (Bugliarello, 1999; Van der Ploeg and Poelhekke, 2008). Due to these characteristics, megacities are urban agglomerations eager for investments to provide improvement in the conditions of urban infrastructure and create jobs to assimilate its population in order to reduce the level of poverty and social inequality.

Global-cities, in turn, are presented as urban spaces highly specialized and attractive to qualified professionals with high incomes and, therefore, high powers of consumption. In addition to that, global-cities are also presented as having well structured infrastructures and urban services, enabling high connectivity and mobility, both physical and virtual (Huriot and Lepage, 2006). For these reasons, global-cities are characterizes as occupying a key position in the global economy, performing functions of control and management of its dynamics and acting as hubs for global trade (Sassen, 2001; 2010).

In contrast with the manageability, centrality, and leadership of global-cities, megacities are presented as occupying a subordinate position, characterized as urban areas just suited to the requirements and demands of global production and consumption. Moreover, because they are characterized as precarious urban agglomerations with hoards of people eager for work and better living conditions, megacities are commonly presented as sites of great market potential, both for consumption and production, as well as for business opportunities and investments. As gigantic potential markets, megacities are, along with global-cities, key to the

global economy. Both concepts situate cities in the process of globalization, in which cities and cities networks are repositioned as key players for the functionality of the global economy (Sassen, 2001; 2010). However, they refer to antagonistically different types of cities, occupying equally antagonistic positions in globalization.

In 2001, when O'Neill (2001) coined the acronym BRIC, yet without South Africa, the center of his argument was that these countries would increasingly become, through the first decades of the 21st century, driving forces for the global economy. The force of the metaphor of mobility evoked by the BRICS is derived from this process, by which these countries ascended as key players in the global economy. This process of ascension is directly related to urban socio-spatial transformations. It is through processes or urban socio-spatial transformations that their most important cities and cities network become attractive, qualified, and competitive, thus becoming major destinations for global capital flow and more important players in the global economy. By taking on attributes of global-cities – for example, greater specialization of professional activities and urban infrastructure capable of connecting them globally – the major BRICS-cities consolidated themselves as catapults to global projection of their countries. The next section analyses the issue of social mobility in relation to the logic of the agenda of attraction of capital, key to the process of ascension of the BRICS in the global context, and in relation to the agenda of the right to the city.

4 ATTRACTION OF CAPITAL, RIGHT TO THE CITY AND DIFFERENT TYPES OF SOCIAL MOBILITY

The core of this argument is that the BRICS-cities are megacities with attributes of global-cities and, because of this combination, are located as crucial sites for the mobility of the BRICS in the global arena. Such mobility nourishes and strengthens hopes for a real and profound transformation toward reducing poverty and social inequality and building a more inclusive and democratic world order. In a globalized world in which national states have their relevance reduced and cities begin to play a more central role in the dynamics of the global economy (Sassen, 2001; 2010), States' interests and aspirations for a greater role on the global stage must necessarily go through an urban development process.

So, to examine if this scenario of mobility entailed by the BRICS, in fact, points toward a more inclusive and democratic world, it is necessary to question whether the BRICS are developing and transforming their cities into spaces of inclusion and democracy. That is, it is necessary to question the quality of social mobility produced in BRICS-cities. In this section, two distinct agendas of development and transformation of urban space are analyzed. Each of them produces equally different versions of social mobility, they are: the agenda of attraction of capital and that of the right to the city. While the agenda of attraction of capital

seeks to promote social mobility through the logic of consumption, the agenda of the right to the city offers us a notion of social mobility embedded in the logic of citizenship. In the following section, as a conclusion, it will be argued that a complementarity of both agendas is necessary in order for the BRICS to become vectors for the building of a more inclusive and democratic world.

The agenda of the attraction of capital is related to the new international division of labor and its flexible accumulation in order to sustain processes of social mobility through policies that seek to make the city attractive and competitive for domestic and foreign investments. The consolidation of this agenda requires a gigantic spatial restructuring that aims at adapting the urban space to the logic of consumption and competitiveness through the inclusion of private administrative rationality in the exercise of state power (Harvey, 2005; Hackworth, 2007).

As Wall (2009) and Rondinelli *et al.* (1998) have argued, the level of competitiveness of the city is directly linked to locational factors such as the presence of educated and skilled work force and a population with high power of consumption, as well as connectivity infrastructure, public and private flexible and accountable institutions and organizations. For a city to become more competitive and attractive to new investments, it is necessary, therefore, to have interconnected and integrated processes of social-spatial transformation. On the one hand, there is a need to transform the space for the installation of infrastructure to connect the city to the global space. On the other, there is also a need for social transformation, whose aim is to increase the level of skills and professional expertise, as well as the power of consumption, available in the territory.

According to Figueiredo and Wall (2013), the BRICS have been successful in their question to make their cities more attractive to investments. In 2012, of the ten cities that attracted foreign direct investments (FDI), six were in the BRICS. In addition to highlighting that these cities are consolidated as attractive investment destinations, this data also indicates the importance that these cities have in the economic growth and development of their countries. For example, of 782 FDIs attracted by China in 2012, 39% are concentrated in Shanghai, 30% in Hong Kong, and 18% in Beijing. In Brazil, the city of São Paulo alone, accounted for 61% of all FDI entering the country.

In the agenda of attraction of capital, the urban space is conceived as a platform for productivity and investment. All its features and capabilities should be stabilized to provide a favorable environment to optimal and constant productivity and investments. In other words, the space must give the investor actual conditions of profit. In this context, the people who inhabit these spaces are conceived simultaneously and uniquely as workers and consumers (Brenner *et al.*, 2012).

The idea of social mobility that emerges from this agenda is analogous to the concept of gentrification, which is defined as enclaves of wealth and development in areas marked by poverty and precariousness (Gregory *et al.*, 2009). The concept of gentrification refers to the rise and consolidation of the middle class, a phenomenon widely recognized as characterizing the BRICS. The notion of a middle class, in turn, is usually defined in terms of consumption (Dobbs *et al.*, 2012; Gregory *et al.*, 2009; Hackworth, 2007). That is, the idea of social mobility that emerges from this specific agenda relates strictly to the power consumption of the population. By consuming more, it is believed, the population rises socially.

The progressive increase in the consumption power of the poorest makes them ascend to middle-class status, the process in which a growing portion of the population's access to a variety of consumer goods is expanded. It is believed, then, that social mobility through consumption is a key to reducing social inequality. However, this paper would like to emphasize that the link between the increase in consumption and the reduction of social inequality is a fallacy. Reducing social inequality implies creating a framework within which all are equal. In other words, it involves the construction of universal social equality.

In a market environment, universal social equality is an ontological impossibility, for what defines and sustains the market is exactly inequality. Access to market is not a given nor is it a right. Even if, for reasons of optimization of conditions of profit, there are policies for ensuring access to market to a greater number of people, this access will always be governed by the purchasing power, or to put it simply, by the amount of money one has in one's pocket. The market is, by definition, a place of stratification, segmentation, segregation and, therefore, of inequality and exception. Social inequality is an inherent and necessary condition of the market. In an unequal society, the possibilities for profit are higher because the market can find ways to fragment into different niches, with different potentials for profit, thus increasing its profitability. So, companies can more optimally decide in which of these niches to act, being able to organize their business plan and mode of production accordingly to the specific demands of the selected niche.

Policies and strategies or urban development guided by the logic of competitiveness and consumption alone produce mobility without reducing social inequality. There is, therefore, nothing new on that front. If based uniquely on the agenda of attraction of capital, the BRICS amount as relevant actors in the global economy without bringing any novelty. No real transformation toward a more inclusive and less unequal world derives from options and policies that are guided solely and exclusively by the logic of competitiveness and consumption. A policy agenda that seeks to reduce social inequalities by consolidating a scenario of universal social equality is necessary. An agenda guided by the universal logic of rights is necessary. The agenda of the right to the city seems to offer such possibility.

The term "right to the city" was coined by Henri Lefebvre (1996) during his studies on urban transformation in France in the 1960s to express a period of profound urban crisis. Marked by functionalist urban planning, the most important French cities experienced at that time the restructuring of their inner areas and the displacement of much of their population to suburbs, where single-family housing units proliferated extensively (Schmid, 2012). For Lefebvre (1996), this was a crisis due to a homogenizing tendency of everyday life inherent to this process of dislocation of the population to suburbs.

As a counterpoint to this moment of urban crisis, the notion of the right to the city stands not only as a concept to express a period of crisis, but also as an agenda for the transformation of urban space. The central purpose of this agenda is the creation of an urban space in which all citizens are guaranteed the right to participate actively in the decision-making processes, as well as have universal access to city resources and structures (Lefebvre, 1996; Harvey, 2008). The right to the city is, by its conceptual and programmatic definition, a radical defense of democracy as a form of political organization of the urban space. No group, system of value or interest must cancel the other. The city is a primary right for all.

In contrast to the exclusionary and unequal logic of the agenda of attraction of capital, the logic of the right to the city is guided by the universality of rights and citizenship (Gilbert and Dikeç, 2008; Harvey, 2008; Schmid, 2012). Urban dwellers are conceived not merely as consumers, but as citizens. By definition, regardless of their social class or their power of consumption, all citizens are equal. Thus, urban development processes guided by the agenda of the right to the city, can be vehicles for social mobility that are able to reduce social inequality and produce social inclusion (Brown and Kristiansen, 2009). For this, it is necessary to have public policies that ensure:

1) Universal and effective participation in decision-making processes of urban life.
2) Freedom and unrestricted access of all citizens to the resources of the city.
3) Recognition of diversity and difference as essential and constitutive elements of urban life.
4) Reduction of poverty and social inequality not only via increased power consumption, but also via social and environmental justice.
5) Transparency, efficiency, accountability in urban administration.
6) Complete and unrestricted respect of human and civil rights.
7) Creation and expansion of public spaces.
8) Empowerment of local associations and initiatives.

It is necessary to highlight that both agendas coexist in BRICS-cities. However, the agenda of attraction of capital, for its obvious power to increase urban competitiveness and make the BRICS relevant actors in the global arena, dominates the policies and strategies for urban development. On trying to strengthen their cities as attractive and competitive sites, BRICS governments often enter into strong conflicts with parts of their population that demand for their rights to be respected. Thus the coexistence of both agendas, attraction of capital and rights to the city, is conflicting.

5 CONCLUSION

With the purpose of moving forward in the economical and political scenario of globalization and to assure some protagonism in a context marked by the partial reduction of the state's relevance, the BRICS are promoting a comprehensive process of development and transformation of their cities. Through this process, their cities became more productive and competitive spaces, attracting more and more different types of investments and establishing themselves as key players in the functioning of globalization. In doing so, the BRICS evoke a metaphor of mobility able to nourish, across the globe, hopes for a more inclusive and democratic world order.

As this short paper tried to argue, the social mobility produced by the BRICS through the agenda of the attraction of capital is not able to tackle the issues of social inequality or produce a more inclusive urban fabric. As a counterpoint to this insufficiency, the agenda for urban development guided by the universality or the right to the city can be a vehicle for tackling the issue of social inequality and for the production of a urban space by its citizens, thus reflecting the wills and diversity of its citizens.

In conclusion, it is important to emphasize that this paper seeks not to defend the adoption of a particular agenda to the detriment of the other. It does not seek to argue in favor of an agenda of rights over an agenda of consumption. Ensuring and expanding access to consumption is vital to building a world based on the universality of rights, since consumption is important in providing access to the material goods necessary for the maintenance of the most basic necessities of life. What is necessary, however, and this is the most important point this paper wants to raise, is that it is necessary to explode with the supremacy of the logic of consumption in the production of policies aimed at producing social mobility and reducing social inequality. Policies based on this logic are simply not capable of reducing social inequality. Integration between the two agendas is necessary for the increase of the power of consumption of urban dwellers and the productivity of urban space while empowering citizens as the real protagonists and decision makers of the urban process. Only through the integration of these two agendas will the

BRICS be able to transform the metaphor of mobility into a real and concrete movement towards a more inclusive and democratic world order.

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TECHNICAL SESSION 8

Productivity and the Middle Income Trap

- Middle income trap definition and measurement: which countries are trapped in?
- Evolution of productivity indicators in BRICS
- The main drivers of productivity growth in BRICS

CHAPTER 17

STRUCTURAL CHANGE, PRODUCTIVITY AND THE MIDDLE INCOME TRAP: SOUTH AFRICA IN COMPARATIVE PERSPECTIVE

David Fryer[1]
Nicolette Cattaneo

1 INTRODUCTION

Most BRICS countries have been characterized as either being in the middle income trap (South Africa, and in most studies, Brazil) or vulnerable to it. While China and India are unlikely to stagnate to the extent of being caught in such a trap, there is concern about the impact on the global economy if their growth rates decelerate significantly.

This paper explores patterns of structural change and productivity growth in the BRICS countries with a focus on South Africa and the concept of a middle income trap. The paper is structured as follows. Section 1 considers definitions and which countries are affected. Section 2 considers competing explanations of patterns of structural change and productivity growth. Section 3 focuses on the productivity debate in South Africa from a comparative perspective. Section 4 concludes with policy implications and directions for future research in the BRICS countries.

2 DEFINITIONS: WHAT IS THE TRAP AND WHICH COUNTRIES ARE IN IT?

The way that the concept of the middle income trap is defined has a significant effect on which countries are classified as in the trap or at risk. The most common definition is in terms of growth decelerations: middle income countries slow down or stagnate before they have converged with high income countries. Eichengreen *et al.* (2013, p.1) define a growth deceleration as an instance "where GDP per capita had been growing for seven or more years at an average annual rate of 3.5 %" but then "stepped down by at least two percentage points between successive seven year periods". They exclude "low income countries – those with a per capita GDP of less than $10,000 US at purchasing power parity" but fail to indicate the upper limit of their middle income range. The base income of $10,000 leads to Brazil and South Africa just being excluded from their middle income definition (the year for which the criterion must

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hold is not specified, but the data-set ends in 2007). China's PPP per capita income was well below the $10,000 threshold up until the end of the 2000s, so it is classed as low income in the study. The authors find a significant spread of per capita incomes at which slowdowns occur (within their middle income category), but identify two levels around which slowdowns tend to group: $15,000 and $11,000.

The problem with the Eichengreen *et al*. approach is twofold: both the requirement of a sustained growth rate for seven or more years in excess of 3.5 % prior to the slowdown and the exclusion of countries in the $7,000 to $10,000 PPP per capita income range limit the study by omitting significant developing countries that may be affected by the middle income trap, particularly those in Latin America. The justification that the bottom threshold of $10,000 is applied "to rule out growth crises in not yet successfully developing countries" (Eichengreen *et al*., 2013, table 1) seems unsatisfactory.

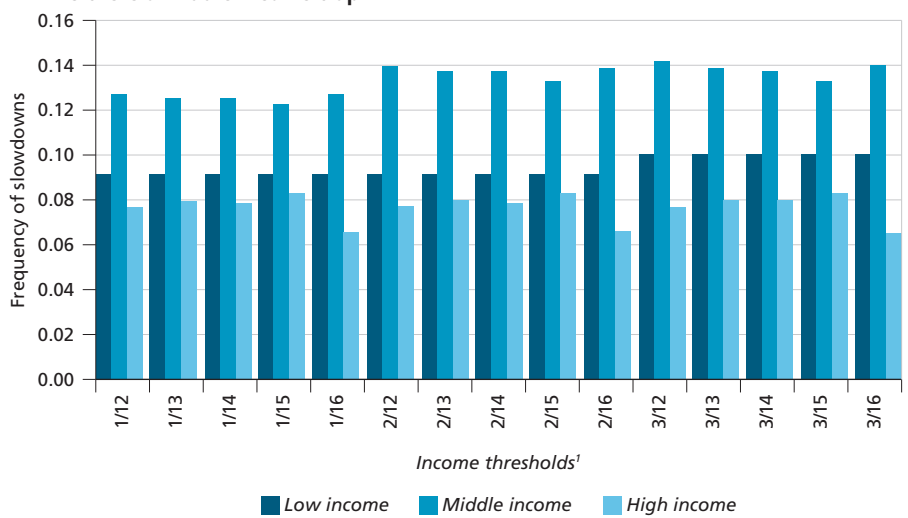
Aiyar *et al.* (2013) adopt a different approach to identifying growth slowdowns, based on "large sudden and sustained deviations from the growth path predicted by a basic conditional convergence framework". Growth rate decompositions suggest that sharp and sustained decreases in total factor productivity (TFP) growth have been important in past slowdown episodes (Aiyar *et al*., 2013, p. 6-8). They find a major role for TFP slowdowns in sustained deviations from predicted growth paths in the countries under study. The methodology used is an improvement on the approach of Eichengreen *et al*. (2013). By considering slowdowns across all income levels, Aiyar *et al*. are able to examine whether slowdowns are more common in middle income countries in particular (graph 1). The focus of Eichengreen *et al*. on only those countries with PPP per capita income of $10,000 and above restricts their identification of growth slowdowns largely to developed and oil-exporting countries. In this way they miss, for example, the extended slowdown in Latin America in the 1980s (Aiyar *et al*., 2013, p. 10). The definition of income categories adopted by Aiyar *et al*. (2013, p. 12) differs significantly and is more in line with the 2010 World Bank classification.

An alternative approach, provided by Felipe (2012), investigates the period for which countries have been categorized as middle income as well as the growth rate that has to be attained by both lower- and upper-middle income countries to avoid the trap. He identifies "the threshold number of years for a country to be in the middle-income trap" as 28 and 14 years respectively for lower and higher middle-income countries. A new entrant at the lower middle-income level needs to grow at 4.7 % per annum to avoid the lower middle-income trap while an entrant at the upper middle-income level needs to grow at 3.5 % per annum to escape the upper middle-income trap. By 2010, for example, South Africa and Brazil had been in the lower-middle income category for well over fifty years. The income category thresholds used are once again very different to those of the studies above.

Wade (2010, p. 151-152) examines "state mobility matrices" for the periods 1960-1978 and 1978-2000, drawing on the work of Milanovic (2005). This approach divides countries into four income categories based on PPP dollars per capita. While most states remain in the same category over each two-decade period, there is evidently more stability at the top and bottom ends of the distribution. Few rich countries moved downwards to a lower income category and only a few of the poorest moved upwards. Despite greater mobility in the two middle categories, movement that did take place was largely downwards. Of the 1978 contenders(the middle group with average incomes down to two-thirds of the bottom of the rich category), over 80 % had fallen into a lower category by 2000, while only 13 % rose to the rich country level. In addition, over 65 % of the lower middle group (countries with average incomes between one-third and two-thirds of the bottom of the rich category) moved downwards to the lowest income group.

It is evident that the definition of the middle income category is somewhat arbitrary, with a wide range of boundaries and per capita income measures used across different studies. Nonetheless, Aiyar *et al.* (2013, p. 11-12) show that middle income countries are more likely to experience slowdowns than poor or rich countries, and that this is robust for a wide range of thresholds for middle income, ranging from $1,000-$16,000 to $3,000-$12,000 (see graph 1).

GRAPH 1
Is there a middle income trap?



Source: Aiyar *et al*. (2013, graph 6).
Note: [1] 1/12 refers to alow income threshold of US$ 1,000 and high income threshold of U$ 12,000 in PPP terms. Frequencies are calculated as the ratio of slowdown episodes to the total number of observations per income class.

3 COMPETING EXPLANATIONS: STRUCTURAL CHANGE, PRODUCTIVITY GROWTH AND DEVELOPMENT

Two divisions in development thinking characterize consideration of these issues. The first concerns the role of industrialization in development. On the one hand, both orthodox and heterodox development economists (despite differences discussed below) stress industrialization (and more generally, the expansion of leading economic sectors)[2] as the engine of development. This contrasts with a social democratic realization of the *developmental* importance of the social sphere (Morel *et al.*, 2012; Lavinas, 2013). This is particularly important given the possibility of adverse structural change (discussed below).

The second division concerns one of the most prominent debates in development economics: the role of the state in fostering industrialization. Orthodox development economics emphasizes the market as the primary agent of industrialization, whereas structuralists (in the so-called heterodox Schumpeterian-Keynesian approach) emphasize the primacy of the developmental state.

In the orthodox view, the core expectation is of *convergence*. This view has three elements. Firstly, economies operating within the global knowledge/technological frontier are assumed to be able to benefit from technological and human capital upgrading. Secondly, another supposedly easy source of upgrading is the correction of inefficiency particularly through exposure of inefficient firms to competition (Page, 2012, p. 93).

Thirdly, in the neoclassical (Solow) growth model, in developing countries with low capital/labor ratios, returns to investment will be high. This generates rapid catch up as high rates of capital accumulation fuel high rates of output growth which in turn increases the amount of savings available for investment.

The standard decomposition based on a constant returns Cobb-Douglas production function (Gordon, 2000: 5n) can be used to represent these ideas:

$$y\text{-}h = m + (1\text{-}b)(k\text{-}h) \quad (1)$$

Labor *productivity* growth (growth in output per worker: y-h) can be decomposed into multifactor productivity growth (m) and productivity growth due to capital deepening (Gordon, 2000, 5n). In rich countries, growth depends largely on innovation (reflected in m). For developing countries the expectation is that *both* components will be high: m because of technological catch-up and efficiency gains and $(1\text{-}b)(k\text{-}h)$ because of rapid capital deepening.

2. See Kucera and Roncolato (2012), Page (2012, p. 94) and Cattaneo (2011, p. 7-9) for discussion and critical analysis of possible new propulsive sectors, in particular, high value added services.

In this analysis, structural change is *endogenous* and *comparative advantage conforming*. Growth in labor-intensive activities in the modern sector draws labor from the traditional sector. The simple transfer of labor from low to high productivity sectors supposedly has a large growth-generating effect (see Page, 2012, p. 93 and below). Further, as the capital-labor ratio increases, the country's comparative advantage changes, and it moves up the value chain, specializing in progressively more capital and knowledge intensive goods. This will lead to both within sector productivity increases (due to capital deepening, emulation and efficiency improvements) and further structural change (Lin, 2009, p. 17-18).

The question that arises is why countries fail to meet this expectation and get stuck in the middle income trap. In the conventional literature there is increasing acknowledgement of market failures and problems associated with demographic change and tightening labor markets.[3] The latter is often put forward as an explanation of slowdowns experienced by first-tier NICs and more recently China (Lui and Chiu, 1999; Lardy, 2012; Hung, 2009). However, in the conventional account, the main reason countries get stuck is that they *resist* market-conforming structural change. On the one hand authors like Lin (2009, p. 24-25) and World Bank (2008, p. 46) argue that countries may be tempted to break out of the flying geese pattern and defy their comparative advantage by jumping prematurely up the value chain. On the other hand, countries may *resist* upgrading as a result of weak institutions, with governments unable to resist protectionist interests or populist policies (Acemoglu, 2003). In Acemoglu and Robinson's (2013) view, bad policy tends to be endogenous and path dependent and hence to become locked in, not least because it creates and empowers certain groups that "align themselves against pro-market reform".

