Building Equity Through Social Sciences and Economic Policies: The Brazilian Experience

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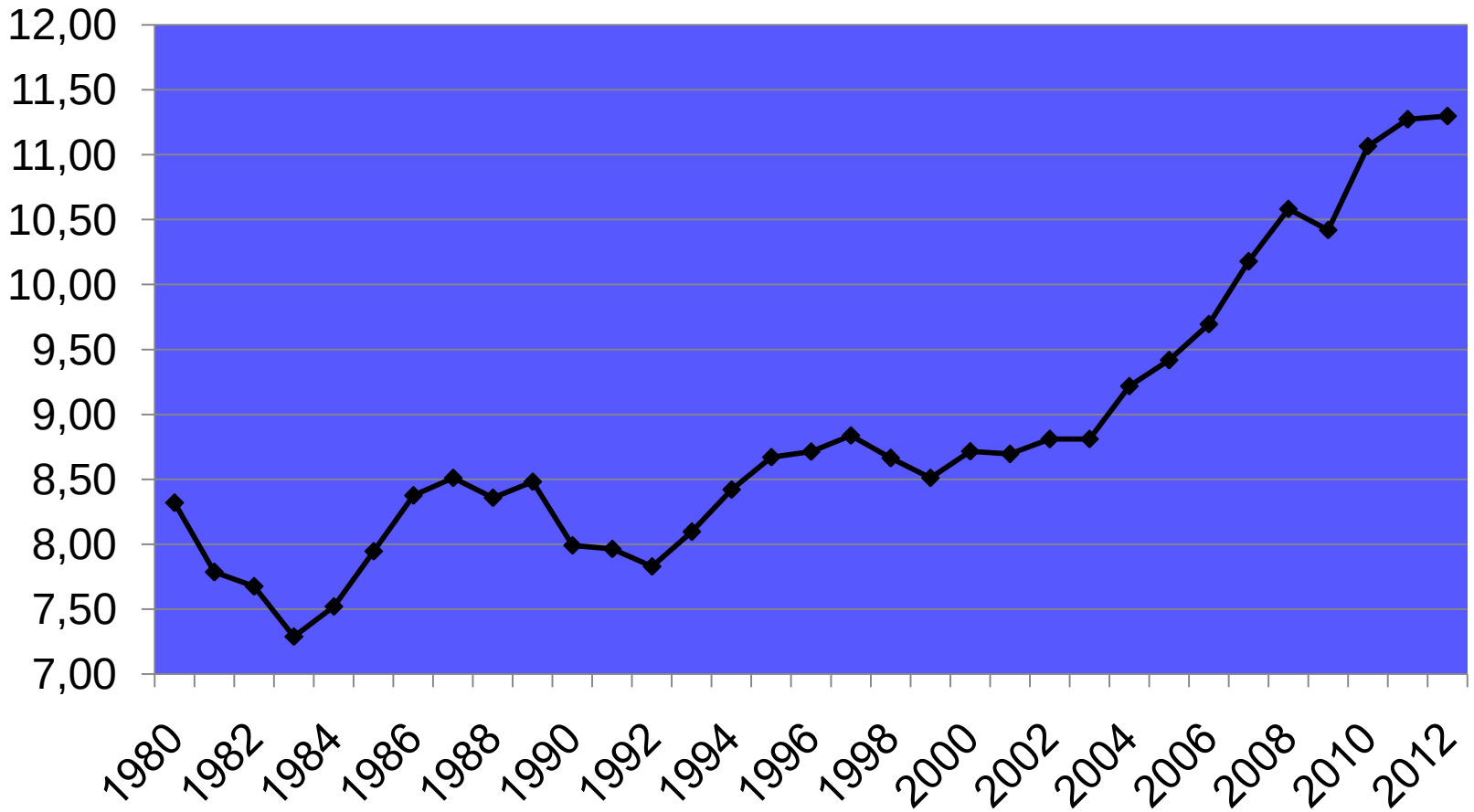
Outline

1. The stylized facts on growth, poverty and inequality in Brazil
2. The immediate determinants of poverty and inequality changes
3. The role of the labor market
4. The challenges:
    I. Demographics
    II. Productivity
    III. Education

1.The stylized facts on growth, poverty and inequality in Brazil

Stylized Fact I

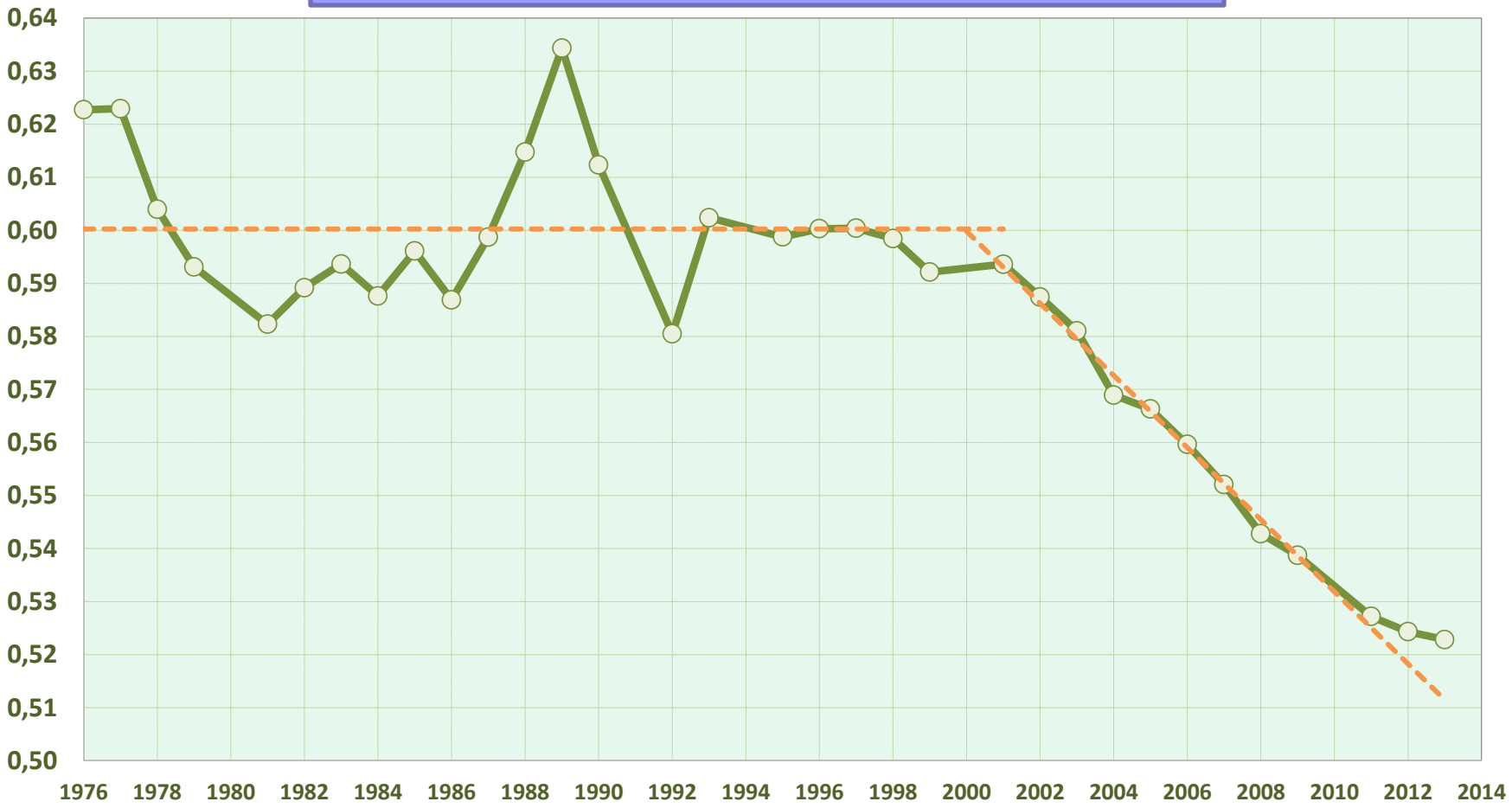
Per Capita GDP (2013 US$ Thousands) - Brazil



Source: IPEADATA

Stylized Fact II

Income Inequality – Brazil
Gini Coeficient



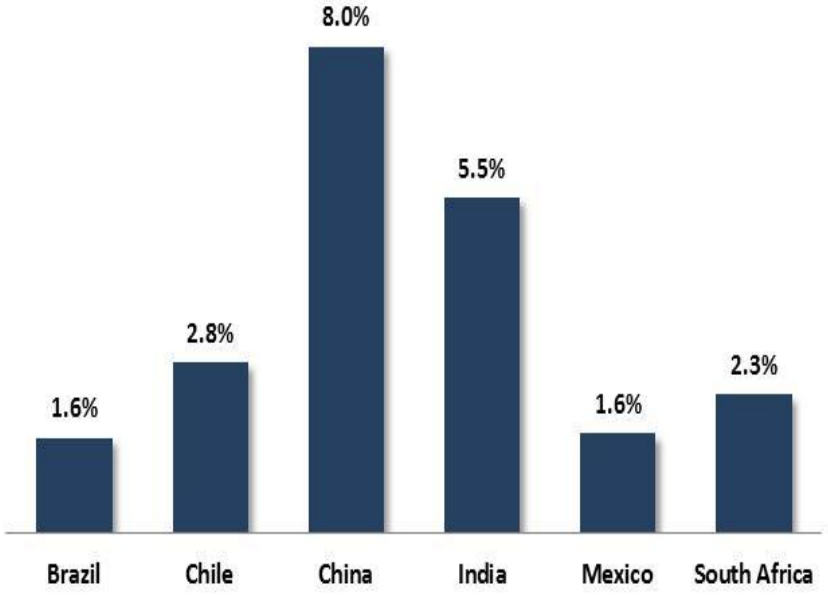
Source:SAE/PR

Stylized Fact III

Source: IPEADATA

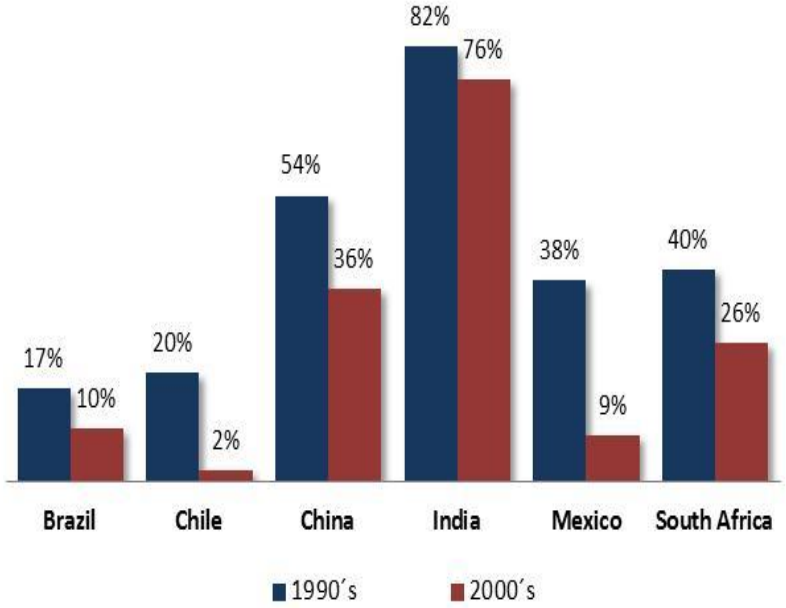
A sizeable number of developing countries have recently experienced a relatively sustained economic growth with part of the benefits accrued towards their lower income earners