Despite the apparent moderation of neoliberalism by these new structuralist and new institutionalist elements, the orthodox view remains that the primary engine of growth is the market responding to the advantages of backwardness (see Lin, 2009, p. 18). The role of the state is merely to smooth the passage of the economy along an existing path. The key heterodox point is that this path does not exist *a priori* and must be created by the developmental state. In its absence, the economy languishes in the familiar Keynesian coordination failure: because profitability is low, investment is low; consequently the economy remains weak and profitability remains low (Huang, 2002). In this environment, market conforming reforms are likely to cause deindustrialization.[4] Chibber (2005) puts a different

3. The assumption that: a) low income countries are labor surplus economies (in the Lewisian sense); b) specialising in labor intensive industries is a viable development option; and c) countries begin to face tightening labor market (roughly when they graduate to middle income status) remains prominent amongst orthodox development economists (see Lin, 2009, p. 14-15; World Bank, 2008, p. 45; 83). For criticism of (a) see Austin (2010); Arrighi *et al*. (2010); Amin (1972). (b) and (c) are discussed below.

4. In Latin America and South Africa (and the periphery of the Eurozone) a particular pattern of growth has emerged based on premature de-industrialisation and financialisation and, in Africa and Latin America, reliance on external sources of growth (capital flows, commodity prices) (see Ashman *et al*.,2011; Grinberg, 2013; Hadisi and Fryer, 2014; López and Rodríguez, 2011).

light on institutional problems middle income countries face: vested interests are adept at undermining attempts by state planners to discipline and direct capital. This is why very few genuinely developmental states have emerged.

The essentials of the heterodox argument can be summarized with reference to Thirlwall's law (Cimoli *et al.*, 2011, p. 27-28):

$$y^* = \frac{\varepsilon}{\pi} z \tag{2}$$

In Equation (2), the higher is π (the import elasticity of domestic income) the lower the rate of growth that can be sustained without incurring balance of payments disequilibrium. The Schumpeterian (or Kaldorian) properties of increasing returns industries[5] lead to a reduced π: rapid productivity growth means fewer inputs (including imported inputs) are required per unit of output; strong backward linkages mean that a larger share of inputs will be domestically produced *and* will lead to external economies: other sectors experience increased demand and hence expand, which will in turn boost the propulsive sector. Increasing returns activities are also associated with a large ε (a high elasticity of exports to global demand). This is the demand side (or Keynesian) property.

In the Keynesian model, aggregate demand acts as a *limit* on the expansion of output regardless of *how* upgrading is brought about. Orthodoxy by contrast tends to assume that all that is produced can be sold. There is ample evidence that such demand limits are important, particularly in the form of global overcapacity in many industries. Unless output growth exceeds productivity growth, output growth will be jobless or labor shedding. Indeed, in the absence of adequate aggregate demand, rapid productivity growth can lead to adverse structural change. This key point is discussed in Section 3.

4 THE SOUTH AFRICAN PRODUCTIVITY DEBATE IN COMPARATIVE PERSPECTIVE

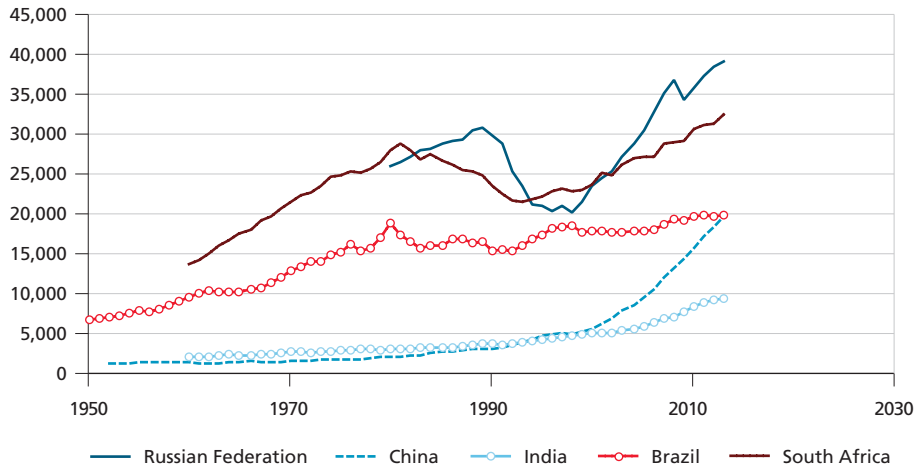
This section explores the characteristics and drivers of productivity growth in South Africa, including some comparative analysis of the BRICS countries, focusing on the role of structural change. Two measures of overall (economy-wide) productivity, based on the Conference Board Total Economy Database (TED), are presented in graphs 2 and 3: GDP per worker and TFP respectively. These reflect productivity levels, with *changes* in the levels corresponding to the terms in expression (1). What is most noticeable is the contrast between the three richer countries and China and India.

5. In the heterodox approach, catching up depends on "laggard" countries "moving towards increasing return activities, not on decreasing returns in the leader countries" (Cimoli *et al.*, 2011, p. 28).

China and India experience smooth productivity growth by both measures. South Africa and Brazil experience dramatic decreases in output per worker from the beginning of the 1980s, then recoveries in the early 1990s.

The very early date at which TFP decreases and the extent of this decrease for South Africa is puzzling, and reflects both the problematic nature of the measure itself (see Palma, 2011a), as well as significant data problems. From about 1996 TFP stabilizes according to the TED data but shows no significant increase. This would suggest that, contrary to Arora (2005, p. 14), the main driver of the recovery in the post-apartheid period in South Africa was capital accumulation. This argument is supported by graph 4, which demonstrates that capital/labor ratios in South Africa started to increase in the 1990s. However, the marked dip in the capital/labor ratio in the 1980s is questionable. It is driven by implausible increases in employment when most commentators document a process of capital deepening and labor shedding (Fallon and da Silva, 1994; McCarthy, 2005).[6]

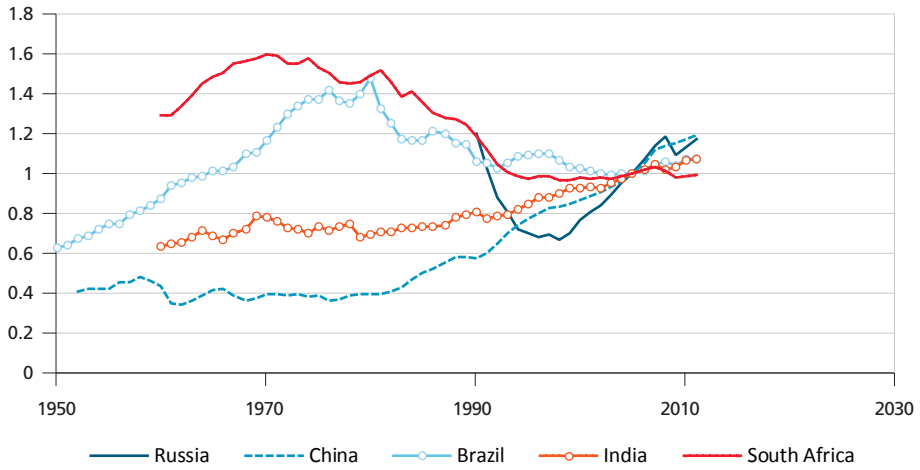
GRAPH 2
GDP per person employed, in 2013 EKS$



Source: Conference Board Total Economy Database (2014).

6. The Penn World Tables (Feenstra *et al.* 2013) put South African employment in 2011 at over 18.5 million, out of line with other estimates (except for discredited ADCORP estimates: see Wittenberg and Kerr, 2012; Forslund, 2012). The increase in employment in the 1980s, even in the South Africa 2 series, raises questions. Graph 7 (based on the same data as the South Africa 2 estimate in graph 5) shows (implausible) increasing agricultural employment from the mid-1980s, for example.

GRAPH 3
GDP per person employed, in 2013 EKS$
TFP at constant national prices (2005=1)

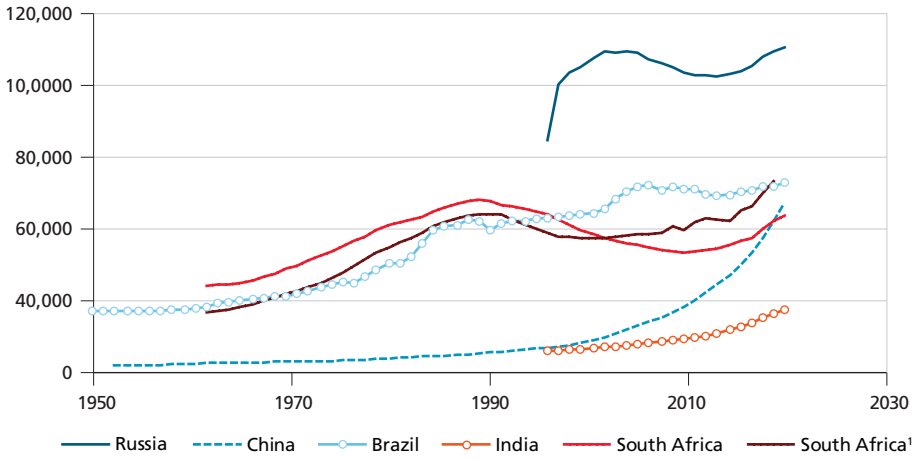


Source: Conference Board Total Economy Database (2014).

Notwithstanding these statistical uncertainties, debates about South Africa's growth and productivity performance echo those discussed in Section 2. Liberal' authors tend to emphasis the distortions in the apartheid economy (heavy state involvement and anti-export bias during apartheid, and inflexible labor markets post-apartheid). Moll (1993) argues that South Africa did not take advantage of the world trade boom in the post-war period. Its share of world manufactured exports fell from 0.62% to 0.25% between 1955 and 1992 while its share of developing countries' manufactured exports fell from 11.6% to 1.5% in the same period (Moll, 1993).

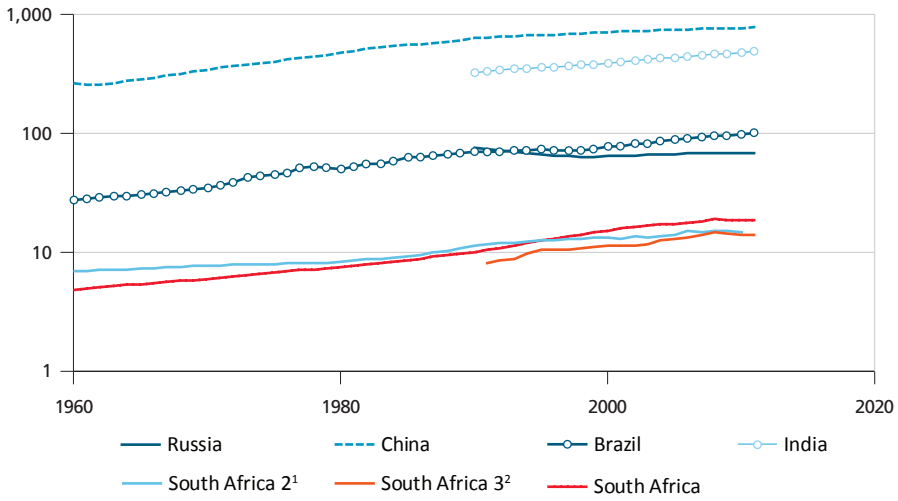
More heterodox authors have emphasized failure to consolidate the process of industrial diversification, associated with strong industrial policy and state involvement in the economy that began in the 1930s and 1940s (Freund, 2013; Bell and Farrell, 1997). South Africa's failure to diversify in the 1980s and post-apartheid period is reflected in the emphasis placed by heterodox authors on the continuing dominance of the minerals-energy complex and finance (Ashman *et al.*, 2011). Growth has tended to be generated by external demand (especially for primary exports) and domestic demand (particularly in 2000-2007) (Tregenna, 2012). The picture with productivity is complex. Although output per worker has increased (but not in the most labor-intensive subsectors) (Tregenna, 2012), the picture with economy-wide labor productivity is less clear because of increasing informalization. A similar picture emerges in India, whereas in Brazil declining informalization may conceal productivity increases (McMillan and Rodrik, 2012). It seems that conventional interpretations of increasing labor productivity (i.e. that it is good) need to be more closely interrogated.

GRAPH 4
Capital per worker (constant 2005 US$)



Source: Based on data downloaded from Feenstra *et al*. (2013).
Note:[1] Employment data from Conference Board Total Economy Database (2014).

GRAPH 5
Number of persons engaged
(In millions)



Source: Feenstra *et al*. (2013), *except.*
Notes: [1] The Conference Board Total Economy Database (2014).
[2] World Bank (2013).

Various methodologies exist for decomposing productivity growth and its sources. The shift-share decomposition methodology has been used in recent work on the BRICS countries to explore the role of structural change at the broad sector level and within manufacturing (see for example UNIDO, 2012; Cimoli *et al.* 2011; de Vries *et al.*, 2012). However most BRICS comparative work to date either does not include South Africa or does not have up to date South African data.

The shift-share methodology decomposes productivity changes as follows (Cimoli *et al.*, 2011, p. 37):

$$\frac{\Delta P}{P_0} = \Sigma \left[\underbrace{\frac{P_{i0}\,\Delta S_i}{P_0}}_{\text{I}} + \underbrace{\frac{\Delta P_i\,\Delta S_i}{P_0}}_{\text{II}} + \underbrace{\frac{S_{i0}\,\Delta P_i}{P_0}}_{\text{III}} \right] \tag{3}$$

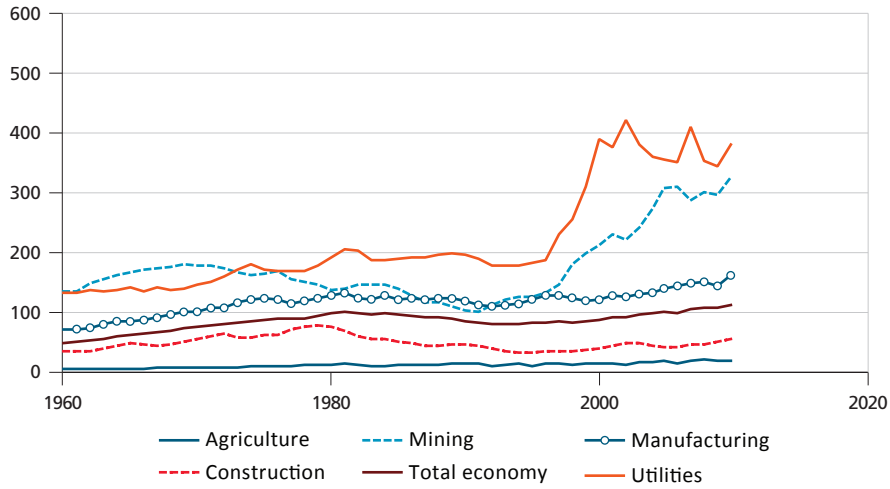
The left-hand side of expression (3) reflects the change in labor productivity for the whole economy ($P0$ is output per worker for the initial year). The right-hand side decomposes productivity growth into:

- that due to structural change (changes in employment shares), with labor productivity in each sector held constant;
- that due to a rise (fall) in employment shares in sectors whose productivity has increased (decreased) in that period;
- productivity growth within each sector, with employment shares held constant.

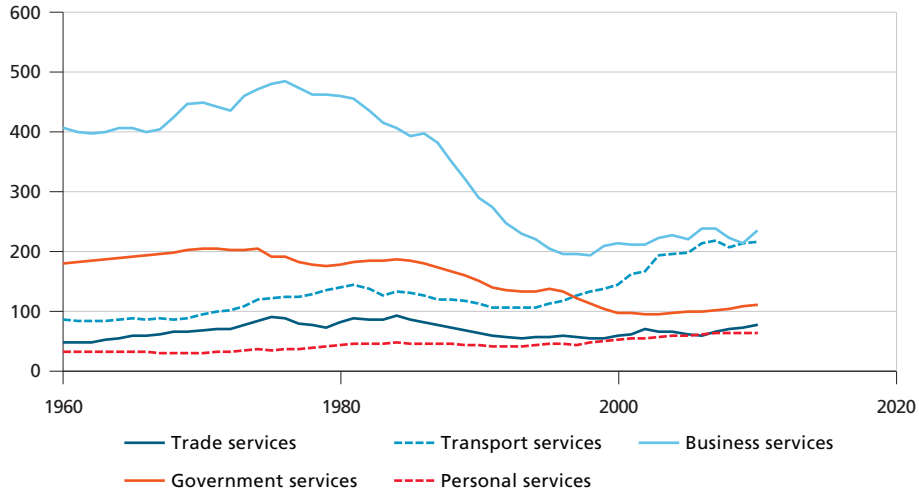
Graphs 6 and 7 depict the evolution of labor productivity and employment in ten sectors of the South African economy for the period 1960 to 2010 (with service sectors isolated in the right hand panels). The main structural change effect (I) has been the declining share of (low productivity) employment in agriculture (note that graph 7 shows the *levels* of employment) and the increasing share in (mostly higher productivity) services. Within sector productivity growth (III) has been fairly widespread in recent years. Examples of the interaction effect (II) are mining (negative because it involves the shift of labor out of an *increasing* productivity sector) and business services in the recent period (positive).

GRAPH 6
Number of persons engaged
(In millions)

6A

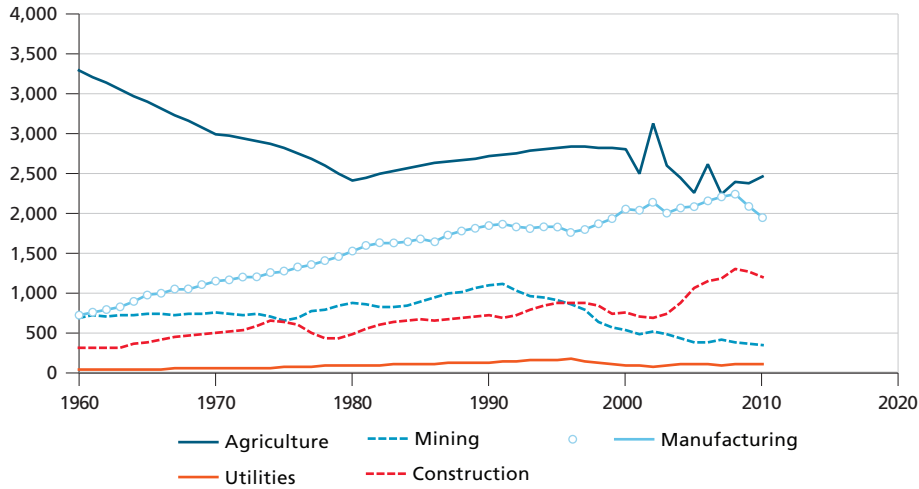


6B

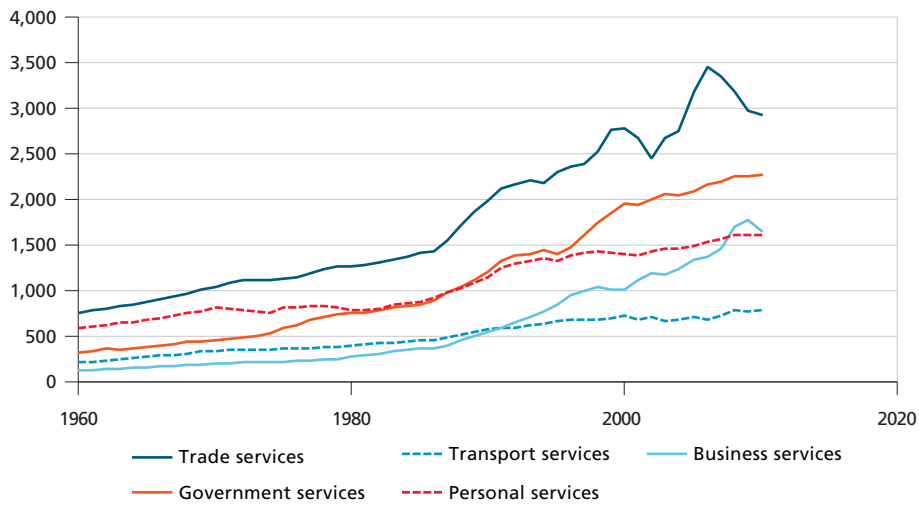


Source: own calculations from de Vries *et al*. (2013).

GRAPH 7
Employment, South Africa (1000s)
7A



7B



Source: own calculations from de Vries *et al*. (2013).

Table 1 presents the results of the shift-share decomposition for various periods. From 1960 to 1972, strong labor productivity growth (4.18% per annum, 63.4% for the whole period) breaks down as follows. Within-sector productivity growth accounts for about half of total economy labor productivity growth. The shift component accounts for a slightly smaller part, and the interaction term is small but positive

and non-negligible. In all other periods (particularly post-1994), the interaction term is negative.

TABLE 1
Decomposition of labor productivity growth – South Africa

				$\Delta P/P_0$	
10 sectors	I (shift)	II	III (within)	Overall	Annualised (%)
1994-2010	0.107	-0.137	0.430	0.400	2.13
1994-2000	0.033	-0.066	0.111	0.078	1.26
2001-10	0.017	-0.012	0.216	0.221	2.24
1982-93	0.127	-0.067	-0.246	-0.186	-1.85
1973-81	0.162	-0.005	0.067	0.224	2.56
1960-72	0.263	0.066	0.306	0.634	4.18
3 sectors					
1994-2010	0.051	0.000	0.349		
1982-93	0.071	-0.030	-0.227		
1973-81	0.097	0.005	0.121		
1960-72	0.267	0.066	0.302		

Source: own calculations from de Vries *et al*. (2013).

A similar pattern was observed in Brazil for 1995-2009, where a positive shift effect was partially offset by a negative dynamic effect "resulting from the declining share of fast growing sectors in total employment" (UNIDO, 2012, p. 37). However, in Brazil, unlike in South Africa, the shift effect tends to be larger than the within effect. For similar results, see Kucera and Roncolato (2012), who find that the structural change and shift components tend to both be positive, with the within sector effect much larger for Asia than for Latin America.

McMillan and Rodrik (2012) and McMillan *et al.* (2013) present results that differ from those of UNIDO and Kucera and Roncolato. In particular, they find that structural change has a negative impact in Latin America and Africa (although there is some evidence of reversal of this trend for Africa after 2000). The variation in the results of shift-share analyses reflects differing methodologies, levels of aggregation and datasets, and suggests that far more research is required in this area. Growth accounting, using either Solow-style or shift share decompositions, is notoriously fraught with difficulty.

Nevertheless, the implication that structural change may be adverse is suggestive. De Vries *et al*. (2012) stress that results are sensitive to the level of aggregation and also affected by shifts between formal and informal employment within sectors. Thus, in India, increasing informality following liberalization reduces productivity growth. This may be concealed to the extent that informal activity is not enumerated. In Brazil, where the trend is towards increasing

formalization, the opposite may be the case. These considerations reinforce the argument that the traditional interpretation of labor productivity growth as good needs to be challenged.

5 CONCLUSION: POLICY IMPLICATIONS AND FUTURE RESEARCH

Conventional and alternative perspectives on what drives economic growth and development have led to very different policy prescriptions and emphases regarding catch-up. However, while there is continued dominance of the mainstream orthodoxy, such dominance is becoming harder to detect. Wade (2010, p. 159) refers to "a new ambiguity" that has emerged in development policy since the global financial crisis. Lin's writings on industrial policy, for example, while emphasizing "the role of government in helping firms exploit the country's existing comparative advantage (...)[say] little about the role of government in *creating* comparative advantage" (Wade, 2010, p. 159; emphasis added).

The continuing divide on the role of the state in development is reflected in debates about productivity growth and structural change in middle-income countries. It is evident, however, that liberalization policies of the late 1980s and the 1990s had important consequences for economy-wide productivity in Latin America and some African countries, leading to productivity-reducing structural change and, in some countries, premature deindustrialization (see Palma, 2008). It is also clear that increasing labor productivity can be associated with rising unemployment and increasing informality, or low value-added service sector jobs. An important policy lesson for South Africa is that sectors important for growth and those important for employment may not be the same (Tregenna, 2012).

The heterodox approach emphasizes a coherent nexus of trade, industrial and technology policies to facilitate learning by doing and growth-enhancing structural change. Active industrial and technology policies are required in order to foster appropriate structural change. In addition, labor market policies that move towards a decent work agenda and a macroeconomic framework that addresses stability concerns arising from volatile financial flows are needed.

Research in the BRICS countries should examine the impact of structural change and productivity growth on employment, poverty *and* inequality (the latter having been more neglected until recently: see Palma, 2011b). Sectoral and sub-sectoral patterns of change should be studied alongside the broader macroeconomic and comparative analyses to facilitate the development of industrial and technology policy in context. The usefulness of the productivity concept itself as an indicator of progress should be interrogated: as noted above, labor productivity growth can be associated with rising unemployment and increasing informality, or low value-added service sector jobs.

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CHAPTER 18

"MIDDLE INCOME TRAP" AND LESSONS FROM LATIN AMERICA

Zhang Fan[1]

ABSTRACT

By briefly analyzing two cases of development in 20th century Latin America, this article tries to account for the positioning of the region in the rank of world income. It argues that an improvement of the region's current status can be obtained through learning from past failures, and successes as well, and through identifying the real limitations of the policy frameworks and approaches to development in the past.

1 WHAT IS THE "MIDDLE INCOME TRAP"?

The concept of middle income trap refers to the phenomenon in the development process that an economy is detained for a long time at the middle income level and fails to further climb up the rank into a high income society. It is a descriptive concept, always relative to other economies, which are either at a higher or lower level of development. It is imaginable that an economy is steadily progressing with an upward historical trajectory but still remains in a middle income society simply because some other economies do better or worse than it does. This is especially the case when we take the World Bank criteria as the main indicators where the economies with an income per capita per annum from US$ 1,000 to US$ 12,000 are all classified middle income ones, some of which have stayed in this middle space for decades.

Fortunately or unfortunately, Latin American countries, Brazil being the largest economy among them, are the most typical of such societies. When the word "trap" is added to the somewhat neutral term "middle income", a new concept is formed to actually mean the particular development problems faced by those countries at this distinct historical moment. Latin American countries are chosen as typical cases for obviously simple reasons: the most concentrated area of middle income societies, early-industrializing countries in the developing world and thus earlier middle income societies than the other late comers, and remaining at this stage for as long as three or even five decades. More importantly, in the development literature dealing with Latin America, the region has long been regarded as

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having lost quite a number of historical opportunities for catching-up with the advanced economies.

For our BRICS countries, according to the World Bank, each one of us is now a middle income society, with Brazil (with a per capita gross national income, or GNI of US$ 9,390, and the purchasing power parity, or PPP value of US$ 10,920, 2010), Russia (GNI US$ 9,910, PPP US$ 19,190, 2010) and South Africa (GNI US$ 6,100, PPP US$ 10,280, 2010) in the rank of the upper-middle income societies, China (GNI US$ 4,260, PPP US$ 7,570, 2010) just crossing the dividing line between the lower and upper middle income ones, and India (GNI US$ 1,340, PPP US$ 3,560, 2010) still approaching the line.

Some literature exists which suggests that those countries, especially Brazil and South Africa, have already fallen into or will be faced with a middle income trap, although for Brazil, again, some analysts have predicted that the country will graduate from the middle income club in a few years. It is no surprise that the "trap" as a particular development problem has drawn and should draw sufficient attention and concerns from those countries, otherwise it will cost them potentially great prices in the future. Latin America (including Brazil) is time and again chosen as a good source of experience and lessons. I will be careful here in attempting to present an even-handed picture about the region.

2 WHAT HAPPENED?

Most analyses have shown tendencies towards some easily made comparison and ready acceptance of the conclusions thereof. Typically, the first case of comparison is the one between Latin America and the North Atlantic nations, which, as some analysts observed, would indicate that the income gap between the two first appeared in the 19th century and was maintained through the 20th. The second pattern of comparison suggests that Latin American economies have not only been performing unsatisfactorily when comparing to the world's most advanced regions, but also falling behind relative to the late-industrializing Asians, e.g., Japan and South Korea, and the long-stagnant European former colonial masters, i.e., Spain and Portugal, in the latter half of the 20th century (Close, 2009. See also Kharas and Kohli, 2011). Since there has long been a sense that the early-independent Latin American countries ought to be on the same development level as the advanced economies, the unfavorable comparison mentioned here has obviously posed a big dilemma for the once comparatively wealthier Latin Americans.

No one disputes those accounts. But my view of it is that Latin America, as a whole, has not been a total failure although it is not a success story; otherwise it should have fallen into the low-income group after having experimented so many strategies and approaches to development. The question is, how we understand

what happened by identifying the effects, both positive and negative, of the policy inputs and, specifically, the conjunctures that imposed the policy frameworks in the first place so that we obtain a whole picture before we can hope for an improvement in the social and economic conditions in Latin America.

Take for example one of the most important endeavors in the 20th century Latin America: Import Substitution Industrialization (ISI). According to one line of analysis, prolonged existence of import substitution had brought forth four types of structural crisis in Latin America, including the international payment crisis caused by the loss of vigorous export and rigid import structure, the industrial structure crisis as a result of ignoring agriculture and overdrawing industry, the financial deficit crisis due to excessive expansion of national institutions, and the social governance crisis coming from high unemployment and unequal distribution of income (Zhang, 2012). The heyday of the import substitution industrialization in Latin America coincided with the period of the post-war reconstruction in Europe and the take-off and rapid growth in East Asia, and in the process, unfortunately, Latin American countries were gradually left behind by its European and East Asian counterparts. The choice, practice and prolongation of such development strategy, and the accompanying crises mentioned above, have since been regarded as one of the main causes of the delay in Latin America's progress and why the region did not ascend to the rank of the world's wealthiest nations.

This is only part of the story. Two important points should be added to help to understand not only why things happened as they did, but also how to fix a policy framework, which actually produced a mixture of both successes and failures. Firstly, ISI was a response to the Great Depression that shutdown the global trade system and stopped the working of the laissez-faire political economy in almost all export-oriented Latin American nations. At the same time, ISI was also an approach to development that reflected the then dominant economic policy model (Keynesianism) legitimized by the indigenous Latin American economic theory flourishing at that time (structuralism). In such circumstances, Latin American decision-makers were left with little chance.

Second, ISI in Latin America produced good economic results at least into the 1960s, and Mexico, Brazil, Argentina and Chile did well by this policy (Close, 2009). As a growing number of industries began to produce for the domestic market, national enterprises were encouraged both in new industries and old ones, and manufacturing output increased a great deal. MNC's were invited to set up plants to supply cars, electronics, pharmaceuticals and other products to domestic consumers.

As a consequence, Latin American economies, especially larger ones, were gradually transformed into the first group of newly-industrializing countries and

later on into what we call today the middle income societies, with the following characteristics:

- More extensive use of capital-intensive technology.
- Increased training in manufacturing-related engineering and in capital-intensive techniques, but lack of development of appropriate technology.
- State intervention to encourage and protect domestic industries or to set up key industries (such as aircraft production in the case of Brazil).
- The spread of western-style consumerism to the upper, middle and lower classes, accompanying the growth of both middle sectors and an industrial proletariat (Vanden and Prevost, 2009).

Only with the advent of the age of the first oil shocks, stagflation and the first signs of the debt crisis in the 1970s, things began going bad quickly: a new crisis ended ISI just as the Great Depression buried the late 19th and early 20th century economic model in Latin America. ISI's failures, especially its economic weaknesses have become clear since then, but most people have realized its various consequences and obtained a clearer understanding only with hindsight when they were better informed at a later date.

3 WHAT RECURRED?

Another historical pattern is similar in dynamics to and as controversial as the ISI era, i.e., the practice of structural adjustments and neoliberal reforms since the "Lost Decade" in Latin America in the 1980s, which merits a few more words.

> We have all known today that Latin America's growth since the 1980s when reforms began has been slow, and inequality has remained persistent. The income growth during the 20 years before 1982 was 2.8 percent per capita, whereas it has been just over one percent per capita per annum since then. Even the boom period of 2003-07, when Latin America experienced a 3.6 percent annual per capita growth rate, did not alter the general trend when compared to East Asian economies, and the gap, again, becomes revealing: the growth at 4 percent (1960-82) and 7 percent (1982-2008) in East Asia depicts a familiar picture and puts Latin America on a similar trajectory as usual (World Bank, 2010. See Kevin Gallagher, 2011). We have also known that this is the result of various kinds of reforms since the 1980s, reforms advocated by economists and international institutions who have time and again failed to design and implement policies to enable growth in the developing world. Perhaps we can add something to that judgment: the Latin American economists and policymakers themselves should be more accountable for this because it was them that bore the most responsibility regarding their nations' development.

We also know but tend to forget that the radical package of prescriptions brought to bear in the 1980s was similarly a response to a pressing problem, i.e., the debt crisis. The type of production created in Latin America during the ISI era used up local sources of capital quickly and thus made it necessary to borrow money from abroad to satisfy growing capital needs. The domestic demand for imported consumer goods also meant that more external borrowing was necessary to compensate for the outflows of scarce foreign exchange. The result of both processes was the so-called "debt-led growth" and more and more external debts accumulated in Latin American nations in the 1970s. For Latin America as a whole, external debt increased rapidly from less than US$ 30 billion in 1970 to more than US$ 230 billion in 1980, and the debt service payments alone reached US$ 18 billion per year by the beginning of the 1980s. When commodity prices went down and world recession arrived, economic growth slowed and even became negative in a few countries, the debt crisis began and Latin America entered its "lost decade" with a growth rate of only 1 or 2 percent for many countries.

It is important to remember that a radical approach seemed to be the only way out in the circumstances: the incredibly soaring inflation and the extremely high foreign debt burdens justified the design and implementation of policies suggested and insisted by international financial institutions, whose role became ever stronger as the Latin American nations became more dependent upon external sources to solve their financial problems. The radical approach was market orthodoxy when, not coincidentally, Keynesian economics was no longer in favor, and conservative economic thought became influential. The set of policies supposed to solve the debt crisis would work in two separate steps: stabilization and structural adjustment programs, commonly known and often referred to as the "neoliberal" reforms under the guidance of the "Washington Consensus".

Just like ISI from the 1930s to the 1980s, the reforms of the 1980s and the 1990s have had a considerable effect upon the Latin American economies. From the early 1990s onwards, Latin American economies began to experience two cycles of growth and crisis: the recovery from the lost decade and a short period of growth before they were hit by the international financial turmoil in the late 1990s, and the boom period of 2003-07 and then a new crisis and the Recession came to Latin America after 2008. Like all other policies ever tried in Latin America, the mixed record of reforms have caused and will cause a great deal of debate. There seemed to be two points, at the opposite end of the balance sheet, which have up to now been less controversial in the discussion: one was the area of reasonable success in controlling inflation and reducing it to single-digit figures in most countries. Another was directly related to the time-aged problem of social conditions in Latin America: the high social costs of reforms did not help to improve the patterns of poverty and inequality. The promise of reforms to set the economy on a new

foundation that ensures steady growth was far from certain, and consequently there was still much to be done for Latin America to find its way to prosperity. Hence the current state of middle income level of living for most Latin Americans.

4 WHAT IS DIFFERENT, OR SIMILAR?

There was a backlash against neoliberal reforms, which reminded us of what happened to ISI in the 1980s. Nonetheless, there was a difference this time. With the Pink Tide in the ascendant for more than a decade in most of Latin America, and democratic governments in power for more than a quarter of a century throughout the hemisphere, the pendulum has been swinging away from any extreme end of political and economic spectrum, permitting more compromise settlements than ever that tend to combine the characteristics of various schools of thought in political economy. All in all, no governments and no mainstream political forces can afford to ignore the "imperative" of broader sharing of the benefits from growth among the population and equal opportunities for broader segments of society, not least for their own electoral successes.

When Latin America was again in the grip of a new round of recession since 2008, the same situation seemed to take place that paralleled the historical precedents discussed earlier: no country in the region had a complete collapse despite the slowdown of economic growth and possibly some relatively serious social and political challenges as well. It is not easy to get out of the middle place for most Latin Americans, although they have recently done relatively well in extricating themselves from the "poverty trap" and, to an extent, the "inequality trap" as well. One remarkable achievement during this round of recession is in the financial field where the larger Latin American countries began to take matters of financial stability into their own hands in the wake of painful experience in the late 1990s. Stabilization funds and international reserves built up during the years of high volume of exports or that of the commodity boom have made possible the countercyclical policies to protect their currencies when the crisis eventually hit. However, trade, being one of the most important driving forces behind the most remarkable income growth since the 1980s, was affected when demand for commodities slowed, and as a result growth slowed as well. According to the views critical of the boom period of 2003-2007, which express concerns over the sustainability of relying on commodity exports alone for growth, the trade deals to supply commodities to world markets may be profitable in the short term but can only serve over the long haul to place Latin America even longer where it has been for centuries, remaining vulnerable to the swings of commodity prices, failing to diversify their economies, and lacking solutions to grave social problems. At the same time, if Latin America chooses to fall back onto older models of protectionism, that does not seem to resonate well in the global economy of the 21st century.

5 WHAT ARE THE ACQUIREMENTS?

Latin American countries have attempted, with varying degrees of successes and failures, different development strategies and economic policies for the past two centuries, in order to make their economies more diversified and more sophisticated as well as to make their populations richer and their national income higher. As discussed earlier, the strategies and policies those countries have experimented so far have been continuously revealing their respective advantages and disadvantages. The lessons drawn from these experiences have to be rested on serious and systematic examination of the specific designs and practices, which would in the end prove to be not so much incorrect policies as simply limited policies. If Latin American countries are to escape from where they have been for so long, the so-called "middle income trap", they have a great deal to learn from their own economic history and it appears that they do have much to choose from the pool of policies of various kinds, but the key point lies in overcoming the limitations of whatever approaches they select, rather than in making the right choice in a "once-and-for-all" manner.

There are two points worthy of remarks here. First, it is important for one economy to maximize its advantages and at the same time try to bring out its strong characteristics to make up for its weaknesses. One illustrative case may appear if Latin American governments can make full use of their latest achievements in macroeconomic management and their current positive position in the world economy to craft policies that set to diversify their economies beyond commodity production, aiming to improve competitiveness and gain greater specialization. In the process, as efforts must be required in the areas of high-quality education, scientific and technological research, and infrastructure, in addition to the creation of decent jobs and worker training, investment in healthcare and enhancement of small and medium enterprises (Bitar, 2013), one solution comes about to the deep-seated problem of poverty and inequality. Hence one effective way to escape from the middle income trap.

Second, it is important for a government to keep a balance between continuity and change and for a society to maintain a relative political consensus. However, that is more easily said than done. In the case of ISI, the adjustment of that development mode, with its limitations in the lack of experience in combining import and export effectively and the insistence of distorted industry, fiscal, and exchange rate policy, was long delayed after its momentum of growth had been depleted. Both its economic weaknesses and its political defects, i.e., the vested interests, help explain the prolongation of this particular historical experiment. It was only the arrival of a severe crisis and the application of external pressure that combined to make a transformation of the dominant development mode and the ideas underpinning it.

Nonetheless, the pendulum has been swinging too drastically. When an economic policy benefits certain vested interests, even if it harms the larger community, it is hard to make any shift; when failures of the policy happens to be amplified by a crisis, the policy tends to become the scapegoat for all the economic problems. That's what happened to ISI: people either tended to refuse to pour the bathwater or poured it out with the baby.

A similar case is the pattern of the neoliberal reform era. People quickly embraced the tenets of market orthodoxy which had a sweeping impact from the late 1980s to early 1990s but those policies and ideas were almost laid to rest in many countries when voices of criticism raised the political costs for the proponents at the turn of the century. Although it is more likely that people tend to throw away but not to repair the policies when they fail to deliver, the seemingly endless fluctuations suggested the difficulties and obstacles Latin Americans have confronted and will confront in their way of finding the remedy to cure their economic ills.

The good news is that, the early years of the new century witnessed the accumulation of knowledge such that almost all ideas of development are extremely easy to obtain. One principle, either as a historical lesson or as a common sense, is simple and clear both in form and in content: do what needs doing when it needs to be done. With the consolidation of democracy in Latin America and the accompanying institutional structures conducive to extensive and all-sided discussion and debate, a range of common ground is also more likely to form, especially in regard to the fundamentals in both economic and social terms, which no political actors can afford to ignore.

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CHAPTER 19

PRODUCTIVITY AND THE MIDDLE INCOME TRAP: A BRAZILIAN PERSPECTIVE

Fernando Veloso[1]

1 INTRODUCTION

Brazil was one of the fastest-growing economies in the postwar era. However, after becoming a middle-income country, it experienced a growth collapse in the early 1980s, and convergence towards the standard of living of developed countries was interrupted.

The Brazilian growth path is not atypical. In fact, in the postwar period several countries managed to achieve a middle-income status, but only a few were successful in completing the transition towards the group of developed countries. According to World Bank (2012), of 101 middle-income economies in 1960, only thirteen became high-income economies by 2008. The other economies, including Brazil and many Latin-American countries, experienced a sharp growth slowdown and were stuck in the so-called middle-income trap.[2]

The middle-income trap is a controversial concept and has different meanings in the literature.[3] In particular, it is not clear that growth slowdowns are specific to middle-income economies. In fact, the empirical evidence shows that episodes of growth deceleration occur at several stages of development.[4] Even at the middle-income level, Eichengreen *et al*. (2013) show that growth deceleration tends to occur at two levels of per capita income, measured in purchasing power parity: the first around $10,000 - $11,000 and the other at $15,000 - $16,000. Moreover, in the last decades some middle-income countries were successful in becoming high-income economies, such as the Asian Tigers (South Korea, Hong Kong, Taiwan and Singapore).

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2. The term "middle-income trap" was apparently used for the first time in Gil and Kharas (2007). Pereira *et al*. (2013) present a comparative analysis of the development experiences of Brazil and China based on the concept of the middle-income trap.

3. Kharas and Kohli (2011) present a summary of the discussion surrounding the concept of the middle-income trap and its policy implications.

4. See Rodrik (1999) and Pritchett (2000).

In any case, there is evidence that the transition from middle to high income is very challenging. In this paper we will use the term "middle-income trap" to denote the difficulties faced by middle-income countries to complete the transition to high-income status.

One possible explanation for the growth slowdown at the middle-income level is as follows. In the initial stages of development, it is possible to obtain significant productivity gains by transferring workers from low-productivity activities, such as traditional agriculture, to high-productivity sectors, such as manufacturing. Since these countries are far from the technological frontier, they can accelerate the process of structural transformation by adopting technologies from the developed countries. During this transitional process, developing countries can compete in international markets exporting labor-intensive goods.

However, when these countries approach the middle-income level, the engines of growth in the initial stages tend to become exhausted. In particular, the stock of underemployed workers in the rural area diminishes and wages start to increase, which reduces the competitiveness of labor-intensive goods. Moreover, the productivity gains associated with the reallocation of resources among sectors and with the adoption of imported technologies tend to decline, and the growth dynamics becomes increasingly dependent on productivity increases within sectors, especially services, which become the main sector in terms of both employment and value added.

According to this interpretation, the episodes of growth slowdown of middle-income economies are associated with the difficulties in making the transition to a new development model that is capable of adapting the economy and its institutions to new challenges and opportunities. Eichengreen *et al.* (2013) show that deceleration episodes are less likely in countries where a large fraction of the population has a high level of education and where goods intensive in technology account for a significant share of exports. Agenor and Canuto (2012) argue that the middle-income trap may be avoided if the country adopts well-designed policies, such as investments in infrastructure, better protection of property rights, labor market flexibility and openness to foreign trade.

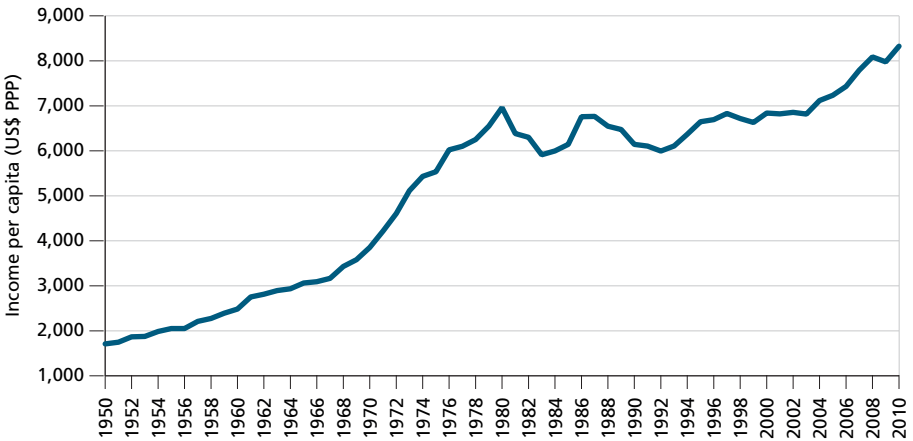
Kharas and Kohli (2011) emphasize that the nature of state intervention in the economy also needs to change. In particular, it should become more decentralized in order to face the task of provision of public services in a more complex economy. The public sector should also implement an efficient regulation of economic activity and engage in partnerships with the private sector.

This paper is organized as follows. Section 2 analyses the evolution of Brazilian productivity in the last decades. Section 3 presents the recent evolution of productivity and Section 4 discusses some of its determinants. Finally, in Section 5 we propose some changes in the Brazilian development model in order for the country to converge to the standard of living of developed economies in the next decades.