Per Capita GDP Annual Growth Rate (1996-2010)



Source: Penn World Tables

Poverty Rate (Poverty Line: Below US$ 2 a day)

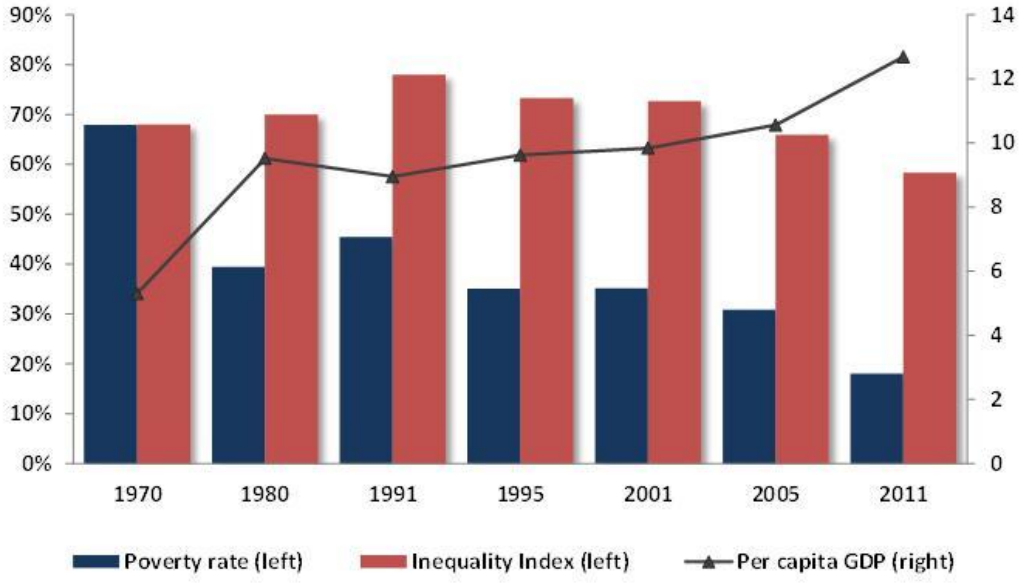


Source: World Bank

Brazil had already experienced both economic growth and poverty reduction, but with no inequality decrease

The novelty is that, in the years 2000, there are concomitant movements of higher economic growth and faster poverty and inequality decreases

Social and Economic Indicators*: Brazil (Selected Years)



Source: IPEAData

* Income data are in US$ 1,000 *per capita* (2005 prices)

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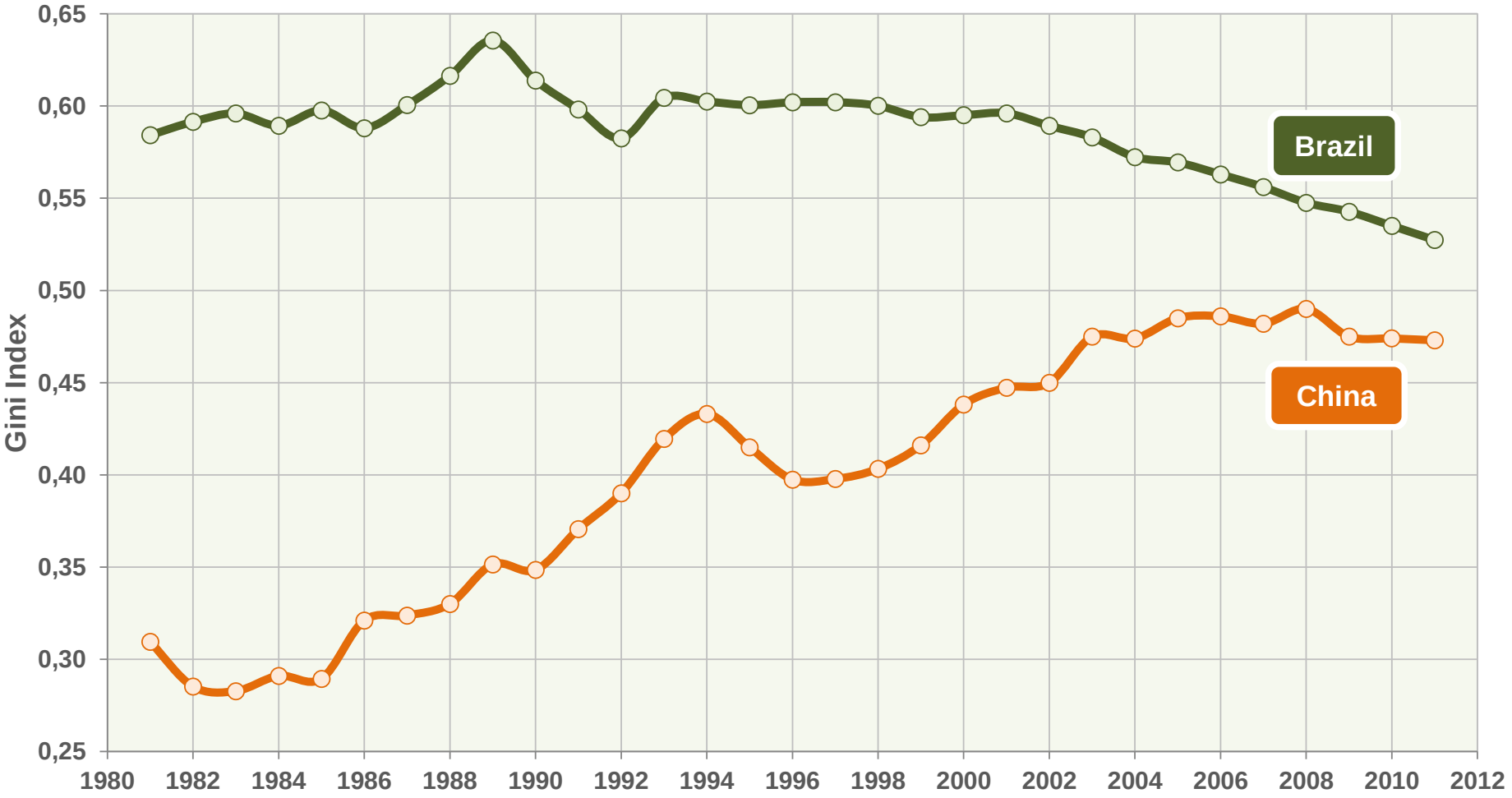
Evolution of the degree of inequality
Brazil and China: 1981-2011



Source: Brazil, SAE/PR based on IPEA for 1976-2009 (averages for the years of 1980,1991,2000) and on the PNAD for 2011.

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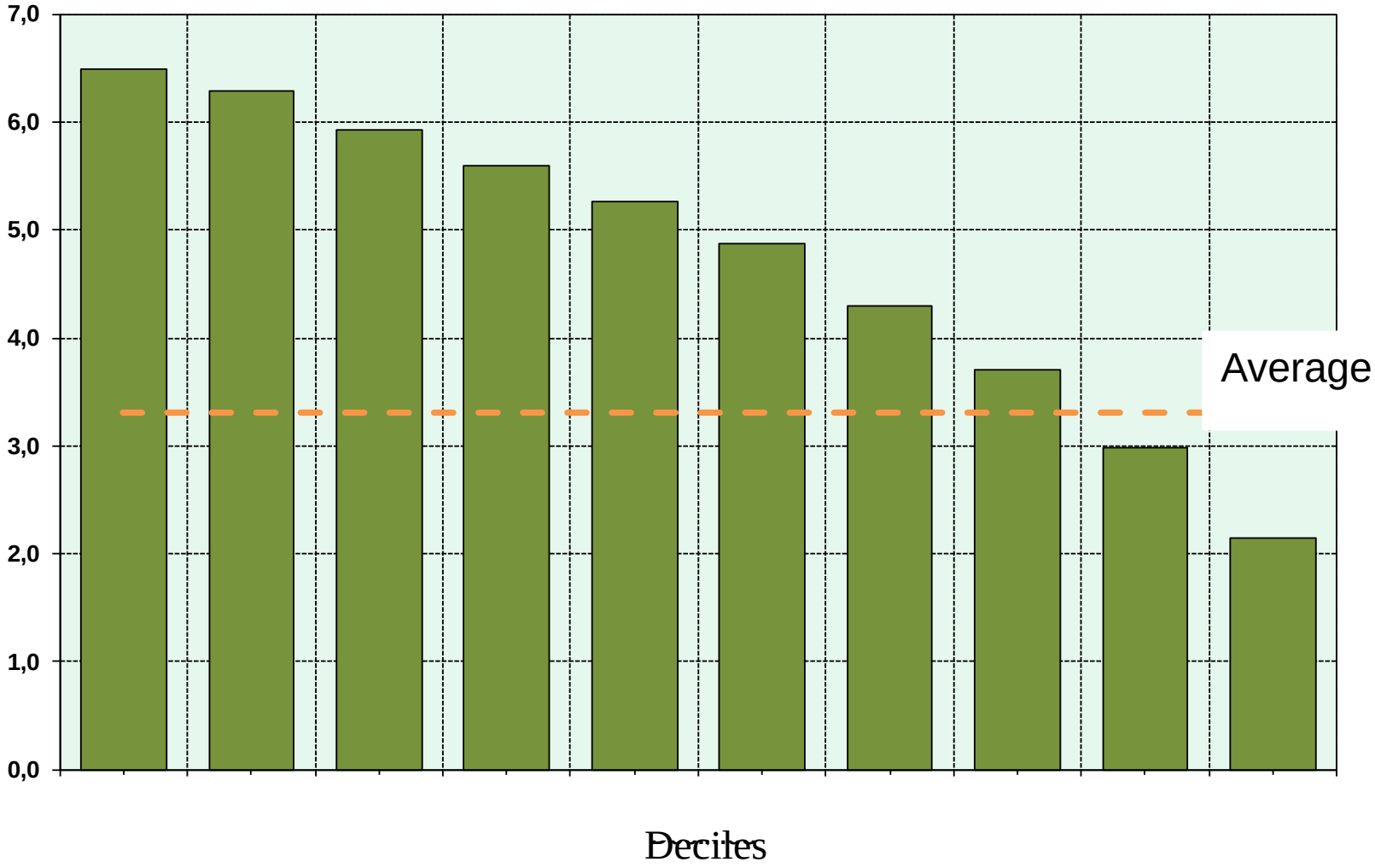
Annual Growth Rate by Income Deciles – Brazil 2001 to 2013