2 EVOLUTION OF PRODUCTIVITY IN BRAZIL IN THE LAST DECADES[5]

Brazilian income per capita increased considerably in the postwar period. As shown in graph 1, income per capita increased almost five times between 1950 and 2010. However, most of income growth took place between 1950 and 1980. In this period, income per capita increased four times, expanding at an average growth rate of 4.8% per year. In 1980, however, there was a sharp growth deceleration, and in the next thirty years income per capita increased only 0.6% per year.

GRAPH 1
Evolution of income per capita – Brazil (1950-2010)



Source: Penn World table 7.1.

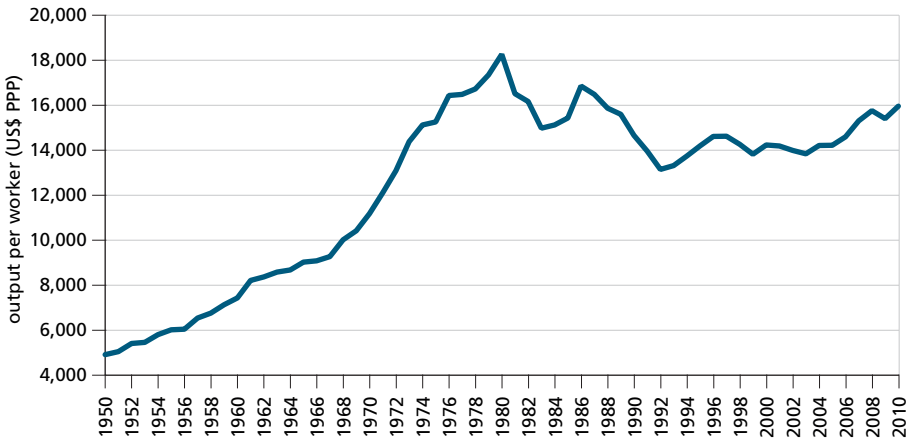
There are, however, important variations within each period. During the 1950s, per capita income increased 3.8% per year, but the growth dynamism ran out of steam in the first half of the 1960s. In the sub-period 1968-1973, per capita income increased 8.3% per year, characterizing the so-called Brazilian economic miracle. Between 1973 and 1980, the growth pace decelerated but remained high at 4.5% per year.

5. See Veloso *et al*. (2013) for an analysis of the Brazilian development experience in the postwar period.

The growth trajectory between 1980 and 2010 was also uneven. Between 1980 and 1992, income per capita fluctuated considerably, and at the end of the period it was 14% below its initial value, which corresponds to an average annual decline of 1.2%. This process was reversed between 1992 and 2003, when there was an average annual expansion of 1.1%. In 2003, however, income per capita was still 2% below its level in 1980. Between 2003 and 2010, there was an acceleration of income per capita growth to 2.9% per year, which represented an accumulated increase of 22% throughout this sub-period.

As shown in graph 2, the trajectory of output per worker was similar to income per capita. Between 1950 and 1980, labor productivity increased 4.5% per year. Between 1980 and the early 1990s, productivity declined, followed by stability until the beginning of the 2000s. Between 2003 and 2010, there was a 2% acceleration growth in productivity per year.

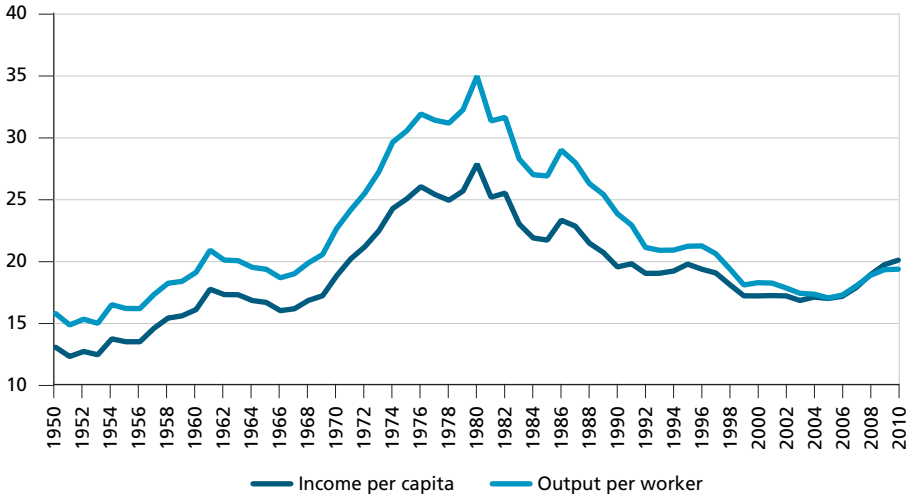
GRAPH 2
Evolution of labor productivity – Brazil (1950-2010)



Source: Penn World table 7.1.

When we compare the performance of the Brazilian economy with the United States, we observe a period of convergence before 1980, followed by divergence (graph 3). Specifically, between 1950 and 1980 Brazilian income per capita increased from 13% to 28% of the United States, whereas labor productivity increased from 16% to 35%. Due to the slowdown of the Brazilian economy, both income per capita and labor productivity declined in relative terms in the following decades, stabilizing around 20% in the second half of the 2000s, which corresponds to the relative levels in the beginning of the 1960s.

GRAPH 3
Evolution of income per capita and labor productivity of Brazil relative to the United States (1950-2010)
(In %)



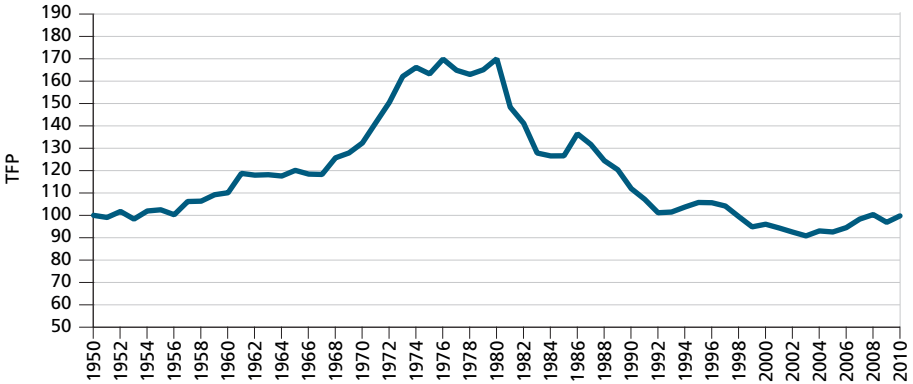
Source: Penn World table 7.1.

Labor productivity growth depends on the accumulation of physical capital (machines, equipment and construction), human capital (education) and the increase of total factor productivity (TFP). TFP is a measure of aggregate efficiency that includes technology and the efficiency of factor allocation among firms.

Graph 4 shows that the evolution of TFP in Brazil is similar to the one observed for labor productivity.[6] Between 1950 and 1980, TFP increased 1.8% per year. During the "economic miracle", between 1968 and 1973, TFP growth jumped to 5.2% per year. Between 1973 and 1980, TFP remained stagnant, despite the growth in labor productivity. In the early 1980s there was a collapse in TFP, which fell at a rate of 4.2% per year between 1980 and 1992. In the period 1992-2003, there was a reduction in the rate of TFP decline (-1.0% per year). Since 2003, there was a reversion in the trajectory of TFP, and it increased 1.4% per year until 2010.

6. For more details about the methodology used to compute TFP, see Ferreira *et al*. (2008) and Ferreira *et al*. (2013).

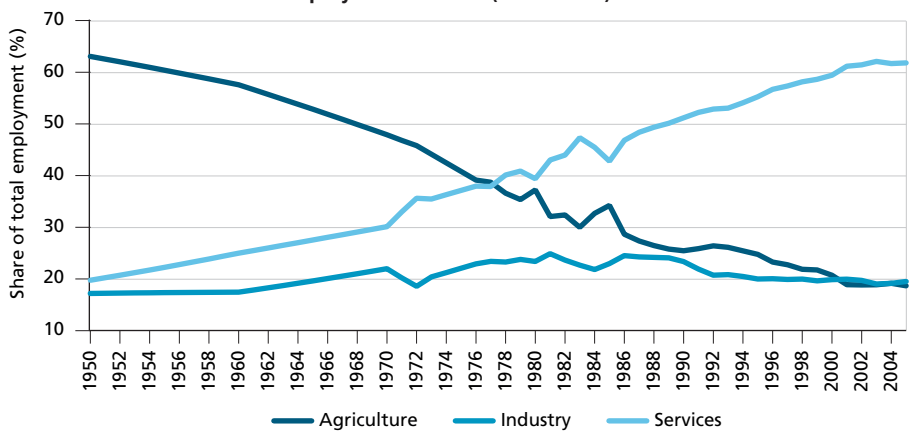
GRAPH 4
Evolution of TFP – Brazil (1950-2010)



Source: author calculations based on Penn World table 7.1 and Barro and Lee (2010).
Obs.: 1950=100.

In the early stages of development, it is possible to obtain significant productivity gains by transferring workers from low-productivity sectors, such as traditional agriculture, to high-productivity activities, such as manufacturing. Graph 5 documents this structural transformation in Brazil. In 1950, the share of workers in agriculture corresponded to 63% of total employment, whereas the industry and service shares were 17% and 20%, respectively. Over time, the labor force moved from agriculture to industry and services. In 1980, the labor share in services had increased to 39%, whereas industry's was 23%. The process of structural transformation continued after 1980, and in 2005 the labor share in the service sector corresponded to 62% of the labor force, in comparison to little more than 18% in agriculture and 19% in industry.

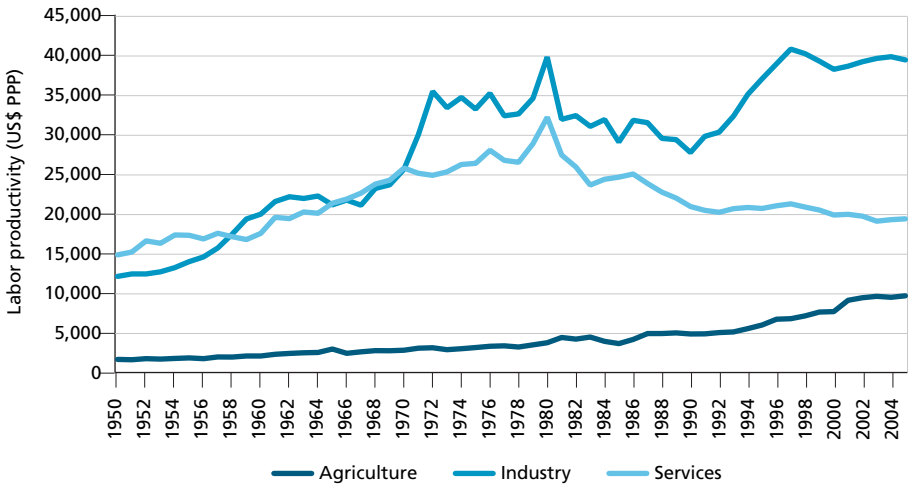
GRAPH 5
Evolution of sectoral employment – Brazil (1950-2005)



Source: author calculations based on Timmer and de Vries (2009).

Graph 6 shows that there were also significant changes in sectoral productivity between 1950 and 2005. Throughout the period, labor productivity in agriculture was always below productivity in industry and services. For instance, in 1950 productivity in agriculture corresponded to 15% and 12% of industry and services productivity, respectively. Between 1950 and 1980, productivity growth was high in the three sectors. However, in the 1980s there was a sharp decline in services productivity, followed by stability in the 1990s. Industry productivity also fell in the 1980s, but it increased significantly in the 1990s. Between the end of the 1990s and 2005 it was stable.

GRAPH 6
Evolution of sectoral productivity – Brazil (1950-2005)

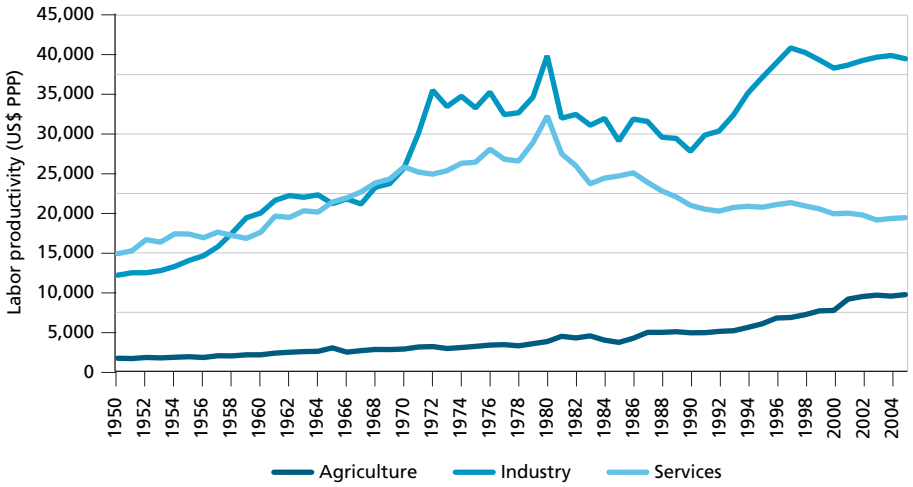


Source: author calculations based on Timmer and de Vries (2009).
Obs.: the data on sectoral productivity from Timmer and de Vries (2009) are expressed in national currency at constant prices and were converted to purchasing power parity dollars.

3 RECENT EVOLUTION OF PRODUCTIVITY

Graph 7 presents the recent evolution of labor productivity in Brazil. After a period of stagnation between 1993 and 2003, productivity increased significantly until 2008. Due to the international financial crisis, it declined in 2009, but increased significantly in 2010. Since then, however, it has only had a modest increase.

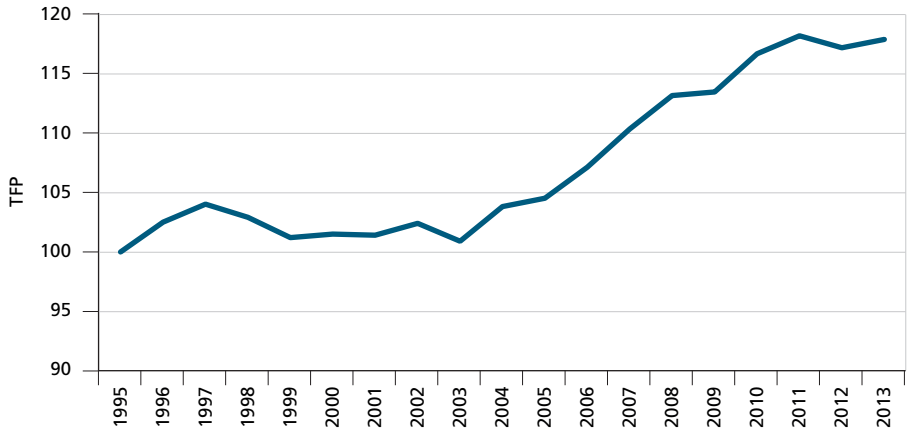
GRAPH 7
Recent evolution of labor productivity – Brazil (1995-2013)



Source: Barbosa Filho and Pessôa (2013).
Obs.: 1995=100.

Graph 8 shows the recent evolution of TFP in Brazil. Between 1995 and 2003, TFP was relatively stable. Between 2003 and 2008, there was a significant acceleration, followed by stability in 2009 and an increase in 2010. Since 2011, however, TFP stagnated.

GRAPH 8
Recent evolution of TFP – Brazil (1995-2013)



Source: Barbosa Filho and Pessôa (2013).
Obs.: 1995=100.

As displayed in table 1, the growth rate of labor productivity increased from 0.2% per year in 1995-2003 to 1.3% per year in 2003-2009. However, the variation of productivity growth was not homogeneous among sectors. Agriculture was the fastest growing sector throughout the whole period, but it decelerated from 5.4% per year to 3.4% between the two sub-periods. Manufacturing productivity had a modest increase in 1995-2003 and declined 1.8% per year in 2003-2009.

On the other hand, Financial Intermediation had a strong acceleration, from 0.3% per year to 7.9% per year. Retail productivity, which had declined at a rate of 2.3% per year in 1995-2003, increased 2.7% per year in 2003-2009. Construction productivity fell 2.1% per year in the first sub-period and was stable in the second.

Summing up, there was a significant acceleration in labor productivity growth in sectors related to credit, such as financial intermediation, retail and construction. The increase in productivity growth in other services should also be mentioned, however, the average growth rate of services productivity is still low. This is an important bottleneck for the improvement of aggregate productivity growth, since the bulk of the labor force is employed in the service sector.

TABLE 1
Sectoral productivity growth in Brazil

Sectors	1995-2003 (%)	2003-2009 (%)
Agriculture	5.4	3.4
Extractive industry	4.6	0.9
Manufacturing	0.2	-1.8
Construction	-2.1	0.0
Public utilities	2.1	1.7
Retail	-2.3	2.7
Financial intermediation	0.3	7.9
Public administration, health and education	-0.1	-0.8
Other services	-0.6	0.7
Total	**0.2**	**1.3**

Source: National Accounts.

To conclude this section, we present in table 2 a comparison of TFP relative to the United States for Brazil and selected countries. Brazilian TFP corresponds to only 50% of US TFP, which is higher than China (39%) and India (42%), similar to Russia (52%) and a little smaller than South Africa (56%). Relative TFP is higher in Chile (63%) and Mexico (65%), even though it is still far from the technological frontier. Despite its extraordinary growth in the last decades, South Korea´s TFP has not yet converged to the US.

TABLE 2
TFP relative to the United States (2010)
(In %)

	TFP relative to the United States
Brazil	50
China	39
India	42
Russia	52
South Africa	56
Chile	63
Mexico	65
South Korea	70

Source: author calculations based on Penn World table 7.1 and Barro and Lee (2010).

This evidence indicates that TFP growth should be a central element of Brazil's growth strategy in the next years. However, in order to design effective policies, it is necessary to understand the reasons for the low productivity of the Brazilian economy.

Recent research has shown that inefficiencies in the allocation of production factors among firms have a strong impact on aggregate TFP. Hsieh and Klenow (2009) show that manufacturing TFP in China could be increased by 115% if factors were allocated efficiently among firms. In India, the potential increase in TFP is 128%.

Inefficiency in factor allocation can also explain a significant portion of low TFP in Latin America. According to Pagés (2010), a reallocation of capital and labor from less productive firms to more productive firms may increase manufacturing TFP in the region by 60%. The magnitude of productivity increase varies among countries. Whereas in Chile TFP may increase by 50%, the potential productivity growth in Mexico is 100%.

One of the main symptoms of inefficiency in Latin America is a proliferation of small firms with very low productivity, especially in the service sector. Pagés (2010) argues that the potential increase in TFP in the service sector is even higher than in manufacturing. For instance, a better allocation of factors among firms could increase retail productivity in Mexico by 260%.

In the case of Brazil, Ferraz and Monteiro (2009) show that the elimination of inefficiency in factor allocation among firms could increase TFP in manufacturing by 49%. This calculation underestimates the potential increase in productivity, since in Brazil there is only available data for firms with at least thirty employees. The studies for other Latin American countries discussed in Pagés (2010) use data

for firms with ten or more employees, which allows for the inclusion of small firms with very low productivity. In the service sector, there is an even greater potential for TFP increase. According to de Vries (2009), the potential growth of TFP in the Brazilian retail sector is greater than 200%.

The next step is to understand why the factor allocation among firms is so inefficient in developing countries and, in particular, in Brazil. Loayza and Servén (2010) argue that excessive regulation of the business environment is an important determinant of inefficient factor allocation. This happens because excessive regulation creates barriers for entry of more productive firms in the market, making it more difficult for low productivity firms to exit.

Hence, policies that reduce excessive business regulation may contribute to increase TFP. With this goal in mind, the next section analyses the business environment in Brazil.

4 BUSINESS ENVIRONMENT IN BRAZIL

The Global Competitiveness Report 2013-2014 of the World Economic Forum presents competitiveness indicators for 148 countries. The competitiveness of a country is defined as the set of institutions, policies and factors that determine its productivity level.

Table 3 presents the relative position of Brazil and selected countries according to the Global Competitiveness Index. Brazil is in an intermediary position (56), a little worse than Mexico (55) and South Africa (53). According to this indicator, Brazil is more competitive than India (60) and Russia (64), but is less competitive than China (29) and Chile (34). South Korea has high competitiveness (25), which is consistent with its successful development experience in the last decades.

TABLE 3
Global competitiveness ranking (2013-2014)

Brazil	56
China	29
India	60
Russia	64
South Africa	53
Chile	34
Mexico	55
South Korea	25
United States	5

Source: World Economic Forum (2013).

There is great heterogeneity among the different components of the Global Competitiveness Index. In relative terms, the worst performance for Brazil is in the Basic Requirements category, in which the country is in 79th place (table 4). In this category, Brazilian competitiveness is particularly low in the Health and Primary Education pillar (89).

TABLE 4
Global competitiveness ranking – basic requirements (2013-2014)

	Basic requirements	Institutions	Infrastructure	Macroeconomic environment	Health and primary education
Brazil	79	80	71	75	89
China	31	47	48	10	40
India	96	72	85	110	102
Russia	47	121	45	19	71
South Africa	95	41	66	95	135
Chile	30	28	46	17	74
Mexico	63	96	64	49	73
South Korea	20	74	11	9	18
United States	36	35	15	117	34

Source: World Economic Forum (2013).

Tables 5 and 6 present the relative position of Brazil and selected countries in the Efficiency Enhancers category. Brazil's relative position (44) is better in this category, but it is not uniform among its components. For instance, even though the competitiveness derived from the size of the market is high (9), efficiency of the goods market is very low (123).

TABLE 5
Global competitiveness ranking – efficiency enhancers (I) (2013-2014)

	Efficiency enhancers	Higher education and training	Goods market efficiency	Labor market efficiency
Brazil	44	72	123	92
China	31	70	61	34
India	42	91	85	99
Russia	51	47	126	72
South Africa	34	89	28	116
Chile	29	38	36	45
Mexico	55	85	83	113
South Korea	23	19	33	78
United States	1	7	20	4

Source: World Economic Forum (2013).

TABLE 6
Global competitiveness ranking – efficiency enhancers (II) (2013-2014)

	Efficiency enhancers	Financial market development	Technological readiness	Market size
Brazil	44	50	55	9
China	31	54	85	2
India	42	19	98	3
Russia	51	121	59	7
South Africa	34	3	62	25
Chile	29	20	42	42
Mexico	55	59	74	11
South Korea	23	81	22	12
United States	1	10	15	1

Source: World Economic Forum (2013).

Table 7 shows that the relative position of Brazil in the Innovation and Sophistication Factors category (46) is similar to the one in Efficiency. The main deficiency is the lack of engineers and scientists, which may be an important obstacle for innovation efforts.

TABLE 7
Global competitiveness ranking – innovation and sophistication factors (2013-2014)

	Innovation and sophistication factors	Business sophistication	Innovation
Brazil	46	39	55
China	34	45	32
India	41	42	41
Russia	99	107	78
South Africa	37	35	39
Chile	45	54	43
Mexico	55	55	61
South Korea	20	24	17
United States	6	6	7

Source: World Economic Forum (2013).

The Doing Business project of the World Bank measures several dimensions of the business environment. *Doing Business* 2014 presents indicators for 189 countries.[7] Table 8 shows that Brazil does not have a favorable business environment (116th position in the global ranking).

7. World Bank (2013).

TABLE 8
Doing business ranking (2014)

Brazil	116
China	96
India	134
Russia	92
South Africa	41
Chile	34
Mexico	53
South Korea	7
United States	4

Source: World Bank (2013).

The ten components of Doing Business can be classified in two groups: Complexity and Cost of Regulatory Processes; and Quality of Legal Institutions, which are presented in tables 9 and 10. These indicators show that the business environment in Brazil is characterized by high bureaucracy and institutional shortcomings in legal protection of market transactions. In particular, the indicators of starting a business and insolvency resolution show that there are significant barriers to the entry and exit of Brazilian firms in the market. Our relative position is particularly low in the paying taxes indicator (159), which measures the complexity and burden of the tax system.

TABLE 9
Doing business ranking – complexity and cost of regulatory processes (2014)

	Starting a business	Dealing with construction permits	Getting electricity	Registering property	Paying taxes	Trading across borders
Brazil	123	130	14	107	159	124
China	158	185	119	48	120	74
India	179	182	111	92	158	132
Russia	88	178	117	17	56	157
South Africa	64	26	150	99	24	106
Chile	22	101	43	55	38	40
Mexico	48	40	133	150	118	59
South Korea	34	18	2	75	25	3
United States	20	34	13	25	64	22

Source: World Bank (2013).

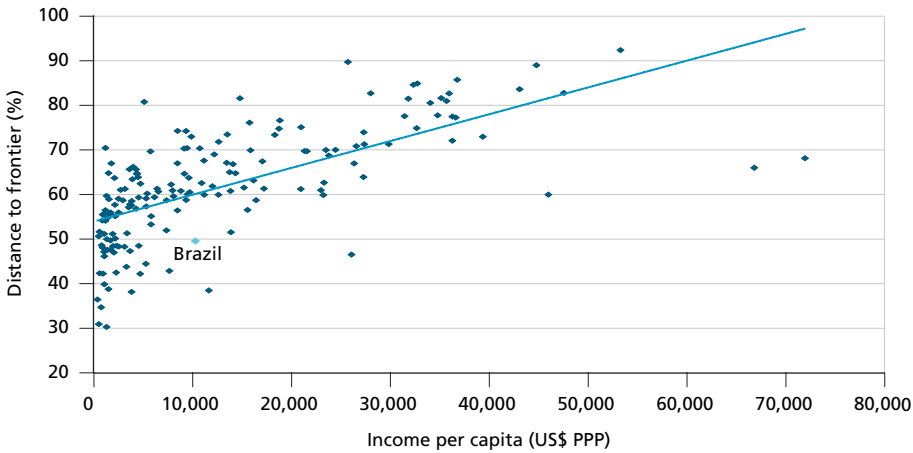
TABLE 10
Doing business ranking – quality of legal institutions (2014)

	Getting credit	Protecting investors	Enforcing contracts	Resolving insolvency
Brazil	109	80	121	135
China	73	98	19	78
India	28	34	186	121
Russia	109	115	10	55
South Africa	28	10	80	82
Chile	55	34	64	102
Mexico	42	68	71	26
South Korea	13	52	2	15
United States	3	6	11	17

Source: World Bank (2013).

Doing Business 2014 also presents a measure of the distance of each country to the frontier of best regulatory practices. The shortcomings of the Brazilian business environment become evident when we analyze the relation between the distance to the frontier and income per capita. As shown in graph 9, the relative distance of Brazil (50% of the frontier) is considerably larger than the one expected for countries with a similar per capita income.

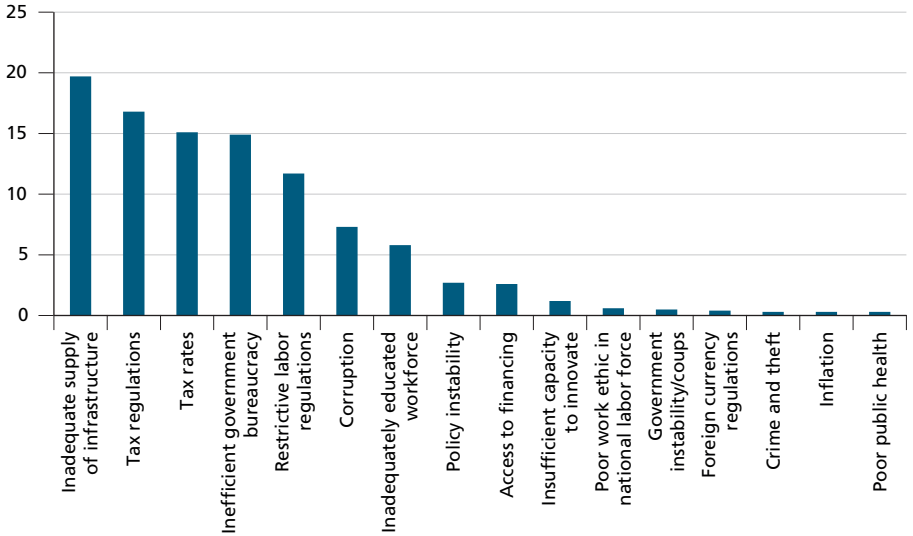
GRAPH 9
Relation between distance to frontier and income per capita (2013)



Source: Doing Business 2013 and World Development Indicators – World Bank.

These objective information about the quality of the doing business environment in Brazil are confirmed by qualitative surveys. The results of a survey with business leaders presented in the Global Competitiveness Report 2013-2014 show that the three main obstacles to doing business in Brazil are inadequate infrastructure, excessive tax regulation and high tax burden (graph 10).

GRAPH 10
Main obstacles to doing business in Brazil – global competitiveness report (2013-2014)
(In %)



Source: World Economic Forum (2013).

5 CONCLUSION

In the postwar period several countries were able to achieve a middle-income status, but few succeeded in becoming developed countries, and were stuck at the so-called middle-income trap. The growth decelerations at the middle-income level are associated with the difficulty in making the transition to a new development model that adapts its economy and institutions to the new challenges and opportunities.

Brazil made significant progress in the last two decades, but the transition to a new development model is still incomplete in several dimensions. In particular, the Brazilian economy has limited capacity to generate innovations, the degree of openness to foreign trade is low, and the infrastructure is deficient. Despite important progress in indicators of quantity of education, the quality of education is still very low. Moreover, as shown in this note, the business environment in Brazil is very unfavorable, despite several reforms. The bureaucratic procedures

are cumbersome, and the tax system is complex and imposes a high burden on firms. There are also shortcomings in the functioning of judicial institutions, which result in insecurity of property rights.

The main challenge for the Brazilian economy in the next decades is to complete the transition to a new development model in the context of important technological and demographic changes. In particular, the new information technologies are intensive in high-skill labor. The use of these technologies has contributed to an increase in inequality in developed countries. To the extent that growth acceleration in Brazil will depend on the adoption of these technologies, the decline in inequality that was observed in the 2000s may be reversed unless adequate education and job training policies are implemented.

Another important factor that will affect policy choices in Brazil is related to the demographic changes that are already in motion, and that will be intensified in the next decades. The decline in the growth rate of working-age population will reduce the expansion of the labor force, which will create difficulties for the growth of gross domestic product and the financing of social security. Moreover, the increasing fraction of old-age individuals in the population will imply a raise in social security expenditures.

Brazilian policymakers will have to design a coherent growth strategy and implement it in a persistent and flexible way in order to deal with these challenges and be able to put the Brazilian economy in a path of convergence to the standard of living of developed countries.

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TECHNICAL SESSION 9

BRICS and the Global Governance

- Participation in multilateral institutions
- Participation in global value chains
- Bilateral initiatives and their global repercussion

CHAPTER 20

BRICS AND MULTILATERALISM WITHIN THE CONTEXT OF GLOBAL GOVERNANCE

Narnia Bohler-Muller[1]

ABSTRACT

BRICS can be seen as a new multilateral player on the global stage. BRICS Member States view their differences as a demonstration of the diversity of the world's civilizations, and celebrate their commonalities. For instance, BRICS countries share a long-standing history of geo-political and economic relations of solidarity, support, and mutual cooperation, notably embedded in the legacy of international *fora* such as the Bandung Conference (1955). The latter conference was an important step toward the establishment of the Non-Aligned Movement (NAM), amongst others, and there is a recognition that the diversity of the member states opens up the possibility for deeper cooperation for mutual benefit. This paper considers the BRICS within this context of multilateralism. The first section takes a brief look at what multilateralism means in international relations. Thereafter there is a focus on the particular nature of multilateralism within and among BRICS. Lastly, some recommendations are made to inform the development of the BRICS grouping as a champion of a new global order based on mutual cooperation and respect for the rule of law.

1 INTRODUCTION

The growing role of the BRICS can also be evidenced by the rapid recovery of these economies from the global financial crisis. This has demonstrated that optimal global economic policy making cannot be undertaken without including the BRICS economies at the highest level. In addition, beyond economics, the geopolitical role of the BRICS is becoming increasingly relevant on the world stage. BRICS is here to stay, and now is the time to start imagining a new global order that does not repeat the mistakes of the past (Kornegay and Bohler-Muller, 2013, p. XXVIII).

The BRICS (Brazil, Russia, India, China and South Africa) has been described – and indeed describes itself – as a new multilateral player on the global stage. Despite the differences among and between its members in terms of history, culture, political

1. Human Sciences Research Council (HSRC).

systems, economic structures, resource endowment, and levels of development, BRICS member states view these differences as a demonstration of the diversity of the world's civilizations. There are also many areas of commonality. For instance, BRICS countries share a long-standing history of geo-political and economic relations of solidarity, support, and mutual cooperation, notably embedded in the legacy of international *fora* such the United Nations (UN) as well as the Bandung Conference of 1955, which was the first large-scale Afro-Asian conference to promote Afro-Asian economic and cultural cooperation and to oppose colonialism or neocolonialism by any nation. This conference was an important step toward the crystallization of the Non-Aligned Movement (NAM), amongst others. There is therefore a recognition that the diversity of the member states opens up the possibility for deeper cooperation for mutual benefit, drawing on the comparative advantage of each country to collectively complement and build on one another's strengths.

This paper considers BRICS within this context of multilateralism. The first section takes a brief look at what multilateralism means in international relations. Thereafter there is a focus on the particular nature of multilateralism within and among BRICS, and lastly some recommendations are made to inform the development of the BRICS grouping as a champion of a new global order based on mutual cooperation and respect for the rule of law.

Faced with a revisionist agenda from groupings such as the BRICS, the question may very well be whether established powers are up to the challenge of reforms to international and global governance structures, in a manner that could be termed "institutionalized power transitions". From a multilateral point of view, institutionalized power transitions present a political alternative, which allows for cooperative reform (Baracuhy, 2012:9). Amongst the BRICS Member States are some of the world's fastest growing economies wielding great influence as well as global power. Some of this influence includes being rule-setters at the World Trade Organization and veto wielding powers in the form of China and Russia in the United Nations Security Council. But this is not enough, because for institutionalized power transitions to take place established powers must be ready to play the "reform game" (Baracuhy, 2012, p. 10).

2 MULTILATERALISM IN GLOBAL GOVERNANCE

In its first official policy statement on international relations in December 1994, the African National Congress (ANC) as a ruling party placed an emphasis on the importance of multilateralism, which is a position the South African government has not deviated from:

The pace and scope of global change has improved the prospects for multilateralism. Increasing economic interdependency, the fragility of the planet's eco-system and the rapid increases in technology have underlined the necessity to approach many international questions from a common perspective: judicious multilateral diplomacy will enhance South Africa's international standing.[2]

In order to better understand the BRICS' commitment to multilateralism it is informative to consider the trajectory, since the Second World War, of multilateral diplomacy (referred to by some as "soft power"), which has created an environment conducive to establishing a more egalitarian world order. For example, the Non-Aligned Movement (NAM) was a multilateral effort that began in Belgrade in 1961 to strengthen the "struggle against imperialism, colonialism, neo-colonialism, racism, and all forms of foreign aggression, occupation, domination, interference or hegemony as well as against great power and bloc politics" (Castro, 1979). Although less active than during the Cold War, the countries of the Non-Aligned Movement represent nearly two-thirds of the UN's membership and constitute 55% of the world population. Membership is particularly concentrated in countries considered to be developing or part of what used to be known as the "Third World" (Grant, 1995, p. 567-587). The NAM espouses policies and practices of cooperation, especially those that are multilateral and provide mutual benefit to all those involved. Although the nature of BRICS is trade focused and not necessarily premised on taking the "high moral ground", the principle of multilateralism applies nevertheless and previous efforts to cooperate have surely contributed to closer relations amongst the BRICS nations.

According to Ruggie (1993, p. 3-36) multilateralism is an institutional form that coordinates relations among three or more states on the basis of generalised principles of conduct. The generalised principles of conduct are: non-discrimination; indivisibility; and diffuse reciprocity. Put simply,

1. "non-discrimination" implies that all parties are treated similarly;
2. "indivisibility" considers an attack on one to be an attack on all; and
3. "diffuse reciprocity" means that states do not rely on short term *quid pro quo* exchanges, but on longer term assurances of balance in their relations.

Thus, multilateralism can be construed as the most egalitarian form of international cooperation and decision-making and multilateral institutions have the potential to provide developing countries with an equal voice in international relations. Multilateralism in general and multilateral institutions in particular thus provide a more democratic means of determining which global issues should be

2. See <http://www.anc.org.za/show.php?id=230>.

addressed and how States should address them. It should be noted that BRICS is not a multilateral institution *per se,* but it is clear that BRICS is committed to multilateralism as opposed to unipolar dominance in international relations. BRICS countries are members of a number of political and financial multilateral institutions of global governance, some of which require reforms to become more democratic and representative of the interests of developing nations.

As Al-Rodhan *et al.* (2009, p. 24*)* further explain:

> Effective multilateralism can be defined as "a system that is able to ensure that every human being, at the global level, has access to the core public goods that the State provides at the national level– or is rightly expected to provide – to its citizens" including "physical security and stability (…); an enforceable legal order; an open and inclusive economic order that provides for the wealth of everyone (…); well-being in all of its aspects – access to health, to education, to a clean environment, and to similar goods". Such a system would strengthen international order, but its efficiency largely depends on how coherent the strategies of multilateral institutions are.

At global level, multilateralism has an important role to play in promoting a more stable, peaceful, just and environmentally sustainable world order. Multilateralism has also been defined by Kahler (1992, p. 681) as "international governance of the 'many'" with its central principle being "opposition [to] bilateral discriminatory arrangements that were believed to enhance the leverage of the powerful over the weak and to increase international conflict". Multilateralism is thus based on trying to reach a sense of global uniformity and understanding in relation to parts of the world that do not wield the same influence as others.

Against this background, the next section looks more closely at the BRICS' focus on multilateralism and polycentricism, which some submit has led to a shift in power from North to South and from West to East.

3 BRICS' FOCUS ON MULTILATERALISM AND THE CREATION OF A POLYCENTRIC WORLD ORDER

> To know what sort of global order will emerge on the other side of the transition from uni-polarity to multi-polarity depends largely on the existing mechanisms set in place to carry about the process of change (Baracuhy, 2012, p. 6).

As mentioned in all the Summit Declarations of BRIC(S) since its inception in Yekaterinburg in 2009, BRICS member states aim to use multilateral diplomacy to leverage and exert pressure for significant reforms and balanced representation within international organizations responsible for political and economic governance, including: the United Nations Security Council (UNSC); the International Monetary Fund (IMF); the World Bank (WB); and the World Trade Organization (WTO). The main aim of the BRICS is thus to promote a polycentric world order, which benefits previously marginalized developing

countries, especially in the global South. Alongside pressing for reforms of the existing global architecture, BRICS also aims to establish a new, complementary development finance institution, the BRICS Development Bank, to mobilize financial resources for productive investment; to promote strong, effective and efficient governance to enable BRICS countries to maintain their rates of growth and development; and to promote the effective and full participation of all stakeholders in society to address issues of political governance and socio-economic disparities.

The trend towards poly-centricity and commitment to multilateralism has seen BRICS emerge ("rise") as a powerful player on the global stage. The international "playing field" is being levelled by groupings such as BRICS:

> Arguments that emphasize the differences among the BRICS and the difficulties of its members to come up with common positions are lagging behind the evolution of diplomacy and miss two important points: (i) the BRICS are *already* a political reality; and (ii) the BRICS display a solid political unity in favor of reforms in the rules and structures of the existing international order (Baracuhy, 2012, p.10).

Within this context, BRICS Member States are committed to assuming an increasingly significant role in international relations concomitant with their growing global and regional economic and political significance. In order to facilitate real change there is a need for BRICS to strengthen its agenda around common interests. Some recommendations follow, although it is certainly not an exhaustive list:

1) *Pursuing effective reform in the governance and operation of international organisations through multilateral diplomacy*

This includes seeking the reform and greater effectiveness of the UNSC, IMF, WB and WTO Doha Round. This is an example of institutional reform or "institutionalised power transitions" as explained above. In this regard, there is some dissonance within BRICS on a number of issues that has delayed or prevented effective reform of the global political and economic architecture. BRICS Member States need to expand their consensus on major international reforms, and to enhance solidarity and cooperation further to increase their effectiveness. This includes:

1. Opposing trade protectionism, protecting multilateral trade, and advancing the Doha Round of trade talks.
2. Working together to obtain a bigger say for developing countries in global economic governance, including the IMF and the WB.
3. Particularly strengthening cooperation to advance the quota reforms of the IMF.
4. Speeding up efforts to set up a BRICS development bank.

5. Pressurising the world's major economies, including G20 members, to step up coordination to promote sustainable and balanced global economic growth.

2) *Swift and ambitious collective decision making within multilateral fora and international organizations*

It is necessary for BRICS to find common ground and to work to the mutual benefit of all member states. A challenge here is that each BRICS country has its own national and regional interests to protect. South Africa, for instance, has placed emphasis on the centrality of its "African agenda" and prioritises regional integration. This focus on regionalism within the BRICS agenda is not necessarily endorsed by all the BRICS Member States as the situation in regions is different for each country, with geopolitical tensions existing between China and India for instance. Brazil also sees its regional role as separate from its BRICS agenda.

3) *Coordination on positions for multilateral negotiations and mobilizing international support to achieve common objectives for the mutual benefit of member states and developing nations*

In a sense, BRICS aims to be the 'voice' for other developing countries and emerging markets so as to re-balance global power relations to create a more just and egalitarian world order. In this sense BRICS must prove itself to be an open and transparent leader in the democratic reform of international institutions so as to allow for better representation and the promotion of the interests of developing nations and the "Global South". In doing so, it is important for BRICS not to be seen as a grouping that opposes the West as this could lead to a fragmented global order rather than furthering the multilateral agenda. In addition, BRICS should not alienate other developing countries and emerging markets in a quest to exert power.

4) *Active interaction and exchange of ideas among BRICS Member States in the UN and its specialised agencies*

As stated in paragraph 20 of the eThekwini Declaration: We reiterate our strong commitment to the United Nations (UN) as the foremost multilateral forum entrusted with bringing about hope, peace, order and sustainable development to the world. The UN enjoys universal membership and is at the centre of global governance and multilateralism. In this regard, we reaffirm the need for a comprehensive reform of the UN, including its Security Council, with a view to making it more representative, effective and efficient, so that it can be more responsive to global challenges. In this regard, China and Russia reiterate the importance they attach to the status of Brazil, India and South Africa in international affairs and support their aspiration to play a greater role in the UN.

BRICS has from the outset acknowledged its commitment to the UN as the "foremost multilateral forum". This reflects a clear commitment to work within existing systems to influence reforms.

5) *Pursuing a collective position on UNSC governance reforms so as to prioritise fairer treatment in international relations for BRICS Member States and other developing nations, as stated above, including seeking balanced representation in the UNSC, IMF, WB and WTO Doha Round*

With regard to the reform of the UNSC, there appears to be no consensus as to the nature that the reforms should take, and this needs to be resolved so as to prevent tensions among members. Currently China and Russia are permanent members of the UNSC with veto powers, whereas Brazil, India and South Africa are aspiring members of an expanded and more regionally representative permanent council. Although BRICS leaders have expressed support for these aspirations in paragraph 20 of the eThekwini Declaration, China and Russia have to date not expressly supported the inclusion of the other three countries and have rather used the rhetoric of increased "effectiveness" of the UNSC. Furthermore, South Africa is in the difficult position of not alienating the African Union (AU), which is of the view that more than one African country should be represented on the permanent council.

6) *Pursuing a more proactive role in international conflict management through institutionalised coordination and collaboration, especially in promoting respect for and compliance with the rule of international law and treaties governing international political and economic relations*

Ostensibly, BRICS maintains a "non-interventionist" stance that respects state sovereignty, although there are some differences in this respect that have been evident in voting for or against UNSC resolutions in relation to Libya and Syria for instance. The present situation in the Ukraine will also potentially test the extent of cooperation amongst the BRICS with respect to international conflict resolution.

7) *Promoting, through multilateral diplomacy, the BRICS identity and using the collective leverage of BRICS in international fora for the common interests of member states and other developing nations*

The sharing of information, knowledge and data amongst the BRICS countries would be useful in this regard. It is also important to ensure that BRICS is seen as revisionist/ visionary and not reactionary. Any indication that BRICS is "against" the West will result in unnecessary defensiveness on the part of the United States and European United in particular, which would result in opposition to proposed reforms of international institutions. BRICS needs to use "soft power" within international *fora* to push for change without alienating the "traditional powers".

At the top of the agenda, in order to ensure effective international economic and financial governance, the BRICS Member States aim to play a leading role in formulating positions on international monetary and financial system reforms on behalf of Member States, other emerging markets and developing countries. One of the priorities in this regard is to ensure strengthened cooperation within the framework of international organizations to collectively promote mutual interests in the area of international trade. With regard to reform of global financial institutions, the aim is to attain equity and fairness, especially in the IMF and WB, which is an overriding imperative for the five BRICS countries. There is clear agreement that there is a need for greater voting quota distribution for emerging powers and developing countries in the Bretton Woods institutions. Reforming the IMF quota system has been long overdue, but is resisted by the United States. However, BRICS missed a chance to show that they have a joint strategy to achieve the much-needed reforms when they failed to agree on a non-European candidate to occupy the post of managing Director of the IMF when Strauss-Kahn resigned.