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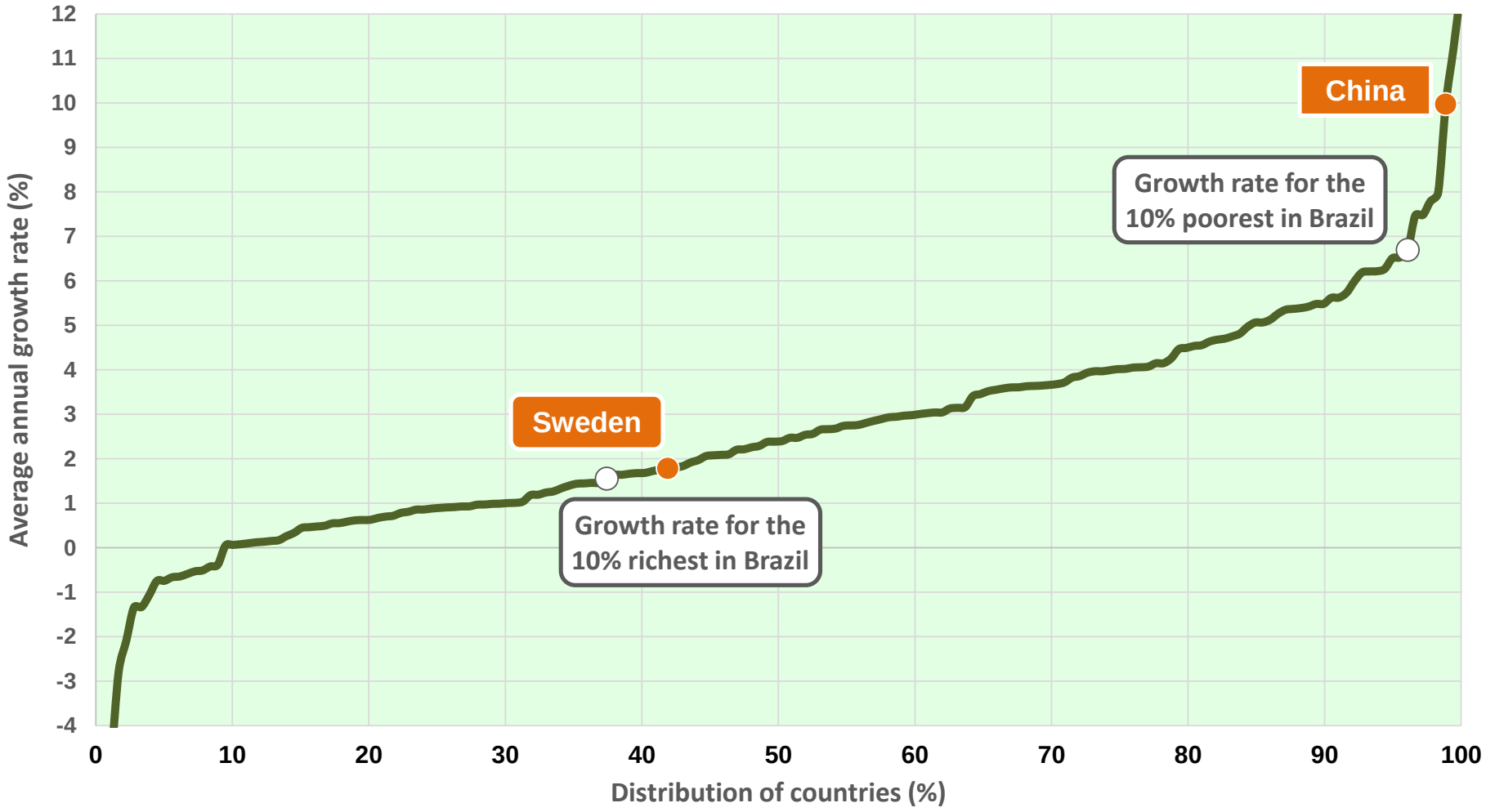
Distribution of countries according to their average annual growth rate of per capita GDP, World: 2001-2011



Source: SAE/PR based on WB data (http://data.worldbank.org/indicator/NY.GDP.PCAP.KD).
Note: Only 179 of the countries were considered due to data avalilability for the period.

There is renewed interest in the role of the middle class in the shaping of the social and economic prospects of societies.

The definition of middle class is not an uncontroversial issue: a) dimension to be considered; b) measurement

we use *per capita* family income in absolute terms

It is possible to compare the size of the middle class throughout the years

Criteria: Secretary of Strategic Affairs of the Presidency of the Republic of Brazil
(cut offs are in monthly R$ from 2011)

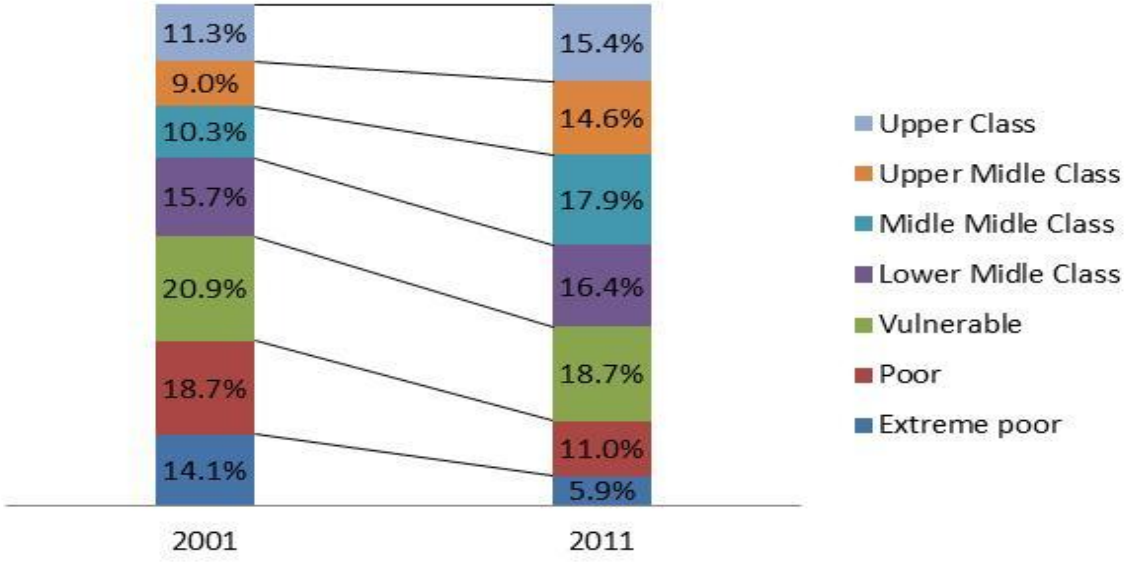
Low Income
- **Extreme Poor Class** – up to R$91
- **Poor Class** – from R$91 to R$182
- **Vulnerable Class** – from R$182 to R$327

Middle Income
- **Lower Middle Class** – from R$327 to R$496
- **Middle middle Class** – from R$496 to R$720
- **Upper Midlle Class** – from R$720 to R$1,145

High Income
- ← **Upper Class** – more than R$1,145

The extreme poor share of the Brazilian population declined from 14.1% to 5.9%. The Middle Class share has grown from 35% to 49% and meanwhile the Low Income share fell from 54% to 36%

Share of Brazilian population by income class (2001-2011)

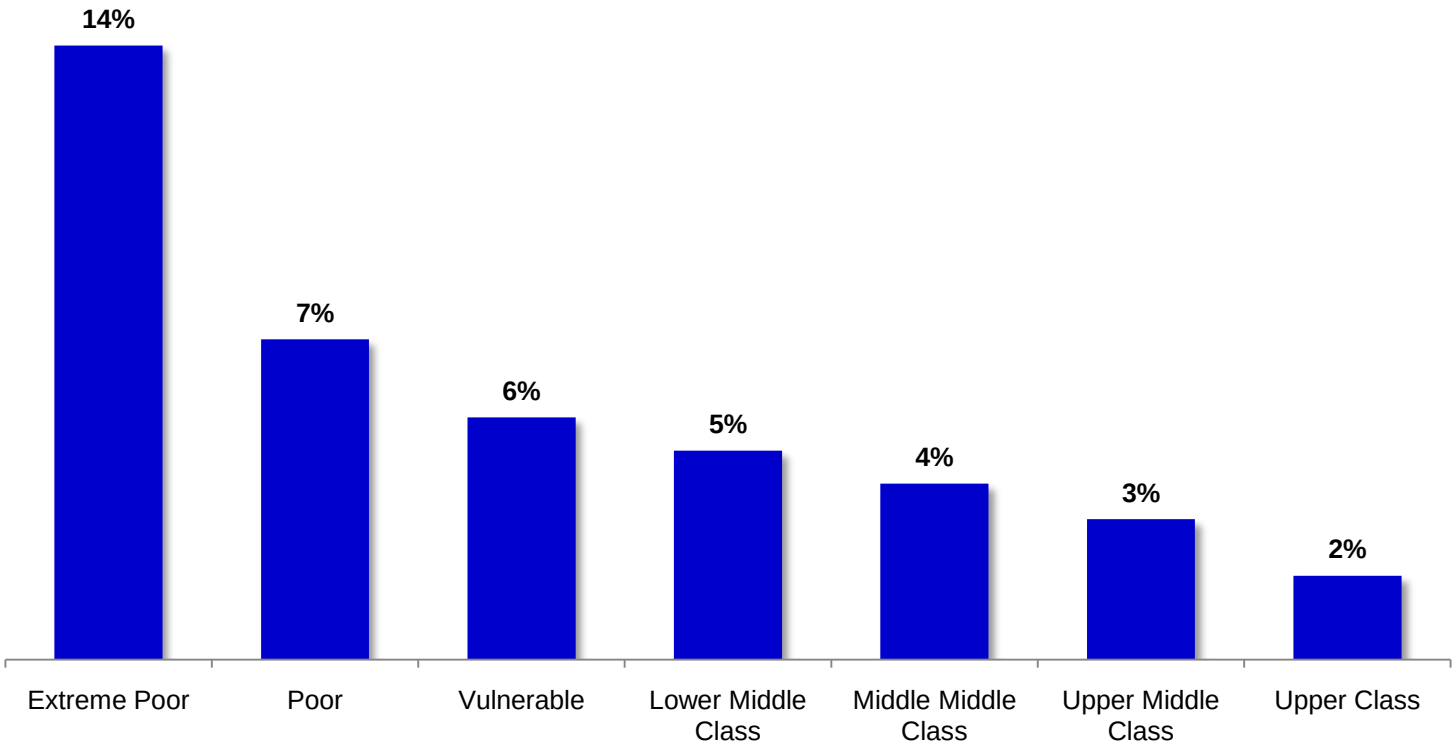


To shed light on the recent income dynamics, two decomposition exercises are made

Source: PNAD

2. The immediate determinants of poverty and inequality changes

Annual Growth Rate of the Average Family Per Capita Income (2001-2011)



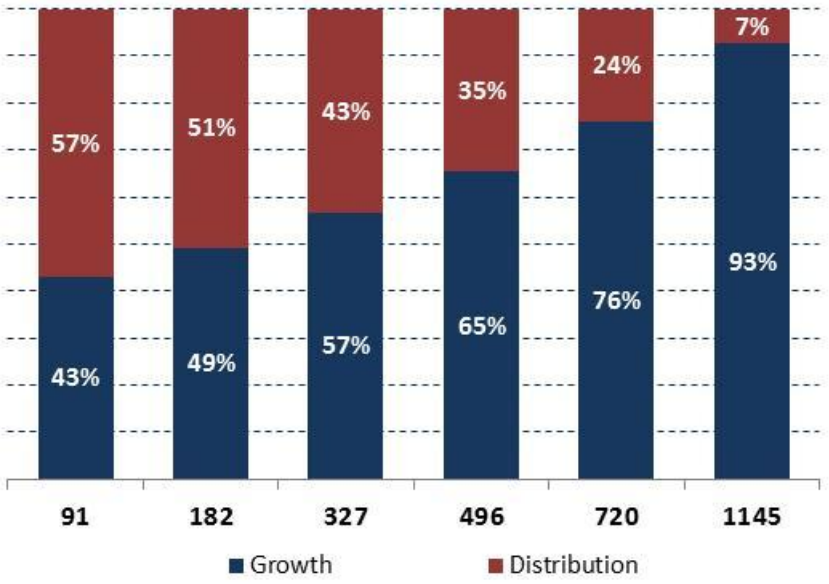
2. The Immediate Determinants

Decomposition Exercise 1

Change in poverty rate or population share in different income classes

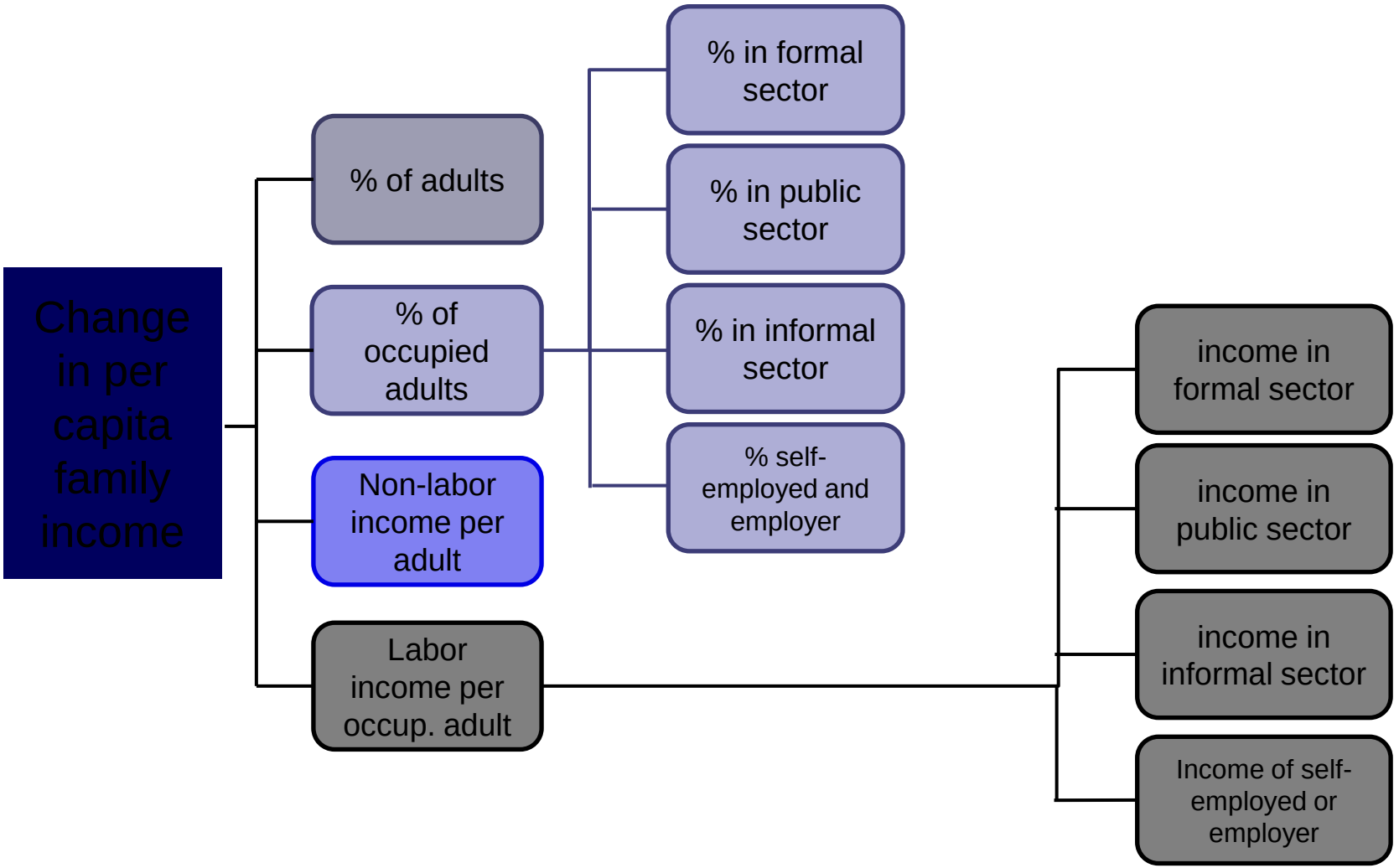
- Growth Component
- Distribution Component

Decomposition Exercise Results



Redistribution policies implemented in the period seem to be more important than economic growth in reducing extreme poverty. However, the relative importance of the growth component increases as the income cut-off levels increases.

Decomposition Exercise 2



The decline of poverty rate is due to the labor income growth together with policy redistributions in the period. The labor income growth is associated with labor income increase in the informal and self-employed sector

The rise of the middle class in Brazil observed in the recent past is mainly due to the economic growth of the period. The labor income growth is associated with the increase in occupation in the **formal sector** as well as the increase in the labor income per occupied adult.

Results: Decomposition Exercise 2

Factor Contribution to Income Change by Income Groups

	Extreme Poor	Poor	Vulnerable	Lower Middle	Middle Middle	Upper Middle	Upper Class
Percentage of Adults	3%	10%	14%	17%	21%	27%	20%
Non-Labor Income per Adult	41%	28%	19%	12%	7%	3%	2%
Percantage of Adults Occupied	-7%	-15%	-14%	5%	34%	53%	48%
Labor Income per Occupied Adult	62%	77%	81%	66%	39%	17%	30%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Occupation Factor

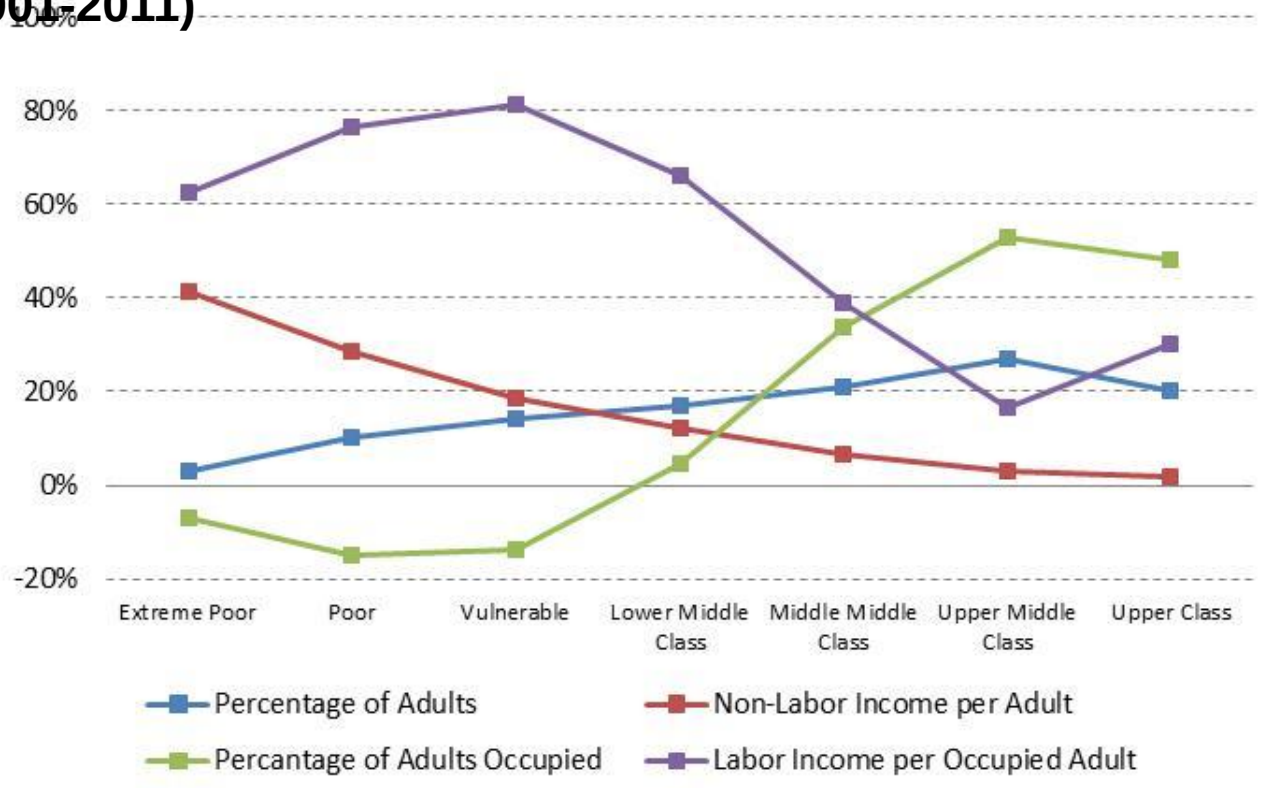
	Extreme Poor	Poor	Vulnerable	Lower Middle	Middle Middle	Upper Middle	Upper Class
Private Sector	0%	29%	-70%	10%	72%	107%	8%
Public Sector	0%	0%	-1%	0%	0%	-15%	17%
Informal Sector	0%	-25%	46%	-4%	-19%	-19%	-4%
Employer or Self-Employed	-7%	-19%	12%	-2%	-19%	-20%	27%
Total	**-7%**	**-15%**	**-14%**	**5%**	**34%**	**53%**	**48%**

Income Factor

	Extreme Poor	Poor	Vulnerable	Lower Middle	Middle Middle	Upper Middle	Upper Class
Private Sector	13%	20%	24%	20%	11%	5%	8%
Public Sector	12%	18%	19%	15%	9%	4%	8%
Informal Sector	17%	19%	19%	15%	9%	4%	7%
Employer or Self-Employed	20%	19%	19%	16%	9%	4%	7%
Total	**62%**	**77%**	**81%**	**66%**	**39%**	**17%**	**30%**

The decline of poverty rate is due to income growth together with policy redistributions in the period.