It is clear that the BRICS want to see the international balance of power change, and will as "new" powers therefore seek to alter the *status quo* in ways that favor their interests and those of the developing world in general. But there are no plans, as some would claim, to overthrow the system. The aim is to *reform* the system as diplomacy, geopolitics and multilateralism become inextricably linked.

What this means in real terms remains to be seen.

5 CONCLUSION

Despite the existence of obvious differences between and among BRICS member states, BRICS sees these differences as an opportunity to share experiences amongst one another and to find solutions to common problems and challenges. Within the context of respect for state sovereignty and non-interference in internal affairs, BRICS member states recognize that stable, accountable and efficient governance at all levels is crucial for member states individually and collectively to maintain their rates of growth, participation, and sustainable development. It is generally acknowledged that good national, political and economic governance facilitates the creation of a solid foundation for multilateral cooperation and collective action in the international arena. To this end, BRICS member states would benefit from sharing experiences through the reliable collection of data and information on social and economic development and best practices.

It remains to be seen whether BRICS will live up to its potential as a forerunner of a new "Global Order" where power is more evenly distributed and where interdependence becomes a mark of strength in international relations. South

African foreign policy emphasizes the importance of relationship-building in the spirit of *Ubuntu / Botho,* an African philosophy that recognizes the interconnectivity of humanity and the importance of community. The South African White Paper entitled *Building a Better World: the Diplomacy of Ubuntu* (2011) posits that South African international relations are informed by the history of colonialism and the liberation struggle, as well as by the hard-won values of dignity, equality and freedom. As a result, its foreign policy is informed by a commitment to multilateralism, making BRICS a good option for furthering this agenda.

Clearly, BRICS could be the stimulus for an interconnected and equitable world order. What is needed is a coherent strategy and the leveraging of commonalities and strengths.

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CHAPTER 21

BRICS AND THE GLOBAL GOVERNANCE

Renato G. Flôres Júnior[1]

1 INTRODUCTION: A BACKGROUND SCENARIO

In times of a slow but systematic decline of the United States world supremacy, giving way to tensions of all sorts – on the rule of the seas, monetary instability, uncertainty over other possible poles or centres of political gravity –, multiple rearrangements and attempts try to ascertain regional rights and identities but find an ever increasing lack of governance. At the local and intra-national levels, diffuse and diversified social demands – with or without political representativeness – heighten tensions in many countries.

Notwithstanding, the United States still has a considerable innovation capacity and holds the largest and most destructive (military) potential in the world – transition of power will be neither easy nor very smooth –, though being progressively undermined by budgetary incontinence and mismanagement, and cumulative lack of funds to cope with the domestic needs and those of both the *Pax Americana* and the *Americanische Innovationsführung*.

The European Union needs natural resources and energy from abroad, to be paid with high technology goods and services, but funds for covering the innovation costs are becoming scarcer. European goods are "over-branded", some already near saturation, and chances are that the European Union will globally have a less important role.

If strengthening the European Parliament seems a key tool for assuring better internal cohesion and a more constructive and credible position outside, it is perhaps not too far fetched to imagine that it will take five to ten years for the European Union to find a new integration format, adapted to the enormous changes and tensions jointly brought by its too hasty enlargements and the recent world changes.

The creation of semi-autonomous, alternative currency areas may, within about a decade, be a major blow to the US dollar. A renminbi zone is likely to come true

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(Singapore already acts as a clearing house for it; a "duty-free" area has recently been created in continental China) and, with the ASEAN+3 trade agreement further boosting commercial ties and incentives for renminbi-denominated transactions, considerable changes may be expected in the international monetary architecture.

Technological developments – particularly in materials science, automation and advanced robotics (human and man-made), cloud computing and storage, and 3D printing – will further change the international division of labor and production. Apart from the case of natural resources endowment, comparative advantages will continue to lose importance vis à vis creative capacities, flexibility and wise insertion in (global) value chains.

In spite of the above, there is a lot of exaggeration about a "new economy" and a "new order". Actually, classical, main Bretton Woods agents still grab a considerable amount of power and changes – already and irresistibly in motion, given the (urgent) need of modernisation and reform of the 1945 (multilateral) institutions – will be slow, with "jumps", or crises occurring from time to time. I do not share over-optimistic views like those in Mahbubani (2013),[2] and indeed foresee turbulent though not catastrophic times ahead.

Opportunities are and will however be present nearly everywhere, though, of course, in different shapes and modalities. Higher intra-national inequality – an ironic counterweight to lower inter-nations inequality – requires caution as regards investment style, intensity and rhetoric. In each specific venture, the sustainability narrative, in spite of often vapid, will ever more become a must.

In a rather philosophical mode, with the failure of the Marxist-socialist alternative, and the nowadays declining faith in the United States and related (American or European) democracy styles, nation-states are actually without a major model framework for organising their socio-economic complex: considerable trial and error must take place, and a lot of internal social tension may be expected. Global governance, oftentimes, becomes a lesser priority.

It is impossible to discuss the role of the BRICS in Global Governance (GG) without a background scenario of the present state of flux in the world scene. Some may totally disagree with the previous bullet points, others may join me in some of them, and another one may want to add things considered missing. No consensus or infallibility is claimed on the above, *but change for sure sets the tune*.

I'm afraid that all would agree in one view: we are living dynamic times that require novel, shrewd and versatile approaches to GG.

2. In spite of several perceptive insights in his book.

Within this dynamic setting, where and how can the BRICS act in the global governance sphere?

2 THE THREE POSSIBILITIES

One question must be posed from the start: *In which way do the BRICS want to participate in the world governance system*?

The answer conditions the broad lines of their interaction and contribution to the international order. I shall outline three possible ones. They may be considered as three stereotypes, forming the vertices of a triangle. None of the strategies will actually be fully endorsed, the observed behaviour very likely being a combination of the three, according to circumstances and the different issues at stake. They nevertheless serve an analytical purpose, easing the way to identify an optimal response to the central question above.

The first vertex: pushing their way through (and inside) the existing organisations

BRICS may opt for a progressive, more inclusive and vocal role, within the established institutions. This would amount to a pledge for a bigger role in multilateral organisations like the IMF – something which already took place in a half-successful way –, the World Bank,[3] the post-2015 Millennium Development Goals, the official climate change debates and conferences, and a variety of other existing arrangements, more or less institutionalised.

The second vertex: creating a mirror image of the existing order

A second option would be to set up – without necessarily conflicting with the established order – own BRICS institutions, pacts and agreements that would pursue both the group's interests as well as global objectives. In this case, like in quantum mechanics, a "mirror image world order", doubling more or less closely the existing institutions, would be created, under direct control of the five members.

The third vertex: identifying unexploited niches and innovating

A third, more challenging possibility is, when actually interfering with instances of global governance, to find out ways that would bring either a different approach to known problems, or explore opportunities and niches until then unattended.

Keeping in mind that the three vertices represent idealised positions, in this Note, backed by the scenario briefly described in the introductory part, I favour

3. If, at the IMF, BRICS managed to achieve a common stance – unfortunately not yet implemented –, at the election for the new (nowadays) President of the World Bank this was not feasible.

a combination of the first and last options. In the following section I shall try to support and exemplify my point.

3 A FAVOURED APPROACH

At the root of my argument lies the fact that the BRICS still are an odd animal, always risking – like the Unicorn in the medieval fable – "to be so marvellous and weird that they will pass unnoticed". Their full existence and ever increasing recognition (and clout) will only arrive through a wise combination of joint actions in existing forums with novel and innovative contributions to global governance. Moreover, this will ensure them a more comfortable and discretionary positioning in the big transitions either already taking or to take place.

Common standpoints and actions in the present GG units – the first vertex – is not a panacea, a universal medicine that could be regularly and uniformly swallowed by all the five countries. It is not easy either. Notwithstanding, there are fronts – like the (standard examples) IMF and the World Bank, selected organisms of the United Nations, or the internet governing body, ICANN, as mentioned in another session of this Forum – where much *can and still waits* to be done. Focus on such segments, out of a well-designed common agenda, seems feasible, and is a pursuit that should not be discarded.

In the more challenging third vertex, a deeper analysis seems to be required.

One thing is to make general statements regarding the world order, at the end of each annual BRICS Summit. This indeed makes a point, and has diplomatic (and marketing) value, but remains distant from actual, impacting measures.[4]

A few areas to be discussed again in this VI Academic Forum – also present in previous ones –, seem ripe for more concrete steps. I refer to sustainable development goals, rapid and gigantic urbanisation and their related phenomena, internet governance and security, models and templates for poverty and inequality reduction. Collective BRICS initiatives – some already in progress – may bear a catalysing effect beyond the borders of the group, attracting other countries.

At their side, two subjects claim for a BRICS co-ordinated effort.

The first is the whole galaxy of international rules and standards making – for manufactures, commodities and services. Leadership of this effort is with the European Union and the United States, in a clear trend to turn their common regulations and standards universal. This is neither good nor bad in itself. However, given the huge impact that it will have in nowadays trade and investment

4. Though a few counter-examples exist, like the Sanya Declaration, China, April 14, 2001, reaffirmed in New Delhi, India, March 29, 2012, on reducing the members' dependence on the US dollar, which resulted in fairly significant concrete measures.

flows – in particular in the evolution, spread and eventually transformation of the most important clusters of global value chains[5] –, it is high time that a harmonised BRICS platform in this domain be conceived and implemented.

The other subject is more ticklish but must be addressed. It has to do with the geostrategic importance of the BRICS group. Without any intention of disruption or conflict with the present scenario, an open-ended, informal BRICS Strategic and Defence Dialogue should be first tried, and then slowly implemented.

Issues ranging from the Atlantic to the Pacific, passing through security in Africa, the borders of the European Union and hot Asian spots, involve BRICS countries. A more concerted dialogue on all them, and the mutual encouragement of regional initiatives conducive to peace and stability should be at least considered.

In all these instances, the most unfortunate first concrete steps to be avoided would be those towards bureaucratic solutions, quickly leading to another international stumbling monolith; a point more fully developed in Flôres (2013).

Networks, targeted groups and commissions, specific task forces, with light and supple secretarial help, should set the path towards common, intelligent proposals and actions. These, in many cases, could be implemented through key government organisations in each country, while co-ordinated by a small, BRICS-level committee. The committees would have among their tasks the diffusion of the procedures/rules/decisions, and the engagement of friendly nations along the same or similar lines. In other cases – like defence and security – meetings and debates should take place at a top national level, involving those directly responsible for foreign affairs or they close aides.

None of the endeavours is trivial, and all compete with daily problems of all sorts – mostly of domestic, some of regional character – that easily lead to putting aside, if not forgetting, the beautiful ideas discussed in a forum or summit. There are no illusions about this harsh reality. Nevertheless, to accept these ideas and examples as a target – how far away doesn't really matter, in a sense – helps to keep focus and, out of the many possibilities outlined, choose a few to actually come true.

4 CODA

Global governance, in the academic narrative, is the attempt to reconcile globalised markets and nation states, with a view to persuade (or constrain) countries to compromise on certain national interests for the sake of a (hopefully perceived)

5. See the Introduction.

international public good. Ultimately, it is a matter of power. When moving to and through this realm, BRICS touch deep and sensible nerves of the international order.

The efforts here outlined would neither be bilateral nor multilateral, rather plurilateral ones where the weight and geographical range of the BRICS would heavily count for their success. It is this wide range that assures an Asian/Eurasian, African and South American voice to them.

The future, undoubtedly, lies in these three regions. The group needs a clear and strong posture in them, in a not so distant horizon. This will be the most effective way to constructively contribute to the coming changes in global governance.

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TECHNICAL SESSION 10

Social Technologies

- Social protection systems: lessons and challenges
- Labor markets performance and policies
- Strategies for poverty and inequality reduction

CHAPTER 22

STRENGTHENING PUBLIC SERVICES, ENHANCING SOCIAL PROTECTION: LESSONS FROM THE INDIAN EXPERIENCE

Harsh Sethi[1]

Making sense of India has, at the best of times, never been easy. Not just because of its size, bewildering social, ethnic, regional and economic diversity, or even its complicated history. It is almost, as if, one is trying to paint a picture of Europe. Little surprise that most analysts, Indian or foreign, take refuge in maxims such as, "Every statement about India is both true and false simultaneously", the veracity of the statement conditional on time, contest and the part of the country one is talking about.

Nevertheless, irrespective of the frame of analysis deployed, most analysts concur that Indian's record as a modern, democratic Republic in meeting the basic needs of a substantial proportion of its citizenry – despite its recent experience of fast economic growth – has been remarkably limited. Equally, the public revenue generated by rapid economic growth has not been used to expand the social and physical infrastructure in a determined and well-planned way. There is also a continued lack of essential social services (from schooling and health care to the provision of safe water and drainage) for a huge part of the population. Little surprise that while India has overtaken many countries in the progress of real income (despite recent slowdown in gross domestic product – GDP growth), it lags behind in terms of social indicators such as longevity, literacy, child malnourishment, maternal mortality, among others, including its poorer South Asian neighbors as evidenced from table 1.[2]

TABLE 1
BRICS development indicators

	Brazil	Russia	India	China	South Africa
Real income (GNI per capita) 2012	10,152	14,461	3,285	7,945	9,594
Longevity (life expectancy at birth) 2012	73.28	70.16	67.80	74.98	49.56
Literacy (mean years of schooling) 2012	7.2	11.7	4.4	7.5	8.5
Infant mortality (deaths per 1000) 2012	13	9	26	12	33
Maternal mortality (maternal mortality ratio) 2012	69	24	190	32	140

Source: HDI, 2013; CIA World Fact Book; World Bank.[3]

1. Consulting Editor, Seminar Magazine.
2. Human Development Report, 2013.
3. Human Development Report 2013, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html>, <http://data.worldbank.org/indicator/SH.STA.MMRT> and <http://data.worldbank.org/indicator/SP.DYN.IMRT.IN>.

This brief note discusses a few recent attempts at speeding up progress in poverty reduction and ensuring a process of development that is more socially and economically inclusive, both through an enhanced allocation of public resources for social sector programs as well as introducing, for the first time, a regime of legally enforceable entitlements guaranteeing access to employment, basic education and food. Even more innovative and daring is the official recognition of the role of democratic politics – political parties, social movements and civil society actors – both in educating and mobilizing affected citizens to demand their rights and for sustaining pressure on the state to deliver on its commitments.

INTEGRATING GROWTH AND DEVELOPMENT

Before discussing India's recent record in poverty alleviation and ensuring inclusive development, it is important to keep in view the different reactions to rates of economic growth. After averaging between 8% and 9% growth for close to a decade, in recent years India's GDP growth has slumped to around 5%, a reflection of the moderating of growth in the global economy (table 2).

TABLE 2
Annual GDP growth rate

	India	World average
2005	9.3	4.7
2006	9.3	5.3
2007	9.8	5.2
2008	3.9	3.1
2009	8.5	0.7
2010	10.3	5.1
2011	6.6	3.8
2012	4.7	3.1
2013	4.4	3

Source: World Bank data; Index Mundi.[4]

Yet, while this 5% figure would be welcomed with ecstasy, perhaps in Europe, it invokes dismay in India. More critically, it generates huge pressure from influential sections to drastically cut back on provision for "what is decried as wasteful expenditure on unproductive investments" and further deepen business friendly pro-market policies. Even while recognizing the importance of high and sustained growth, such a discussion sidesteps concerns about the character of the growth process, including its equity and sustainability.

4. Available at: <http://goo.gl/jpjyLQ> and <http://goo.gl/2UIkcV>.

There is little dispute that starting with the phase of economic reforms two decades ago, India has experienced substantial success in both raising GDP growth rates and in poverty reduction. Estimates vary, but using the official poverty line, most agree that the proportion of poor in India have come down from a high of over 45% to around 28% today. But as critics point out, not only is the cut-off point very low, a large number are clustered around the poverty line. This implies that depending upon the vagaries of their situation, many people can easily slip back into poverty. Further, if we double the cut-off level, still low, the figure would rise to around 80% (2004-2005). This both demonstrates the fragility of the poor as it also highlights the distance the country needs to cover.[5]

Equally significant is the fact that while the top one-fifth of the population has significantly improved its living standards, the story for the underprivileged groups has been less exciting. Between 1993-1994 and 2009-2010, average per capita expenditure in rural areas grew at only around 1% per year, and even in urban areas, the rate was a measly 2% per year. Moreover, barring the last five years or so, the growth of real wages in agriculture on which close to two-thirds are dependent was virtually zero. The situation for the casual, "unskilled" workers also remains relatively dismal. This, incidentally, stands in sharp contrast to China, where real wages in manufacturing grew at around 12% per year in the first decade of this century in contrast to 2.5% in India (table 3).

TABLE 3
Average real monthly wages (2005-2009)

	2000-2005	2006	2007	2008	2009
Brazil	-1.7	4.0	3.2	3.4	3.2
Russia	15.1	13.3	17.3	11.5	-3.5
India	2.6	0.4	-0.6	6.3	-
China	12.6	12.9	13.1	11.7	12.8
South Africa	-	-	1.0	0.0	3.5

Source: Global wage report 2010-2011.

Central to understanding the paradox of relatively high growth accompanied by poor progress in social indicators is both the impact of income distribution as well as the use made of public revenue generated by economic expansion. Or to put it differently, has India managed to successfully deploy public resources for the enhancement of social welfare and thus improve the capabilities of its citizens, particularly those at the bottom of the ladder.

5. A. Kotwal, B. Ramaswami and W. Wadhwa, Economic liberalization and Indian economic growth: what's the evidence, Journal of economic literature, n. 49, 2011.

In part this is because our planners remain divided on how to address both the *constructive role of the market* and also the *constructive role of the state*. The weaknesses on the former, impact initiative, efficiency and coordination of complex economic operations, the failure on the latter, has resulted in a sluggish response to remedying our underdeveloped social infrastructure, particularly in health, education, sanitation and so on and in building a system of accountability and collaboration for public services. It is the latter, which best explains our patchy record on meeting social development, and thus social protection, targets.[6]

In comparative perspective: How does the Indian experience compare to its BRICS (Brazil, Russia, China, South Africa) counterparts? While all those countries have large populations, India is not only much poorer (its per capita GDP adjusted for purchasing power parity is less than half of China, one-third of Brazil and a quarter of Russia), unlike the others who have achieved near universal literacy in the younger age groups, one-fifth of all Indian men in the 15-24 age group are unable to read or write, as are one-fourth of all women in the same age group. More than 40% of its children under the age of five are malnourished and an astonishing 40% stunted (table 4).

TABLE 4
Child development and literacy (2013)

	2013			
	Children below 5		Literacy rates	
	Stunted	Underweight	Male	Female
Brazil	7.1	2.1	97	98
Russia	13x	4x	100	100
India	47.9	43.5	82	65
China	9.4	3.4	100	100
South Africa	23.9	8.7	98	99

Source: World health statistics 2013 (PART III: global health indicators,[7] Unicef: Improving Child Nutrition.
Obs.: X-denotes years other than that of the table.

Thus, India's catching up has to do not only with per capita GDP but public services, social support and economic distribution. As Amartya Sen never tires of pointing out, India, in BRICS, is the only one that has not as yet gone through a phase of major expansion of public support or economic redistribution. China made enormous progress towards universal access to elementary education, health care and social security much before embarking on market-oriented economic reforms. So, incidentally did the former Soviet Union.

6. For a detailed exposition, see, J. Dreze and Amartya Sen, An Uncertain Glory: India and its Contradictions. Allen Lane, Penguin, 2013.
7. Available at: <http://goo.gl/HwBRpS>.

Interestingly, Brazil, moving away from its earlier high growth-high inequity path, following the promulgation of a democratic constitution in 1988, moved in a major way towards a more inclusive approach based on active social policies – free and universal health care, programs of social security and income support, and major expansion in the reach and quality of elementary education. It has also followed the route of placing some of these, viz. health care, as a matter of justifiable right – a path now being experimented with by India in relation to basic education, rural employment and food. What is less noticed is that these shifts in state commitment draw on the sustained involvement of social movements, a deliberate drawing in of democratic struggles in the shaping of public policy. Equally significant has been the care exercised in the designing of social programs like the *Bolsa Família* by use of targeting, conditional cash transfers, the involvement of local self-government in management of programs, as also a funding equalization law which ensures a fair distribution of funds. All these measures have not only resulted in significant sectoral improvements but also a reduction in social inequality.[8]

Some Indian experiments

Form the very beginning as a constitutional, democratic republic, India's leadership has recognized the importance of paying special attention to the needs and aspirations of the socially, economically and politically marginalized. This is reflected not just in the Directive Principles of State Policy but also the plethora of programmes – across all sectors – designed to address the special needs of designated sections. Central to this design is the constitutional reservation – in the legislature, education and public employment – of sections classified as Scheduled Castes and Scheduled Tribes, a policy subsequently extended to social groups classified as socially and Economically Backward Classes (table 5).

TABLE 5
Reservations in India (2013)

	2013		
	Scheduled castes	Scheduled tribes	OBCS
Legislature	18.42	8.66	22.5
Education	15	7.5	27.5
Public employmenT (open competition)	15	7.5	27
Public employment (other than open competition)	16.66	7.5	25.84

Source: Niranjan Sahoo, Reservation policy and its Implementation across domains in India, Observer Research Foundation, 2009, p. 47-48.

8. Flavio Comim, poverty and inequality reduction in brazil throughout the economic crisis, ISPI analysis, n. 196, 2012.

Equally important are a range of laws to protect the interests of religious minorities. And finally, is the attempt at mitigating the discrimination against women through a range of protective legislation and special schemes to enhance access to education, health care, and employment. While, it is not possible here to discuss the overall impact of various laws and schemes, many of which had to overcome significant social opposition in an unequal and patriarchal society, it is important to both remember and build upon the legacy of social reform, itself a product of the long struggle for freedom against colonial rule. Of particular interest is the more recent attempt to move many of these concerns, as reflected in the Directive Principles of State Policy, to the realm of juridical rights.

The most significant move, implications of which are still unfolding, was the passage of a Right to Information Law which places all information about the planning and working of public programs, policies and authorities – with some exceptions particularly around issues of national security – in the public domain. As an enabling provision, which opens up state/public authority functioning to public scrutiny and questioning, the move has given great momentum to ongoing struggles and demand for accountability. Even as the law places new stress on public officials, demanding as it does a new relationship between officials and citizens it creates the possibility of greater participation in the everyday affairs of governance by, arguably, a better informed and aware citizenry.

This was followed by the Right to Education Act, which guarantees that all children receive free and compulsory education up until the eighth grade. In conjunction with a range of other schemes and programs to improve access, retention and learning, the RTE Act covers both public and private providers. Again, while it is early days, there is little denying that this concert of initiatives over the last two decades, reflecting both higher political commitment and enhanced resources, has greatly contributed to increases in enrollment and retention in schools – across social and economic demographics. Nevertheless, concerns remain, particularly about the *quality* of education, the need to improve the number and performance of teachers, and to synergize other programs of child welfare with schooling.