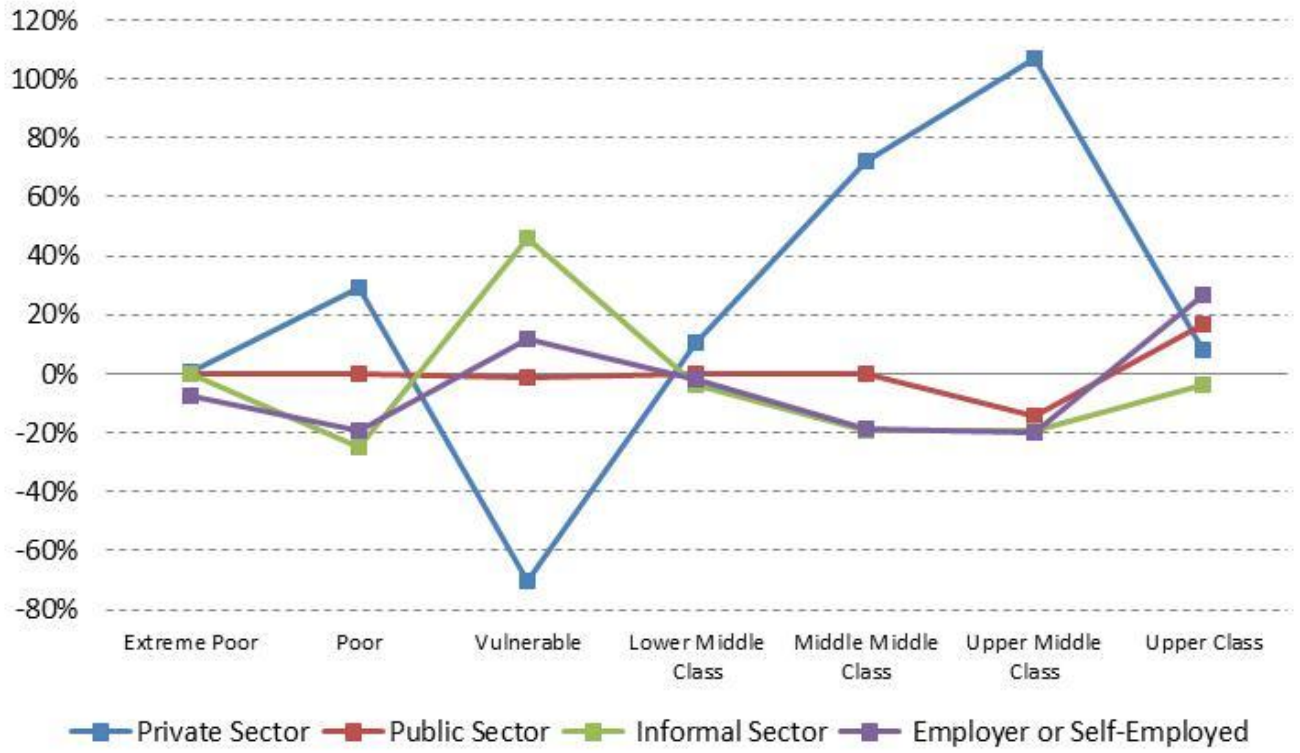
Factor Contribution to Income Change by Income Groups (2001-2011)



Source: Authors

The labor income growth is associated with the increase in occupation in the formal sector

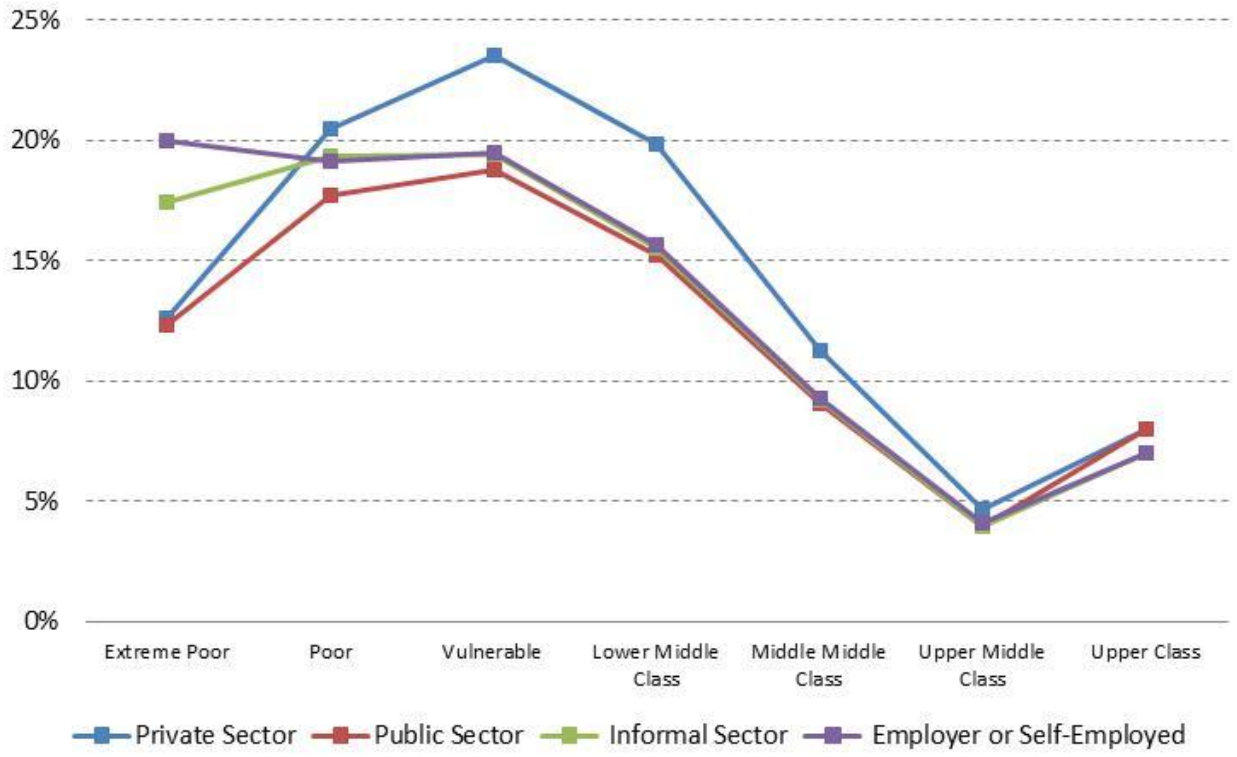
Explaining Factors to The Occupation Factor Income Change



Source: Authors

All sectors experienced changes in labor income, but the magnitude among income classes vary

Explaining Factors to The Occupation Factor Income Change

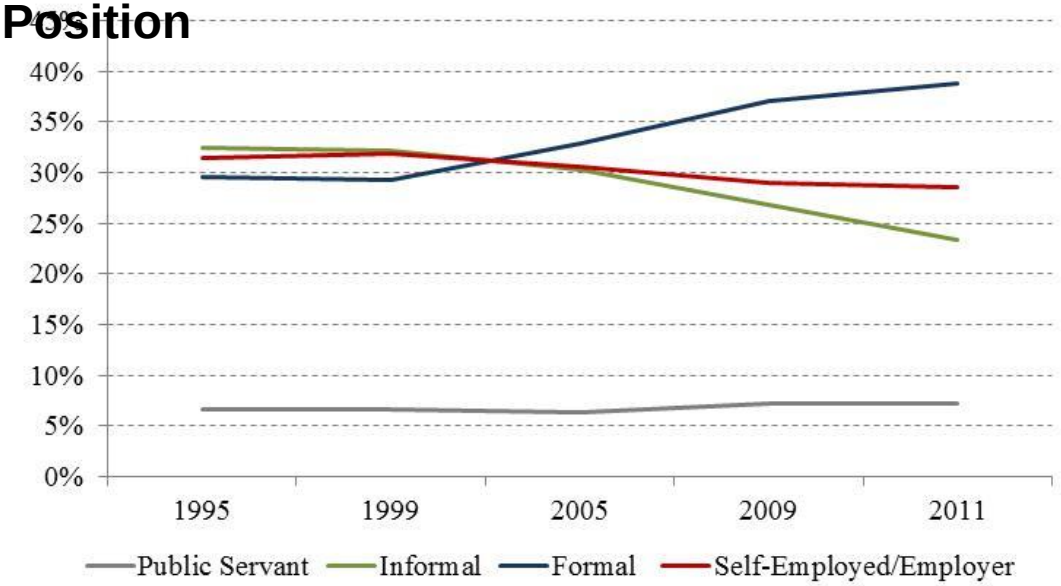


Source: Authors

The growth of the Middle Class in Brazil is partly due to the increase in the formal private sector jobs

Understanding the expansion of the formalization of the labor relations in Brazil can give us important clues to the understanding of the rise of the middle class

Proportion of Occupied People by Occupation Position



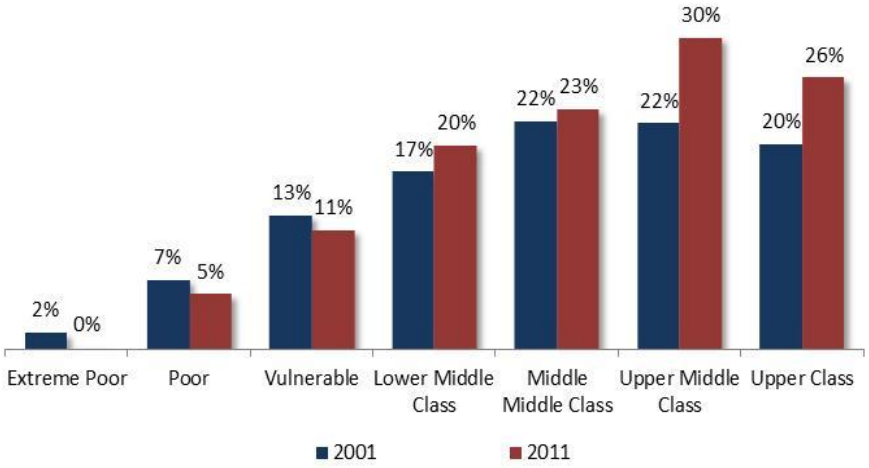
Source: PNAD

It seems that the limits of the expansion of the middle class as we experienced so far are in part the limits of the expansion of the formal jobs in Brazil

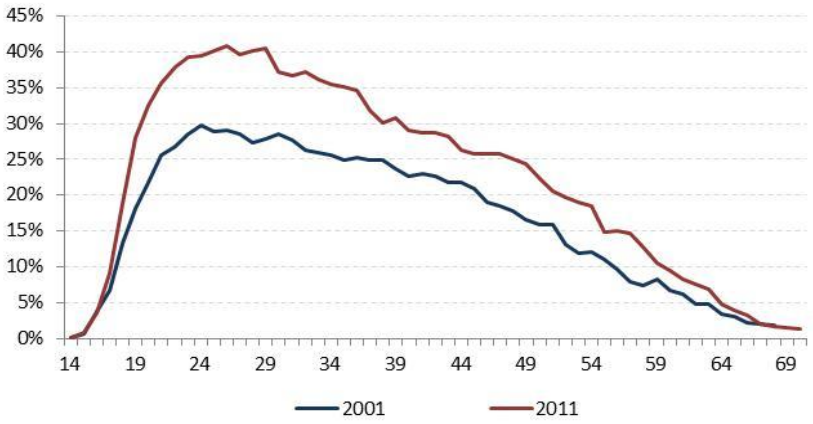
There are more young and high school or college educated individuals among the formal workers than before

The expansion of the human capital accumulation of the workforce is paramount for the formalization of labor force

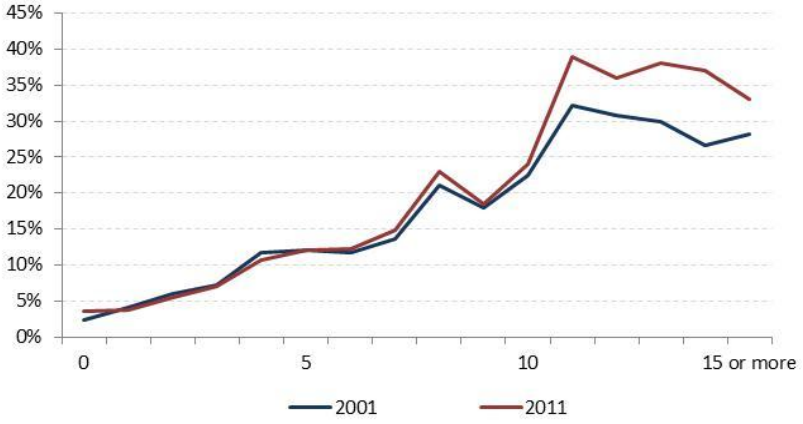
Distribution of Formal Workers across income classes



Proportion of Formal Workers by Age



Proportion of Formal Workers by Years of Schooling



Source: PNAD

3. The role of the labor market

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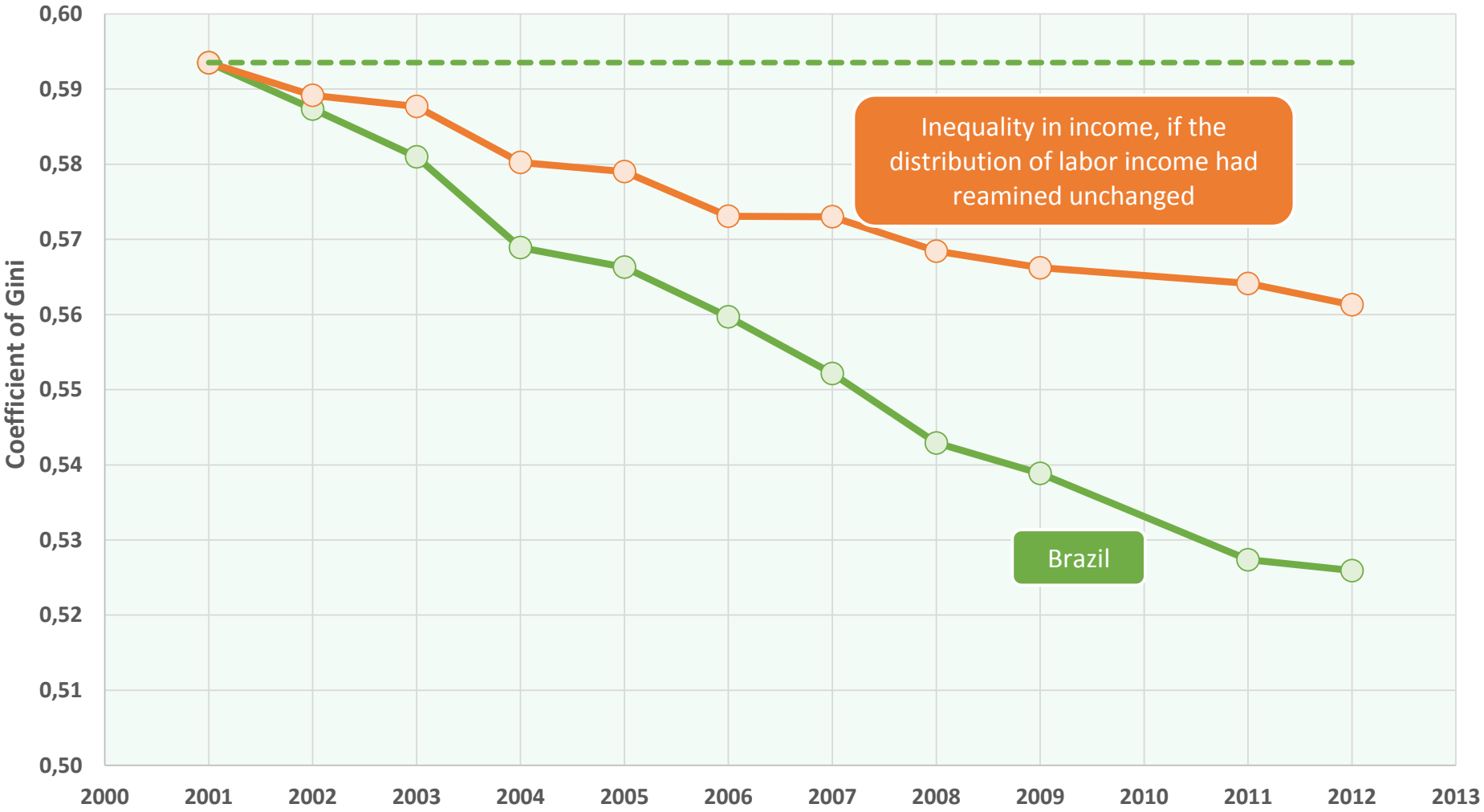
Evolution of inequality in per capita income: Brazil, 2001-2012