A special challenge before India relates to managing the diversity of provision in elementary education. Unlike other countries, which have moved to near universal schooling based on a public provisioning system (state schools), India has a large presence of private schools. Both the public and private providers reflect a huge diversity in the quality of services offered. Additionally, India faces the challenge of a growing shift in preference towards private schooling, despite higher charges. Little surprise that many recommend a system of school vouchers, leaving parents free to choose the school they would want to send their ward to, as a recipe to cure the defects of the state schooling system and restore accountability. This, in many cases, diminishes commitment to public schooling, a trend which may be

difficult to counter unless the country can significantly reform the functioning of the public education system.[9]

The problem in the health sector is even more complex and worrying. The increasing privatization and marketization of health, particularly, curative services, imposes severe public and private costs, particularly for a poor and malnourished populace. And though India has an impressive infrastructure of public health facilities, from the primary to the tertiary, as also some notable successes in preventive health (eradication of polio), there is little doubt that issues regarding health, unlike say in Brazil, reflect not just low outlays but also poor public engagement. They, for instance, rarely form part of the political programs of different parties, though of late there has been the setting up of the National Rural Health Mission, provision of free generic drugs, and some health insurance for the indigent population, which can make a difference.

Unfortunately, public discussion in India rarely engages with issues of health care, barring those concerning tertiary level curative services. The widespread and endemic malnutrition of children, the low rate of immunization, the general decline (with some exceptions) in primary health care, the lack of availability of subsidized if not free basic drugs, and the low health insurance coverage particularly in the large, informal sector has resulted in a non-healthy population (table 6). Not only does this impose serve costs on GDP growth rates, with some estimating the loss at close to 2 percentage points per year but can easily push the poor clustered around the poverty line below the already low rate. It should be remembered that expenditures on health in an eco-system dominated by private health care are the greatest cause of indebtedness amongst the poor.

TABLE 6
Health indicators

	2013					
	Government expenditure on health as % of GDP (2010 figures)	Physicians (per 10,000 people)	Nurses and midwives (per 10,000 people)	Hospital beds (per 10,000 people)	Median value of public avaibility of generic medicines	Median value of private avaibility of generic medicines
Brazil	9.0	17.6	64.2	23	0.0	76.7
Russia	6.5	43.1	85.2	97	100.0	100.0
India	3.7	6.5	10	9	22.1	76.8
China	5.0	14.6	15.1	39	15.5	13.3
South africa	8.7	7.6	-	-	-	71.7

Source: World Health Statistics 2013.[10]

9. Karthik Muralidharan. Priorities for primary education policy in India's 12th five year plan, NCAER-Brookings India Policy Forum, 2013.
10. Available at: <http://goo.gl/0btYdK>.

Recognizing the "public goods" character of the health of the people requires, first, the importance of the commitment to universal health care for the country as a whole. In this, India needs to learn from the experience of both China and Brazil. This also demands recognition that India's transition from poor to good health cannot be achieved by primary reliance on private health care and insurance. Second, there is a need to go "back to basics" as far as public provision of health care – both preventive and curative – is concerned. Third, the focus should be on preventing rather than curing disease – immunization, sanitation, public hygiene, and so on. Finally, issues of health and health care need to be brought to the centre of democratic politics. Sustained engagement becomes more likely only when an informed citizenry brings pressure upon the state to reform and deliver.[11]

Another, which has of late witnessed extensive debate has been the passage of a Right to Employment Act, resulting in the setting up of a National Rural Employment Guarantee Scheme. Alongside has been the recent Food Security Act, making available specified quantities of food-grains (cereals, pulses, cooking oil) at subsidized rates to designated sections of the population. Both legislations and the associated programs represent a significant shift in the move towards creating legal, justifiable entitlements for the deprived sections of the population. And while both the legislations enjoyed majority support in the Parliament, they have their share of critics, worried about what they claim is wasteful expenditure which not only diverts needed resources from "productive investment" but also add pressure on India's growing fiscal deficit, more so in a phase of slowing growth. In addition, there have been many criticisms about the design and implementation of these major programs.

First, guaranteed rural employment up to one hundred days per family per year to all those who offer themselves for work at specified wages. Despite leakages and inefficiency, there is little doubt that the NREGS has resulted in delivering an average employment level of about forty person days per household per year through an expansion of public works programs. Though small in scale, this has resulted in enhanced awareness of minimum wages, a substantial increase in rural wages, reduced poverty and added to family incomes and, since the prime takers of the scheme are the poor and women, reduced social inequality. Alongside this scheme, the additional creation of productive assets in rural areas has also been created. Nevertheless, there is significant and valid concern about design and implementation inefficiencies, which, if left unaddressed, could substantially erode support for the programme.[12]

Similar concerns mark the working of the food security system, operated primarily through a public distribution system of fair price shops. The major debate here has been on whether the scheme should be universal or targeted exclusively to sections classified as poor, i.e., those falling below the poverty line. The latter

11. Gita Sen, Universal health coverage in India: a long and winding road, Economic and political weekly, 25 Feb. 2012.
12. Reetika Khera (Ed.). The battle for employment guarantee. Delhi: Oxford University Press, 1011; Shylashri Shankar; Raghav Gaiha. Battling corruption: has MGNREGA reached India's rural poor? Oxford University Press, Delhi, 2013.

raises worries not only because of possible exclusion errors, which are serious, but equally because it fails to ensure a "buy-in" from relatively better-off sections without whose support it is usually difficult to reform public provisioning. There is also a vigorous debate whether the "subsidy" should be in kind or as a conditional cash transfer to the targeted population, leaving it free to choose the source of supply public or private – as also what it wants to spend the money on (tables 7 and 8).[13]

There is little doubt that the existing Public Distribution System needs major reform. Fortunately, there are enough positive experiences related to design and implementation both from within the country and elsewhere, which need to be studied and built upon. To shift reliance to the market and private suppliers by moving to a system of cash transfers may turn out be hazardous given the unevenness in food markets as also unequal power relations within households which often result in moneys being spent on undesirable activities. More than getting trapped between "cash or kind", the need is to put in place an effective system of income support and economic security, whether based on cash transfers or the PDS or a combination of the two.

TABLE 7
Planned versus non planned expenditure

	2004-2005 to 2007-2008	2008-2009 to 2011-2012	2012-2013	2013-2014
Planned expenditure	14.0	19.5	4.1	29.4
Non planned expenditure	10.4	18.2	13.3	8.0
Subsidies	12.9	35.1	18.2	-10.3

Source: Union Budget of India 2013-14: An Assessment.[14]

TABLE 8
Subsidies in India

	Total subsidies (amount in billion)							
	2011-2012		2012-2013 (BE)		2012-2013 (RE)		2013-2014 (BE)	
	Amount	Per cent to GDP	Amount	Per cent to GDP	Amount	Per cent to GDP	Amount	Per cent to GDP
Total Subsidies	2,179.4	2.4	1,900.2	1.9	2,576.5	2.6	2,310.8	2.0
Food	728.2	0.8	750.0	0.7	850.0	0.8	900.0	0.8
Fertiliser	700.1	0.8	609.7	0.6	659.7	0.7	659.7	0.6
Petroleum	684.8	0.8	435.8	0.4	968.8	1.0	650.0	0.6
Interest subsidy	50.5	0.1	79.7	0.1	74.2	0.1	80.6	0.1
Other subsidies	15.7	0.0	24.9	0.0	23.8	0.0	20.5	0.0

Source: Union Budget of India 2013-2014: an assessment.[15]
Obs.: RE-Revised Estimates, BE-Budget Estimates.

13. John Dreze; R. Khera, Poverty and the public distribution system. Mimeographed. Delhi :Institute of Economic Growth, 2013.
14. Available at: <http://goo.gl/14rSW3>.
15. Available at: <http://goo.gl/8Hwgnf>.

There is little doubt that, overall, in its six decade history as an independent, democratic republic, the country has made reasonable progress in reducing levels of poverty and enhancing the social security of the poorer and socially marginalized segments in society. True, much still remains to be done and democratic engagement with these issues needs to be strengthened if the "fragile and uncertain" progress is not to suffer a setback. Central to this process is to deepen the understanding that expenditures on social security programs are not a luxury but rather essential in a country which is still poor. Equally, while one should be agnostic about the preferred mode of provisioning – public or private – to give in to a market fetishism can turn out to be dangerous, not merely because of prevailing inequalities in resources, entitlements, skills and social status, but also because market mechanisms are poorly equipped to deal with and equitably allocate social and public goods.

It helps that India is a vigorous electoral democracy, where a relatively free media and the freedom to organize in a variety of forums gives the opportunity to engage in public reasoning and generate pressure to influence public policy. Equally, it is critical that Indian scholars and policy makers move out of their somewhat obsessive focus with the country, not fall prey to arguments of Indian exceptionalism, and learn from experiences, both within the country and elsewhere, to improve the functioning of its systems and instrumentalities. It cannot be strongly enough emphasized that well-functioning public services can make a big difference to people's lives.

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CHAPTER 23

A QUIET REVOLUTION IN SOCIAL POLICY? A CASE STUDY OF A COMMUNITY WORK PROGRAM (CWP) IN RURAL SOUTH AFRICA[1]

Edward Webster[2]
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Armando Barrientos and David Hulme (2009) suggest that a "quiet revolution" is taking place in social policy in the Global South. They argue,

> Social protection is now better grounded in development theory, and especially in an understanding of the factors preventing access to economic opportunity and leading to persistent poverty and vulnerability. The initially dominant conceptualization of social protection as social risk management is being extended by approaches grounded in basic human need and capabilities (*op. cit.* p. 439).

In practice, this has involved the "rapid up-scaling of programs and policies that combine income transfers with basic services, employment guarantees or asset building" (Barrientos and Hulme 2009, p. 451). Many of these programs and policies have been dismissed by the left as neo-liberal (Barchiesi, 2011; Satgar, 2012) and tokenistic (Bond, forthcoming). The question raised by our research is whether, as Ferguson (2009, p. 173) provocatively puts it,

> Can we on the left do what the right has, in recent decades, done so successfully, that is, to develop new modes and mechanisms of government? And (perhaps more provocatively) are the neoliberal "arts of government" that have transformed the way that states work in so many places around the world inherently and necessarily conservative, or can they be put to different uses? To ask such questions requires us to be willing at least to imagine the possibility of a truly progressive politics that would also draw on governmental mechanisms that we have become used to terming "neoliberal".

The growing institutionalization of social assistance as a right through intense political struggle is the story in India, Brazil and South Africa. James Ferguson (2009, p. 167) suggests that this, "redefines groups in poverty as citizens (social citizens).

1. This paper is drawn from an edited volume on India, Brazil and South Africa, *Building New Spaces: responses to Insecurity in the Global South,* edited by Khayaat Fakier and Ellen Ehmke, 2014.

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A deepening of democracy follows". The Bolsa Família program in Brazil is thought to be the biggest social transfer scheme in the world, and presently covers some 46 million people at a cost of about 0.4 per cent of GDP (Cichon, Behrendt and Wodsak, 2011, p. 15). The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in India entitles every rural household to one hundred days of work per year. The budget for this imaginative guarantee of employment in 2006-2007 was 0.33 per cent of GDP (Chakraborty, 2007). The Community Work Program (CWP) in South Africa provides two days a week of public employment, in a scheme similar to the MGNREGS in India.

These emerging welfare regimes are different from the European welfare state that was constructed around the equal contribution of three pillars: permanent full-time employment, a strong professional public service and the nuclear family. Instead, the emerging welfare regimes of the South, what Ian Gough (2004) calls informal security regimes, rely on informal work as well as a variety of livelihood strategies such as street trading, the extended family, and the villages and communities within which they are embedded. However, these schemes merely temporarily alleviate the conditions of the poor; they do not enable the poor to escape poverty. Unlike the social assistance schemes in South Africa and India, the focus of Bolsa Família is not on providing jobs for the unemployed poor. Instead this scheme and its predecessors focus on a combination of income grant and means to enhance "human capital" development. This means-tested cash benefit is attached to certain conditions, mainly school attendance and health checks for children.

1 SOCIAL POLICY IN SOUTH AFRICA

There have been a number of changes introduced in South African social policy since the transition from apartheid to democracy. The most recent is the Community Work Program (CWP) which is an extension of the Expanded Public Works Programme (EPWP) and its intent is to straddle the divide between social and economic policy. The emphasis is on providing regular access to a minimum level of work, on a predictable basis, as an employment "safety net". The focus on regular work is intended to provide participants with a predictable earnings "floor", because a sustained increase in incomes is more likely to contribute to a sustainable improvement in nutrition, health and school attendance (Philip, 2010).

2 THE COMMUNITY WORK PROGRAM (CWP) IN SOUTH AFRICA: AT THE INTERFACE OF SOCIAL AND ECONOMIC POLICY

In 2007, a CWP pilot programme to test the approach was implemented under a partnership between the Presidency and the Department of Social Development (DoSD), who constituted a steering committee and provided oversight.

2.2 The CWP is structured as follows:

1) Provides access to a minimum level of regular work: 2 days a week (100 days a year) at a wage rate of R67.00 per day.
2) Is area-based and intended to be on-going, which allows it to target the poorest areas, where market-based jobs are unlikely to come any time soon.
3) Uses community participation to identify "useful work" and priorities.
4) Decides on work in Ward Committees or local development forums. It is multi-sectoral and contributes to public/community goods and services.
5) Start-up scale: 1,000 participants per site.
6) Budgets for each CWP site are spent at a ratio of 65:35 on wages to non-wage costs.

3 A CASE STUDY OF THE SOCIO-ECONOMIC IMPACT OF THE CWP IN KEISKAMMAHOEK[5]

Keiskammahoek is a rural site in the Eastern Cape, one of the poorest provinces in South Africa. This community is a sending site on a migratory route to more developed areas in the country. Job losses in urban centers and economic policies centered on strengthening urban economies, has meant less migration from these areas and a simultaneous collapse of the rural economy. Unemployment is at 78% in this community.

4 A BASIC PROFILE OF CWP PARTICIPANTS

TABLE 1
General profile

	Keiskammahoek
Gender	64,5% (71N) Female
Age	46,4% (51N) 36-50 year olds
Education	72,7% (80N) grade R-11
Employment history	67,3% (74N) no regular/fulltime job before 73,6% (81N) Unemployed
CWP Sector	19,1 % (21N) Environment and agricultural programme

Source: Webster, E. *et al*. (2011).

Table 1 represents a typical CWP participant: the majority is women with little education who work in the environmental and agricultural sector, e.g. cleaning community areas and food gardens. In Keiskammahoek, the majority (46%)

5. The survey was undertaken of a sample of by Jacklyn Cock, Khayaat Fakier, Kay Jaffer, Mansoor Jaffer, Anthea Metcalfe, Edward Webster and Thembeka Zonke. For an outline of the methodology see Webster *et al*. (2011).

are between 36 and fifty years old. The age and sex distribution of the participants suggests that the social category which experiences the highest unemployment in South Africa, the male unemployed youth remains a challenge for CWP. South Africa's youth unemployment is much higher than in most developing countries (ILO, 2010). In South Africa, 72% of long-term unemployed people are between15-34 years. They also form 71% of South Africa's discouraged work-seekers (Durieux, 2010).

> Youth unemployment is a matter of concern on a number of levels. The literature notes effects such as an increase in depression rates, crime, anti-social behaviour and transactional sex (Durieux, 2010). Other negative consequences are the loss of productive resources, and eventual wholesale deterioration of human capital (Kingdon and Knight, 2000). One of the attempts to deal with this national problem was the EPWP, and 40% of EPWP workers came from this target group, while in Keiskammahoek 36.4% of CWP participants were younger than 36 years. As table 1 shows, nearly 63% in Keiskammahoek never had full-time work before.

While economists usually focus on the economic impact, economic multipliers, of job creation, there are also social multipliers associated with job creation (Forstater, 2009). We have therefore separated the impact that the CWP has on the lives of participants into economic and social effects. As the discussion below illustrates, these effects cannot be disentangled easily in terms of the benefits of this programme.

5 ECONOMIC IMPACT OF THE CWP

5.1 Regular and predictable income

Participation on the programme ensures a consistent income of R480 a month for eight days of work on the programme. For many households, this has become the main source of income. Table 2 illustrates that additional income constitutes for most of the CWP participants less than R500 a month, significantly accounted for by social transfers of which the Child Support Grant constitutes an overwhelmingly major contribution.

Although all respondents stated that the income of R480 a month was too little, the majority reported that with this income it was possible to plan their expenditure for the month and that it lessened their anxiety about how to procure food for themselves and their dependents. Having access to the produce of the vegetable gardens grown by the CWP, as will be discussed below, had been noted by CWP participants to contribute greatly towards their ability to stretch their incomes. Some participants reported the increased ability to save from this income.

TABLE 2
Income

	Keiskammahoek
CWP income	R480 per month for 8 days of work
Additional income	80% (88N) <R500 monthly
Additional sources of income (social grants)	51% (56N) grants
Child support grants (R250 per month)	96% (55N)

Source: Webster, E. *et al*. (2011).

5.2 Attempts to secure the future

CWP participants attempt to create a more secure future by saving some of their income and looking for jobs. A small segment of CWP workers are able to save some of their income (table 3). This ability is enhanced by the fact that all participants have bank accounts, which makes savings easier. The biggest reasons for saving was for educational purposes, either for improving respondents' own qualifications, that of their children or for a "rainy day". However, on the whole CWP respondents felt that their income from this programme was too small for savings.

TABLE 3
Securing the future

	Keiskammahoek
Saving of CWP income	24,5% (27N)
Amount saved	44% (12N) > R 100 41% (11N) between R101 and R200
Looked for work in previous 7 days	12,7% (14N)
Used CWP income to look for work e.g. Transport	50% (7N) 28% (2N)

Source: Webster, E. *et al*. (2011).

A small segment of the study sample was optimistic about finding jobs (12.7%); half of them using their CWP income to do so. Follow up interviews show that respondents are aware of the local labor market; that there simply are no jobs available for those not qualified to teach, serve in the police force or able to start up cooperatives.

5.3 Food security

By far the greatest positive impact of the CWP is in how it assists CWP participants to achieve food security. Nearly 90% of participants had access to the produce of community vegetable gardens, while another significant segment of the sample had vegetable gardens planted and maintained at their homes (table 4).

TABLE 4
Food security

	Keiskammahoek
Communal CWP vegetables gardens	87% (96N)
Vegetable gardens at home	77% (85N)
Daily consumption of vegetables	69% (76N)
Consumption of meat	72% (80N), max 2x a week

Source: Fakier, K. (2014).

The households of CWP participants follow a diet similar to the many poor households in South Africa that survive on low protein, high starch diets.[6] However, their reported vegetable intake is significantly higher than that of other poor households in South Africa (Statistics South Africa, 2008). An increased consumption of vegetables is significant in a country context where "one in five children in South Africa under the age of nine suffers from stunted growth as a result of malnutrition" (Labadarios *et al.,* 2008). Chronic malnutrition, according to a matron at the local SS Gida Hospital in Keiskammahoek, is at the root of the high levels of diabetes amongst middle-aged and older people. This lifestyle disease is difficult to treat when sufferers are unable to afford healthy diets and, instead, worsens because their diets consist primarily of starches, such as maize and wheat.[7] Vegetable gardens, therefore, are a resounding success in these poor communities, even more so because they benefit communities as a whole through school feeding schemes, hospitals and needy individuals receiving produce from CWP vegetable gardens.

An important point that emerged in the research is that even though the literature on public employment schemes tends to focus on economic impacts, it is in its social impact that the CWP is more successful. CWP participants overwhelmingly reported a greater sense of belonging and commitment to their community, i.e. social cohesion.

6 SOCIAL IMPACT OF THE CWP

Social cohesion has been described as the degree to which members of a society feel that they belong to that society, participate in its operation and work toward its well-being (O'Brien, 2008). It has also been argued that "we must prioritize community building over the next two decades as foundations for a robust and lasting democracy" (Njabulo Ndebele, 2010). The CWP goes some way towards building social cohesion as noted by one of the Keiskammahoek participants, "CWP is where we build each other".

6. See Fakier and Cock (2009).
7. Interview: SS Gida Hospital, 16 February 2011, Keiskammahoek.

6.1 Enhanced quality of personal relations

Table 5 demonstrates how the CWP has changed the general quality of personal relations in Keiskammahoek. Most significantly, the quality of daily life has been improved with increased, deeper relationships with others in their communities. In response to questions about sharing problems and getting advice from new friends, the most common shared problems were domestic, financial and work-related issues.

TABLE 5
Enhanced quality of personal relations

	Keiskammahoek
Making new friends	73.6% (81N)
Sharing personal problems and grievances	78% (86N)
Improved trust since CWP was introduced	69% (76N)
Improved safety due to collaboration between CWP and Community Policing Forum	68% (75N)

Source: Fakier, K. (2014).

It is clear that with regard to personal relationships, the CWP has made a significant difference. In addition, even though increased trust was not statistically as significant as other social indicators, the figures for increased trust are quite high for a low trust society such as South Africa and could also be attributed to the improvements in safety and security the CWP has facilitated.

Table 5 shows a sense of improved safety reported by CWP participants confirmed in interviews with school principals and the head of the police station in Keiskammahoek. Collaboration with Community Policing Forums (CPFs) is one way in which the needs and active involvement of community members were integrated into the work of other institutions (police force) and civic associations, community members were especially grateful that the removal of overgrown vegetation by the CWP participants had provided greater safety. The seemingly simple task of clearing bushes obscuring the view of motorists in some areas, and, in other areas, preventing parents from watching their children going to school or running errands, was one which neither the police nor local municipal services had addressed in the past.

6.2 Solidarity and the ethic of care

Solidarity and the ethic of care have been strengthened in these communities through the support provided by vegetable gardens to institutions for the needy and the frail, such as creches and old age homes. An "ethic of care" refers to a connection to, and involvement with, extra-family others that has a significant influence on the quality of collective social life (Cockburn, 2005). We accompanied CWP participants to

the homes of a couple in their late 70s caring for their mentally disabled daughter and her children, a grandmother working on the CWP caring for fourteen other dependents, and a woman in her 80s who was found living alone in a state of severe malnutrition and neglect. Support for households such as these entail cooking and cleaning, collecting medicines for those who are bedridden, and food parcels and clothing for child-headed households and other needy individuals.[8]

TABLE 6
Solidarity and ethic of care

	Keiskammahoek
Support for the vulnerable in the community	72,5% (79N)
Vegetables from CWP gardens	83% (89N) said they are used to cook for school children and creches, given to sick, orphans and elderly

Source: Fakier, K. (2014).