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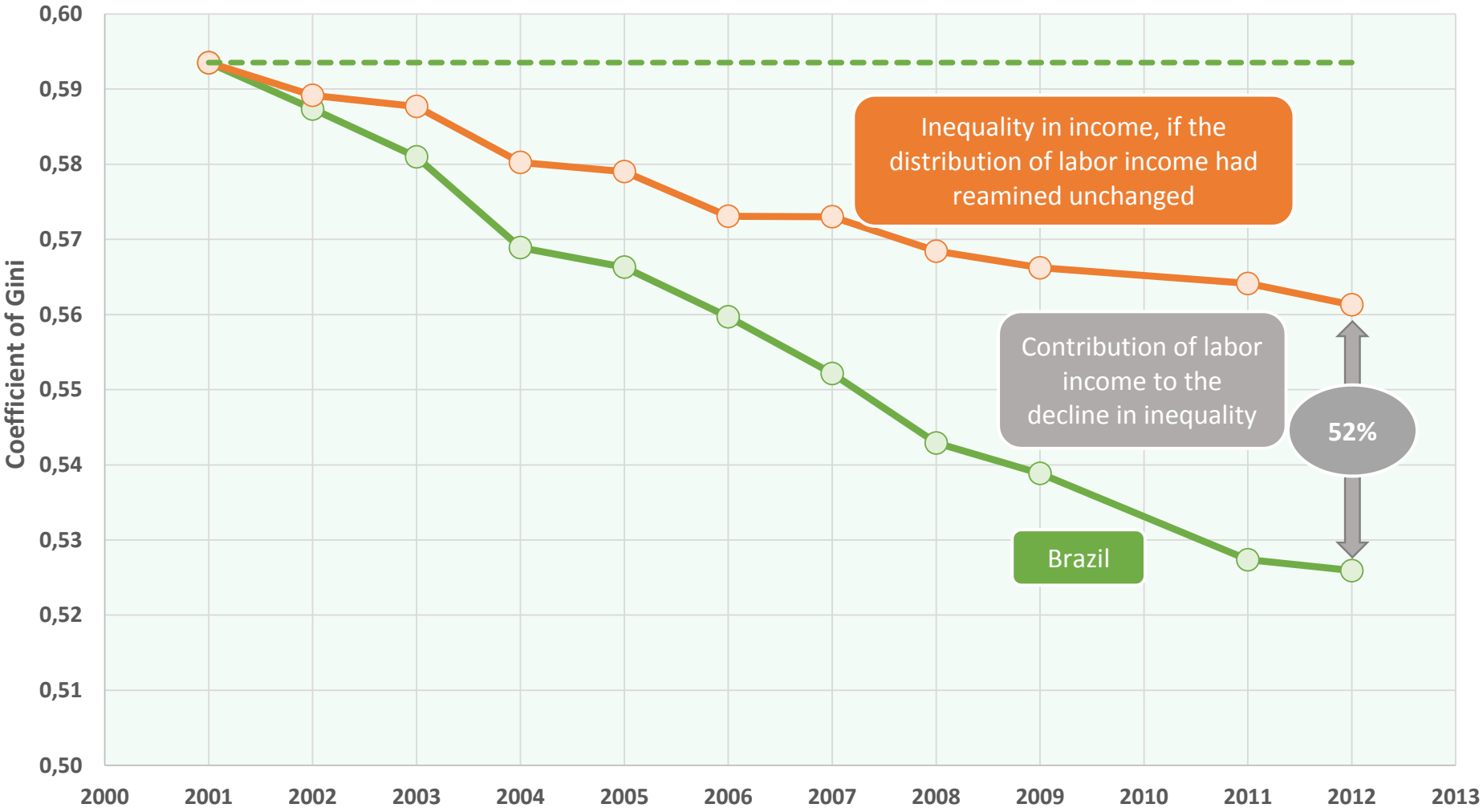
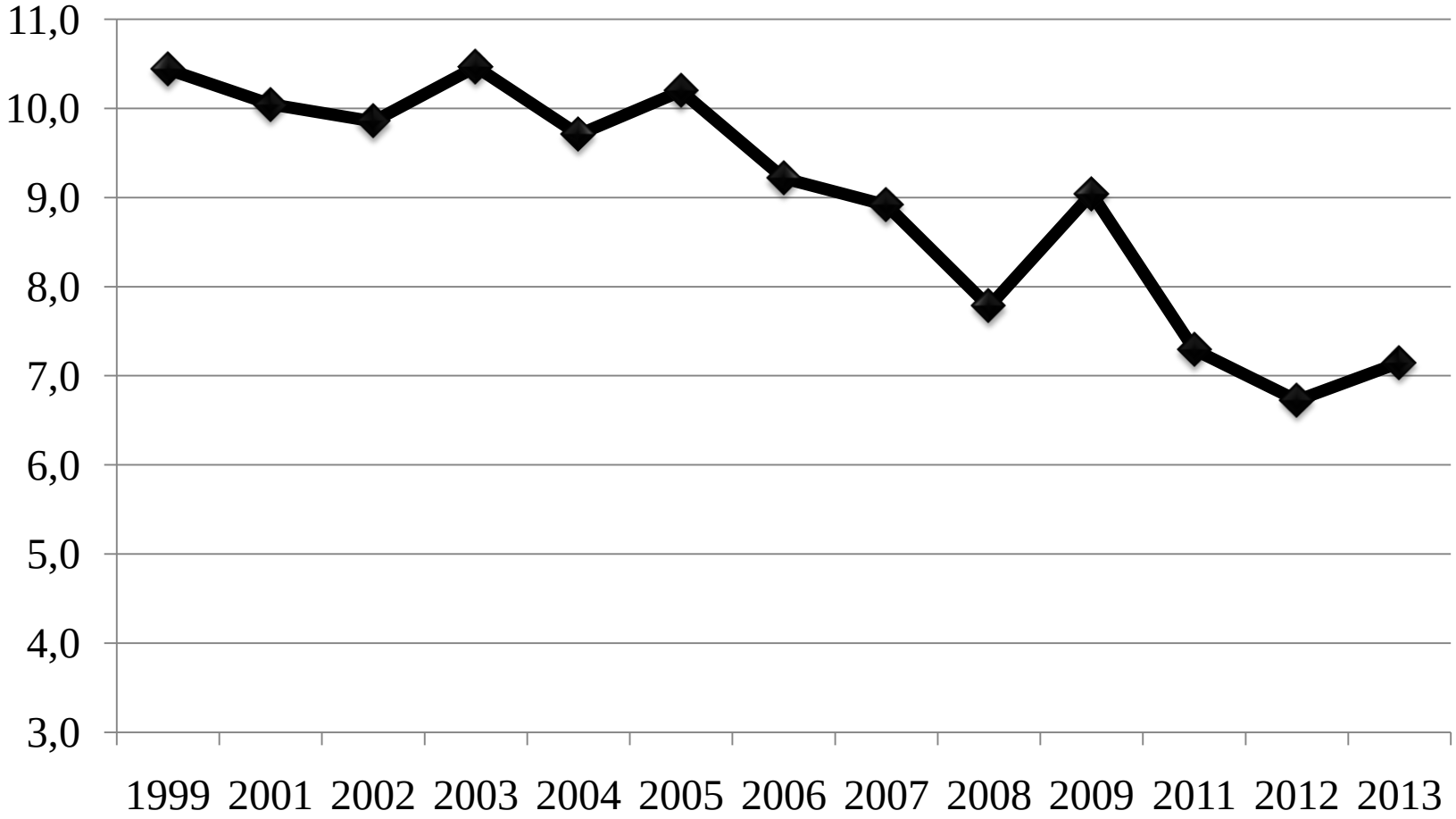
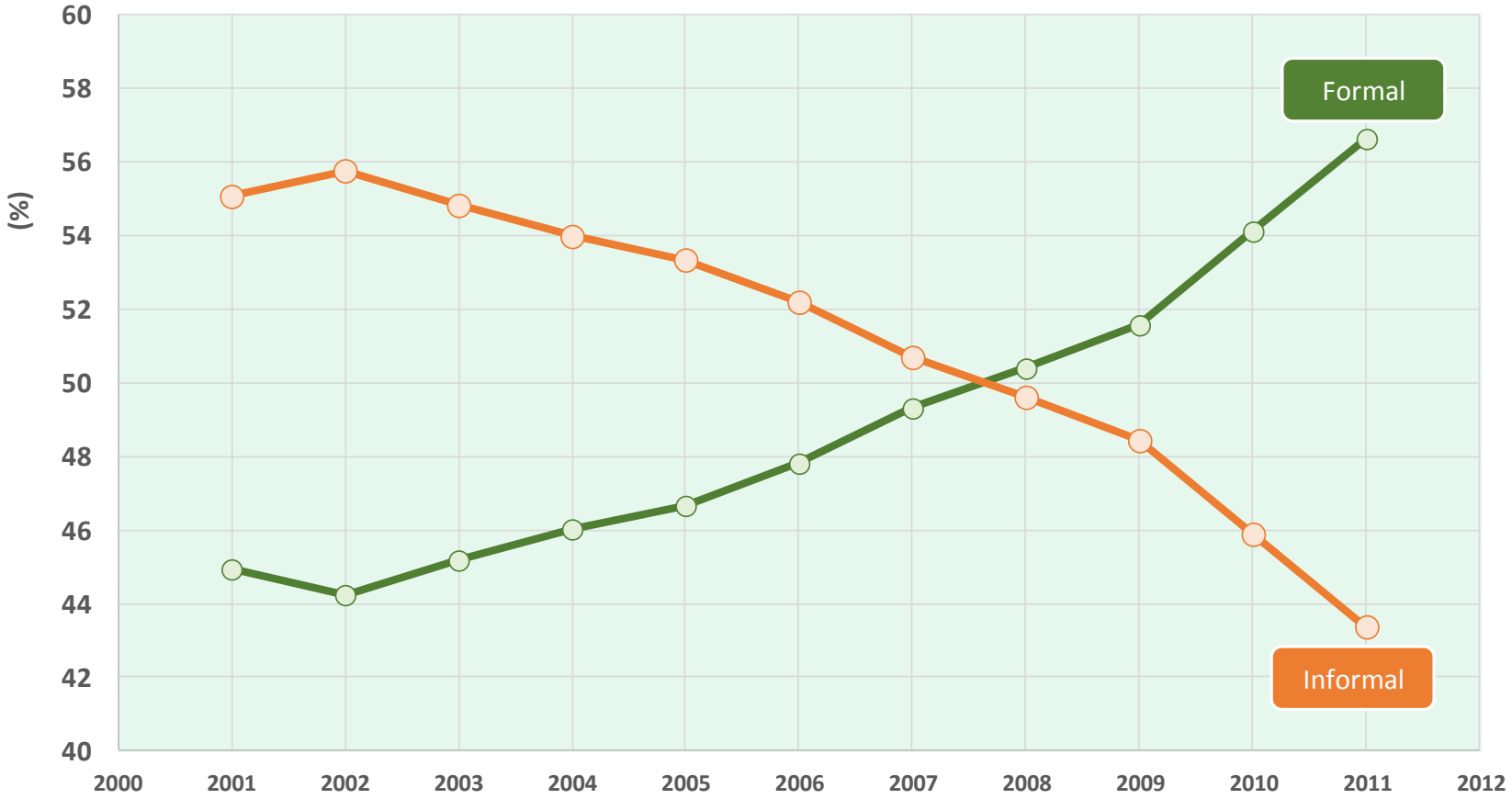