The CWP has been supporting the activities of volunteers such as that of a group of six unemployed women who operate in Rabula, one of the villages in Keiskammahoek, on an entirely voluntary basis, i.e., for no compensation instead using their own resources to care for others in their village. Members of the Rabula Volunteers Association (RVA) go into the homes of the frail and child-headed households and bathe, dress and cook for them. They also adopt youth offenders upon their release from penitentiaries hoping that "simple, village life" would prevent them from returning to lives of crimes and drugs. With their own meager financial resources they help people with the process of applying for social grants, give them money for transport to schools and hospitals and act as interlocutors for many illiterate people with impersonal government departments.

Through involvement in a HIV/AIDS support group, which comprises nurses and social workers at the SS Gida hospital, members of the RVA and CWP workers who are living with HIV/AIDS or caring for people living with HIV/AIDS, the RVA uses the social infrastructure laid down by the CWP to improve their ability to help the needy. The CWP's involvement allows the support group to sell some produce from their vegetable gardens to fund their activities. SS Gida hospital also gets vegetables for use in its kitchens from the CWP. This situation allows the manager of the CWP programme to get the matron and social worker of the hospital to run a training programme for the RVA to improve their skills in helping the needy.

In addition to the support for caring for people, the research team noted the great care for the environment and natural resources undertaken by CWP participants. More than 80% of work identified by the CWP programme as "useful

8. See Fakier, K. 2014 for a discussion of how the existing ethic of care in communities is enhanced by the CWP.

work" is in the environmental sector. Activities such as tree planting, creating parks, community clean-ups, removing alien vegetation, bush clearing, preventing soil erosion, fixing dam walls have contributed greatly to environmental improvement especially in drought-stricken Keiskammahoek.

6.3 Deepening democracy

CWP uses existing ward committees in the different sites (or agreed-upon development forums) to identify "useful work". One of the main outcomes of the CWP broadly, has been that it has from inception focused on social dialogue at the community level. While structures for local democracy exist in South Africa in the form of ward committees, the CWP has brought them closer in terms of the actual needs of people in extreme poverty. In each site there is an active Reference Group for the CWP, which draws in councilors, officials from the local municipality, relevant government departments, ward committee representatives and other community leadership.

At a very practical level, the CWP strengthens the ward committees and local government. Through Reference Groups, alignment with local government and the Integrated Development Plan (IDP) is enhanced. The IDP is a yearly plan by local municipalities to deliver their goals. However, it often goes off track soon after the beginning of the year and community involvement is seldom sustained. Alignment with the fortnightly meetings of the CWP energizes local structures and ensures year-long involvement and implementation of the IDPs (Luvhengo, 2010). At the same time, the CWP itself is also strengthened and benefits both from an institutionalized link to the structures and budgets of local government and the insights and expertise of reference group members. The deepening of democracy through close alignment of local goals with those of the community means that 97% of the respondents on the study felt that community services and infrastructure in Keiskammahoek has improved as a result of the activities of the CWP.

7 CONCLUSION

Shaping the debate on whether cash transfers – in the form of social grants and public works programs – could lift people out of structural poverty, Ghosh (2011) is emphatic that social assistance on its own will not adequately deal with the poor. Instead, she argues, by attempting to eradicate poverty with a single instrument such as cash transfers, a static view of poverty is assumed. Inspired by Ghosh, Razavi (2011, p. 1) points out that instead of social assistance being the magic bullet to cure the inequality caused by poverty, what is needed is an alternative "broad" agenda, because social assistance cannot be "a substitute for *decent employment,* which needs a different macroeconomic policy agenda and the strengthening of labor market regulations (e.g. on minimum wage) (…) [nor] for *pro-active public care services* and other social provisions (e.g. infrastructure to reduce the drudgery of domestic work) that are essential for women to access labor markets".

In South Africa, while care work has been taken into the public sphere as "voluntary" work performed by women, the ethic of care as practiced by women on the CWP remains in the private sphere. The CWP does this by reducing the costs of nutrition and has the potential to facilitate training of community care providers and provide the organizational infrastructure for care. However, the CWP still has some way to go toward fully answering the intense need for care in poor communities.

A crucial question raised by this research is whether policies such as the CWP are subtly shifting away from neo-liberal policies by introducing innovative social policies. Do these innovations amount to an alternative development path? Such a path will require an alternative set of economic policies. Cosatu (2012, p. 40) clearly believes that Brazil has these policies and has "defied conventional economic prescriptions" to achieve them. "They asserted a central role for the state in the economy" in terms of driving and financing development. They put redistribution of incomes and stimulating demand at the centre of their approach, especially through raising wage levels and social protection (Cosatu, 2012, p. 40). This led to 17 million new formal-sector jobs, minimum wages rose by 67 per cent and labor law was enforced by the Department of Labor (Seidman, 2013 and CHI, 2014.[9]

The question posed by Lula's second term of government is whether Brazil is breaking with neo-liberalism and beginning to build a social democratic path in the Global South. Romano-Schutte (2013) calls it a neo-developmental state and focuses on the way it has begun to reconcile the needs of achieving growth through globalized markets with extensions of political, social and economic rights.[10] Whether it is possible to speak of social democracy in a context of high unemployment and a large informal sector must be left to another occasion.

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CHAPTER 24

SOCIAL TECHNOLOGIES AND PUBLIC POLICIES IN BRAZIL

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This note aims to document Social Technologies (STs) that have strongly influenced public policies in Brazil, as well as government efforts – through adoption/adaptation and funding – to contribute to the development and dissemination of STs. The main areas in which STs are applied (and fostered) in Brazil are adaptation to the semi-arid region and prevention of natural disasters, food security, education, energy, housing, income, water management, income generation, health and the environment.

1 SOCIAL TECHNOLOGIES: CONCEPTS AND DEFINITIONS

The term "social technologies" (STs) entails different concepts and definitions but is characterised by a common view of accommodating innovative processes thought to fight poverty and social vulnerability. STs cover broad activities ranging from microcredit with solidarity/collective guarantors to interventions that aim to contest the structure of the market economy from a more radical perspective. However, in all cases, the definition of STs encompasses aspects of innovation in the use of technologies, interaction with the community, and the potential to transform social realities and to be scaled up and replicated in other contexts.

The first definition of STs emerged in the 1970s, linked to discussions around Appropriated Technology. The latter would involve technology transfer from former colonial powers to their former colonies as a means of compensation for the economic and political exploitation of the colonial past (Fraga, 2011). This approach, however, did not question the neutrality content of the production and transfer of these technologies, focusing only on access (Novaes and Dias, 2010). The criticism of such neutrality of these technologies was later made by the pioneers of STs theories in Latin America – namely, Amilcar Herrera, Oscar Varsavky and Jorge Sábato (Costa, 2013).

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Other classical definitions of STs highlight that besides the use of technology to fight poverty and address social deficits, STs are based on the participation and empowerment of beneficiaries, including with their involvement as agents in their design and implementation (Costa, 2013). Similarly, Brava (2004) states that the defining feature of STs is the way in which the technological innovations can foster the empowerment of vulnerable groups so that these groups become agents of transformational processes in which alternative and innovative development strategies are fostered endogenously. According to Costa (2013), another feature of the STs is the right of citizens, neighborhood organizations, solidarity economic units, non-governmental organizations (NGOs), social movements and other civil society organizations to develop and appropriate/adapt technologies to the benefit of the society. By this same token, Dagnino (2010; 2012) states that STs are characterized by their capacity to "re-design" the usual technologies for their use in alternative contexts.

From a more critical perspective, one could argue that STs are solutions devised by vulnerable communities/groups using as a starting point their own perception of their problems and needs and having as inputs their resources and knowledge. STs are produced and reproduced with the aim of not alienating the agents involved. Thus, the production techniques are shared among producers, bringing together production and the producers' interests and stimulating communities' creativity. In this approach STs are a production and reproduction process with a focus on community associations and their ways of expression and organization.

Other definitions of STs such as the one of the Social Technology Institute (2004) conceptualizes STs as a way to legitimize the role of NGOs in adapting Information and Communication Technology (ICT) systems, allowing them to have access to its resources and put it to use in their area of activity. The Fundação Banco do Brasil (FBB), an important stakeholder in the promotion of STs in Brazil, highlights the singularity of STs in bringing together popular knowledge, social organization and technical-scientific knowledge to generate effective solutions that are replicable at large scale.

2 MAIN STs STAKEHOLDERS IN BRAZIL

The main stakeholders involved in the dissemination of STs in Brazil are policymakers from key research and Research and Development (R&D) funding institutions, civil society organizations, researchers and academia:

- FINEP (Funding Agency for Studies and Projects);
- BNDES (National Bank for Economic and Social Development);
- SEBRAE (Brazilian Support Service to Micro and Small Enterprises);

- UNESCO;
- Municipalities;
- FNDE (National Fund for the Development of Education) and PNAE (National School Feeding Programme);
- CONAB (National Supply Company) and PAA (Food Procurement Programme);
- NGOs such as Articulação do Semiárido Brasileiro (ASA — Brazilian Semi-Arid Adaptation Movement);
- Ministry of the Environment;
- Ministry of Health;
- MDS (Ministry of Social Development and Fight Against Hunger); and
- FBB's Banco de Tecnologias Sociais (BTS — Social Technology Database) and Award for Social Technology.

3 SUCCESSFUL STs IN BRAZIL

Two interesting examples of STs in Brazil are:

- the promotion of the home-made oral rehydratation treatment (ORT) based on sugar and salt diluted in water (*soro caseiro*) to fight dehydration and reduce child mortality; and
- the construction of pre-made cisterns that are built by communities in the semi-arid region of Brazil to attenuate the effects of the lean/dry season.

Thanks to a large state network that supports and promotes these STs, many of them have influenced public policies or became a public policy themselves. The methodology of construction of pre-made cisterns in the semi-arid region is a good example of this process. For more than ten years, ASA — a consortium of civil society organizations — has been receiving federal government support (through the MDS under its 1 million cisterns programme, P1MC) to disseminate this methodology to minimize the worst effects of the crisis (ASA Brasil, 2014a). Other institutions such as the FBB and Petrobrás (the state oil company) also support the dissemination of this technology. In addition to access to pre-paid cisterns, there is also another innovation called P1+2 (or second water) in which households in the semi-arid region that already have the cisterns for drinking and cooking receive technical assistance to build reservoirs using STs to harvest and store water for vegetable gardens and small livestock (ASA Brasil, 2014b). Also in the semi-arid region, the Agua Doce programme promotes the desalination of water for fish farming, using plants that absorb

the salt and later can be used to feed goats — the most common livestock for smallholder farmers in the region (Costa, 2013).

Other examples of STs that became public policies can be found in the strategies to support family farmers and to improve food security. Two examples are Sustainable and Integrated Agricultural Production (PAIS) supported by SEBRAE, and the Food Acquisition Programme (PAA), which has been successively modified to respond to the demands of the family farmers' social movement by purchasing a minimum of 30% of the total resources of the PNAE from family farmers (Costa, 2013).

4 THE INSTITUTIONALIZATION OF STs IN BRAZIL: THE AGENDA OF THE FBB

FBB is an important stakeholder in the identification, funding and exchange of experiences and best practices in promoting STs. Since its creation in 1985, the FBB works in the field of science and technology supporting social and research projects. In 2001 it created the BTS with a focus on investment, funding and dissemination of STs already implemented/tested, which were found to be replicable and effective in addressing social problems and challenges. To assist in this process, the FBB Award for Social Technology was created in partnership with Petrobras, BNDES, KPMG, independent auditors and UNESCO Brazil. A by-product of this award is a publicly available database that lists sustainable and replicable STs. In its seven editions the FBB Award for Social Technology has invested over BRL 3 million in the improvement of more than 500 different initiatives listed in the BTS (Jesus and Costa, 2013). In its last edition (2013), 1,011 applications were received, of which 192 were included in the database. The award comprises five distinct categories: 1) Traditional Communities, Family Farmers and Settlers of Agrarian Reform; 2) Youth; 3) Women; 4) Public Managers; and 5) Education and Research Institutions and Universities.

Since 2003, the FBB, in line with the federal government's Zero Hunger programme, has been working on the replication of STs aimed at generating employment and income in communities with a low Human Development Index.

5 THE INSTITUTIONALIZATION OF STs IN BRAZIL: FINEP, BNDES AND IPEA IN THE FUNDING OF STs

FINEP is a funding institution for R&D in Brazil, which recently joined forces with the BNDES and the Ipea to strengthen their agenda on STs. These first two institutions provide funds, while the Ipea devises ratings/rankings and undertakes competitiveness and sustainability studies.

Eight out of FINEP's eighteen programmes and funding lines are directly related to the dissemination of STs, while the remaining lines are indirectly related.

Many of these programmes make it possible for smaller firms to participate in an R&D project as business partners. There are also funds for Scientific and Technological Institutions.

BOX 1
FINEP programmes and funding lines and their capacity to support STs

	Programmes with greater capacity to contribute to and promote STs	Programmes with indirect capacity to contribute to and promote STs
1	Inovacred	Inova aerodefesa
2	Innovation in assistive technology	Inova agro
3	Inova energy	Reimbursement funding
4	Inova health	Inova petro
5	Inova sustainability	Inovar
6	Inova telecommunications	Direct investment in innovating firms
7	SIBRATEC	PAISS
8	TECNOVA	PAISS agriculture
9		Economic subvention
10		International cooperation

Source: authors' own elaboration using FINEP information.

The Inovacred programme, for example, is a fund for investment in innovation that works in a decentralized fashion based on financial agents spread across the federal units. Each financial institution offers up to BRL 80 million to support innovating firms. The values of the funded projects must be between BRL 150,000 and BRL 2 million for small to medium-sized firms (based on gross revenue) and up to BRL 10 million for larger firms. This initiative offers funds with an interest rate of 3% per year. For firms in the Northern and Northeastern regions, the final cost of operations is even lower (at the Long-Term Interest Rate (TJLP) less 1.5% per year) and a grace period of up to 96 months.

The Innovation in Assistive Technology programme, whose budget for 2014 is BRL 150 million, provides funding of amounts between BRL 1 million and BRL 20 million, with an interest rate of up to 4% per year, a grace period of 36 months and payment deferred over 84 months. These are some of the best financing conditions precisely because of the social relevance of the technology covered by this programme, which promotes the development of technology that will improve the well-being of people living with disabilities.

The Inova Energy programme, in turn, can accommodate STs more directly in its line dedicated to sustainable and hybrid smart grids, in which smaller initiatives may participate by partnering with larger companies. In this programme line, FINEP

funds up to 90% of the project value and grants a grace period of up to 36 months. For 2013-14 there has been an increase in capital of BRL 200 million, which will provide an extra BRL 1 billion of credit.

In the case of the Inova Health programme, private and state enterprises can apply for funding. The funding line N.3 is the line most directly related to STs, as it focuses on telehealth and telemedicine, particularly in relation to projects that meet the requirements of the Brazil Telehealth Network Programme, managed by the Ministry of Health. The Inova Health programme provides funds totalling BRL 3.6 billion by December 2017. The thematic line N.5 of Inova Telecommunications is also related to Inova Health, as it focuses on the development of technological solutions dedicated to telehealth.

The Inova Sustainability programme offers four thematic lines with large capacity to support STs: 1) sustainable production; 2) recovery of Brazilian biomes and fostering of forest-based sustainable productive activities; 3) environmental sanitation; and 4) environmental monitoring and prevention of natural disasters. Initiatives in this area have four instruments provided by FINEP and eleven others provided by BNDES.

The Brazilian System of Technology (SIBRATEC) is a programme with three components: Networks of Centres of Innovation (with a focus on Scientific and Technological Institutions); Networks of Technology Services (for more traditional firms); and Networks of Technological Extension (suppliers of technical assistance in the innovation process).

Finally, the TECNOVA programme promotes economic subsidies for micro and small firms. The value of the grant to be awarded to companies with FINEP resources varies between BRL 120,000 and BRL 400,000.

In addition to the programmes listed above, there are also other initiatives run by FINEP and its partners to intensify the dissemination of STs. As a result of the partnership between FINEP and the Ministry of Science, Technology and Innovation (MCTI) in the context of Rio+20 (2012), the Sustainable Brazil programme was created, offering BRL 2 billion for the development of products, processes and innovative services linked to the concept of sustainability. Among the topics covered are smart grids, renewable/biofuels energy, energy efficiency, mobility and sustainable urban transport, reduction of the effects of climate change and pollution, sustainable production (clean technologies, ecodesign) waste recycling and environmental sanitation, construction and sustainable urban infrastructure, social technologies, biodiversity and biomes, sociobiodiversity networks, and electric vehicles and/or hybrids.

For 2013-2014 a new programme named Inova Empresa was created whose selection criteria are based on three ratings prepared, respectively, by the Ipea, Serasa (credit rating bureau) and technology experts. These ratings are sets of indicators that support and make more transparent the selection process for projects to be supported by FINEP programs. The rating prepared by Ipea, made up of 86 indicators, was presented at the seminar "Social Technologies and the new Inova Empresa programme". At that event the President of Ipea and Minister of SAE, Dr. Marcelo Neri, said that the challenge for Ipea and FINEP is to collaborate to disseminate STs in the country in the areas of education, health and urban mobility, and cited as an example the microcredit initiatives in the Brazilian Northeastern region, whose experience he considers STs at a large scale.

The rating prepared by Ipea includes five dimensions: economic (net revenue and number of employees); sectoral (technological intensity and investment in R&D of the sector); spending on innovation (continuous and occasional R&D); human resources allocated to and expenditures on innovation (personnel employed in R&D); and results of innovative activities (percentage of revenue from new products, and product and process innovations).

Also as part of the Inova Empresa programme, the FINEP Innovation Award was created, which has a specific category for STs. In 2013 the Technology Foundation of Acre (FUNTAC) was the winner. This foundation has been producing male condoms using native latex from the Amazon rainforest for the last five years. Its products are distributed to all the states in the Northern region, as well as the states of Mato Grosso, Mato Grosso do Sul and the Federal District. About BRL 30 million has been invested in the project and in the factory, which produces up to 100 million condoms a year. The project strengthens the productive network of rubber, boosts the economy of the forest and generates employment and income for the rubber tree tappers.

6 STs AND THE SINGLE REGISTRY OF TARGETED SOCIAL PROGRAMS

A very important ST in Brazil is the Single Registry (CadÚnico), a database with socio-economic information on individuals and families living in poverty and vulnerability, which is the main tool for the design and implementation of public policies for that target group at all levels — namely, federal, state and municipality. As pointed out by Renato Veloso (2012):

> the Single Registry is a representative map of the poorest and most vulnerable families in Brazil, with a broad potential to be used by various social protection programs (...) It serves as an important planning tool for public policies aimed at low-income families which allows the creation of indicators that reflect the various dimensions of poverty and vulnerability, through the identification and characterization of the socially vulnerable segments of the population.

The information compiled in the Single Registry includes both data on the household (family composition, address, household characteristics, access to water, sanitation, electricity, monthly expenses and access to social programs) and data about each of the components of the family (such as civil documentation, educational attainment, occupational status and income).

More than just a tool for compiling this information, the Single Registry is characterized as an ST because of its strategy for community and local government involvement in the collection and use of these data. The information is collected by municipalities, which receive financial incentives from the central government to perform their functions and improve the quality of the registry and the monitoring of the conditionalities of the Bolsa Família programme. Once collected, the information is processed by the MDS and constantly publicized through the Social Information Matrix (MIS) — an online database — and in a series of periodic publications based on specific indicators. Moreover, the department responsible for implementing Bolsa Família (SENARC) at the MDS provides frequent training for municipal officers, and learning and knowledge-sharing of best practices in the implementation of the Single Registry, which increases municipality capacity to plan and implement public policies aimed at fighting poverty and inequality.

According to Soares *et al*. (2009), one of the main characteristics of the Single Registry is precisely how its use of ICT brings together a common database to be used by several social protection programs. According to the authors, this process was gradually built over the years, and its reach is largely associated with the unification and expansion of the Bolsa Família programme. According to Soares and Sátyro (2009), before the unification of conditional cash transfer (CCT) programs in 2003 there was no way to strengthen the Single Registry, because each CCT programme was managed by a different implementing agency, through different information management systems and without much coordination between them. Through the merger of various CCTs into Bolsa Família in 2003 it was possible to effectively unify and expand the database of poor and vulnerable households in the country.

In any case, it must be acknowledged that although the Single Registry was expanded as a result of the Bolsa Família programme, and even though the Single Registry is essential for the functioning of Bolsa Família, its importance goes beyond that programme. The Single Registry is also a tool for targeting the following federal programmes: Bolsa Verde, Minha Casa Minha Vida, Social Tariff for Electricity, Popular Telephone, Programme for the Eradication of Child Labor (PETI), Senior Citizens Card, Water for All Programme, PROJOVEM, a special pension benefit for housewives, and Emergency Assistance for Drought. Additionally, the Single Registry is also used to target several state and local municipal programmes such as

Bolsa Carioca (Rio de Janeiro City complementary programme to Bolsa Família). Moreover, the Single Registry not only includes beneficiaries of social programmes but also aims to gather information on people in vulnerable situations regardless of whether or not they are eligible for a specific social protection programme.

In 2005, with the improvement of the Single Registry management information system, this ST tool went through a cleaning process that informed the expansion of the Bolsa Família programme. In 2008 a new enhancement took place with the inclusion of specific information on indigenous communities, maroons and homeless people.

In 2009 version 7.0 of the Single Registry was launched in an attempt to make it more efficient. Produced using free software, version 7.0 supports data entry and data updating online (in real time), thus eliminating the need for data extraction and transmission. Additionally, the new version has initiated a national effort to empower municipal agents. This task was undertaken by a team of over 20,000 trainers, and resulted in the training of at least one agent per municipality that had already implemented version 7.0. It is worth noting, however, that not all municipalities currently operate with all the features of version 7.0, since it requires computers with a good, stable and fast internet connection.

Among the innovations brought about by version 7.0 it is worth mentioning the strengthening of the verification mechanisms for the uniqueness of the individuals in the registry. This is possible because the information goes directly and immediately to the national database, which can be accessed at any time by other municipalities. The new version also allows municipal managers to identify in the system the families and individuals registered by other municipalities, to change the person responsible for the family in the system (the beneficiary who receives the transfer), and to cope with families moving across municipalities without losing their benefits, losing track of their information in the system, including individuals who do not have a birth certificate in the Single Registry (without assigning an ID number), and without being considered in the calculation of the per capita family income.

The Single Registry has been so successful that today it is one of the largest sources of demand for international cooperation, particularly for countries that are developing cash transfer programs. The achievements of Brazil's social protection and food security policies have led to a major interest in sharing and adapting these experiences to other contexts. Similar interest in cooperation has also been expressed for the dissemination of the pre-made cisterns and the food acquisition programme (PAA) also discussed in this note.

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