Unemployment Rate - Brazil



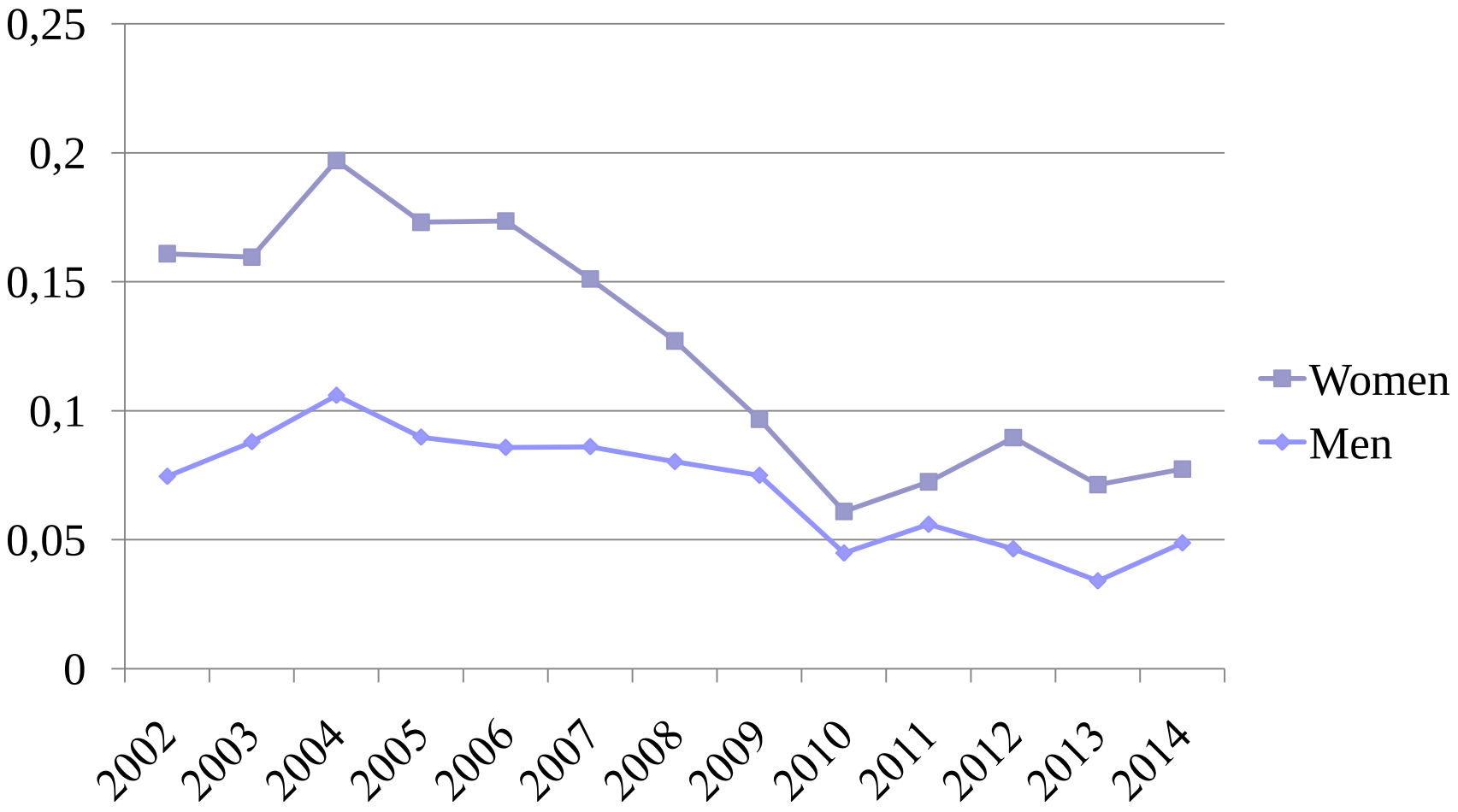
Source: PNAD/IBGE

Proportions of Formal and Informal Workers - Brazil

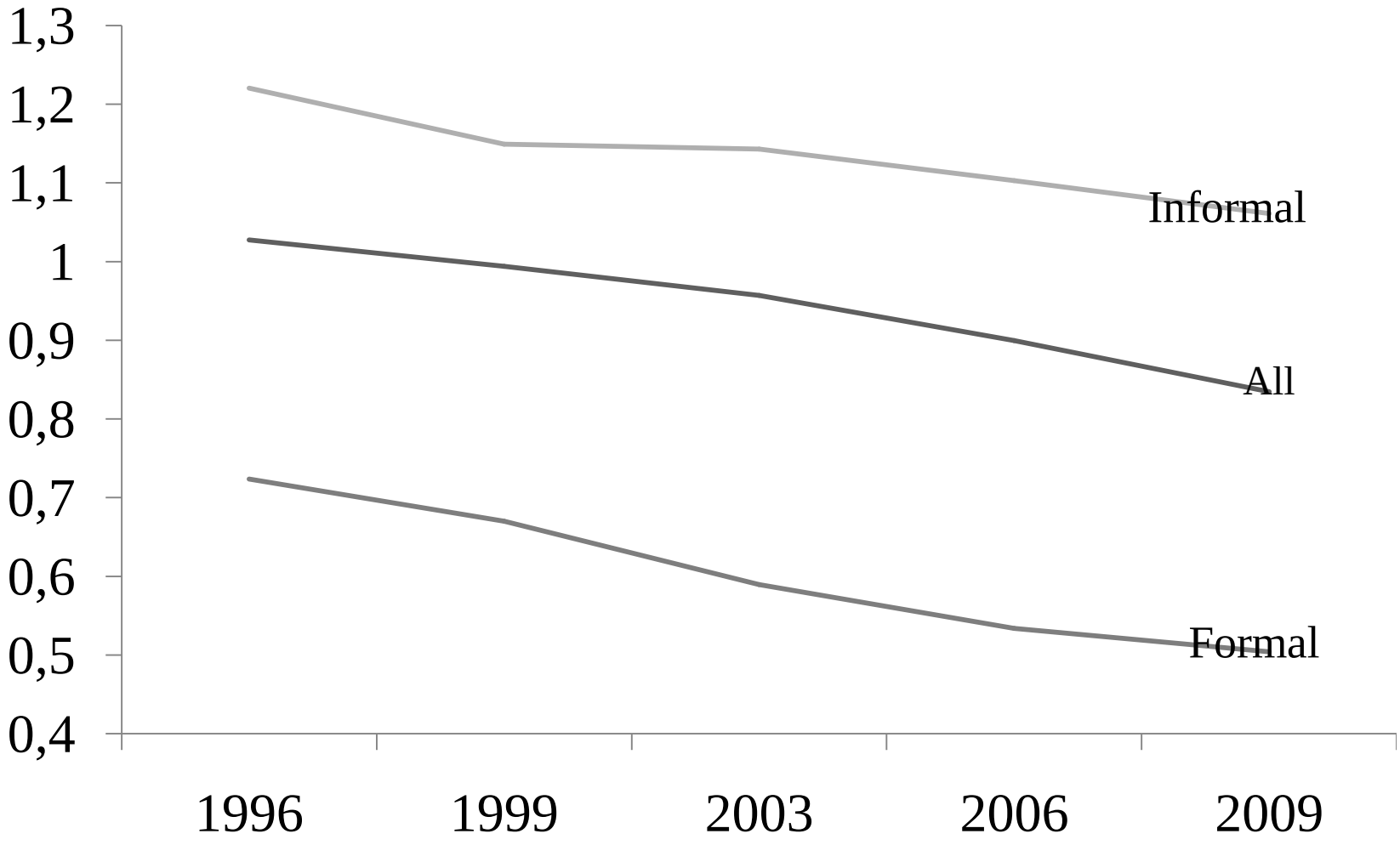


Fonte: Estimativas da SAE/PR com base nas PNADs de 2001 a 2011.

Formal and Informal Wage Gap – Metropolitan Regions (log points)



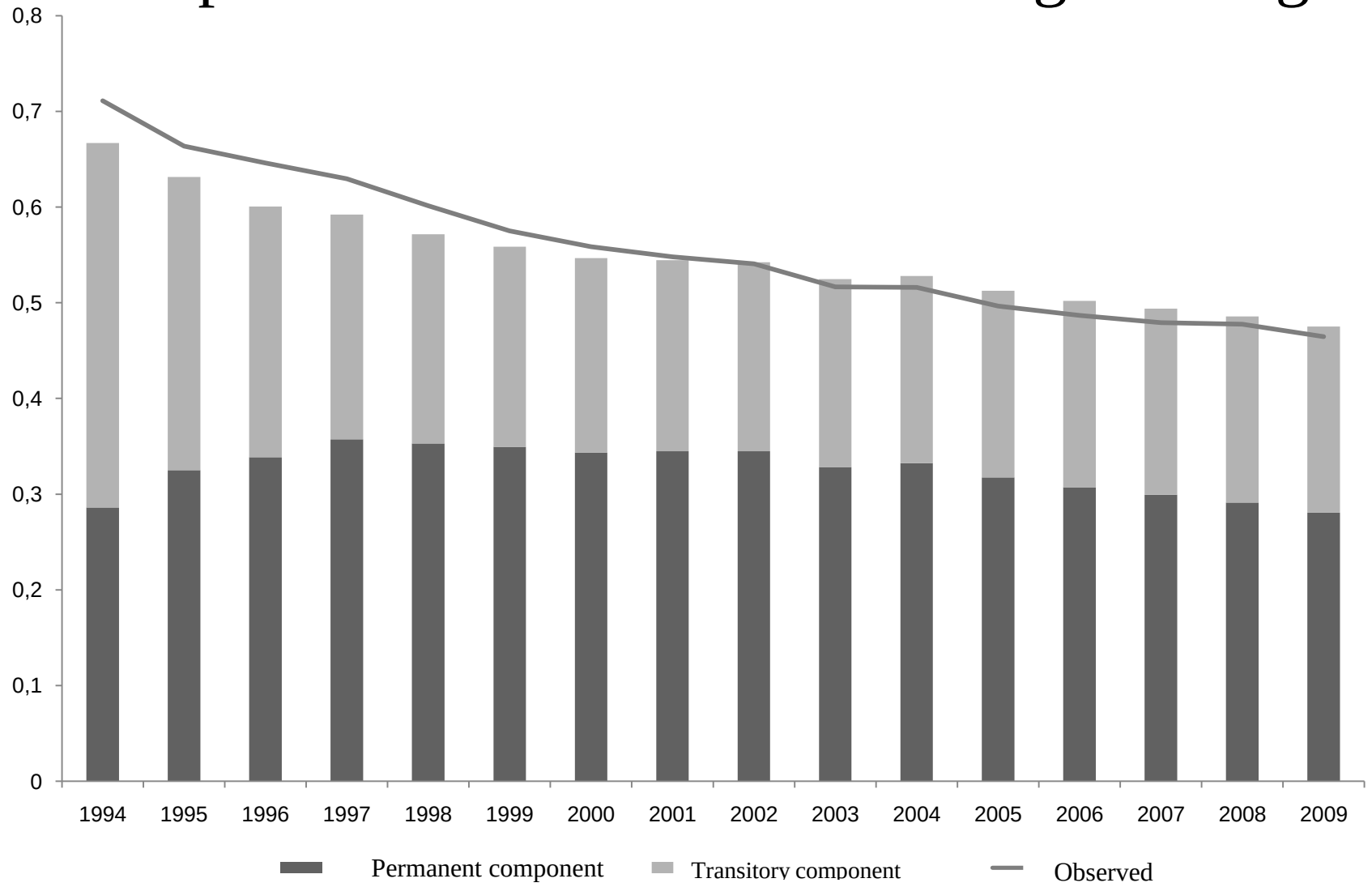
Labor Earnings Inequality (Variance of Log-Earnings)



Formal Labor Earnings Dynamics Decomposition

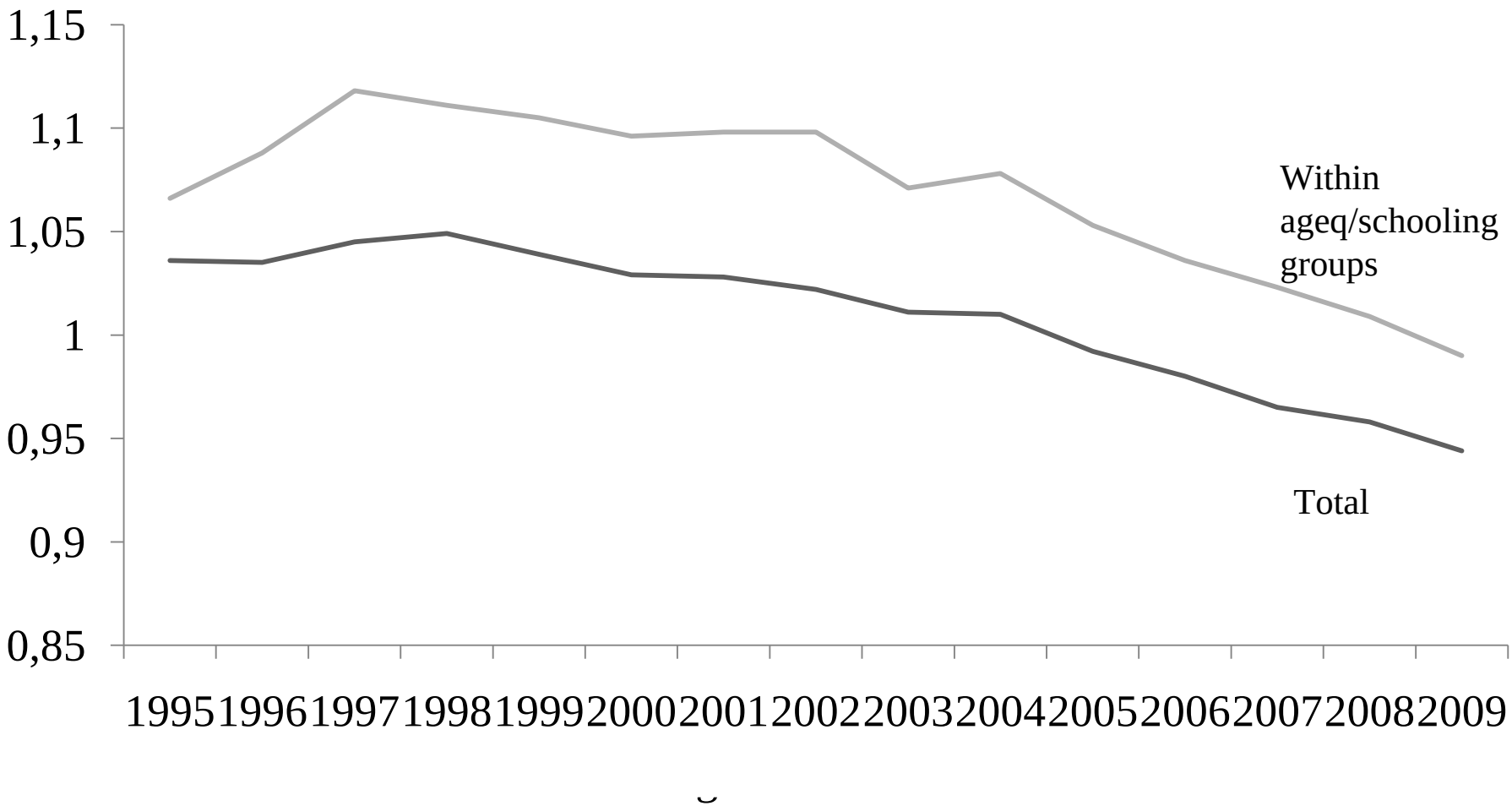
$y_{it} = \rho_t \mu_i + v_{it}$	$\rho_t \mu_i$ = permanent component
$v_{it} = \phi v_{it-1} + \varepsilon_{it}$	v_{it} = transitory component

Decomposition of the Variance of Log-Earnings



Period	Variance Decrease	Contribution of the permanet component	Contribution of the transitory component
1994 to 1997	11,22%	-95,10%	195,10%
1998 to 2009	16,90%	74,96%	25,04%

Returns to the permanent component



Challenges: Brazilian Demographic Dynamics

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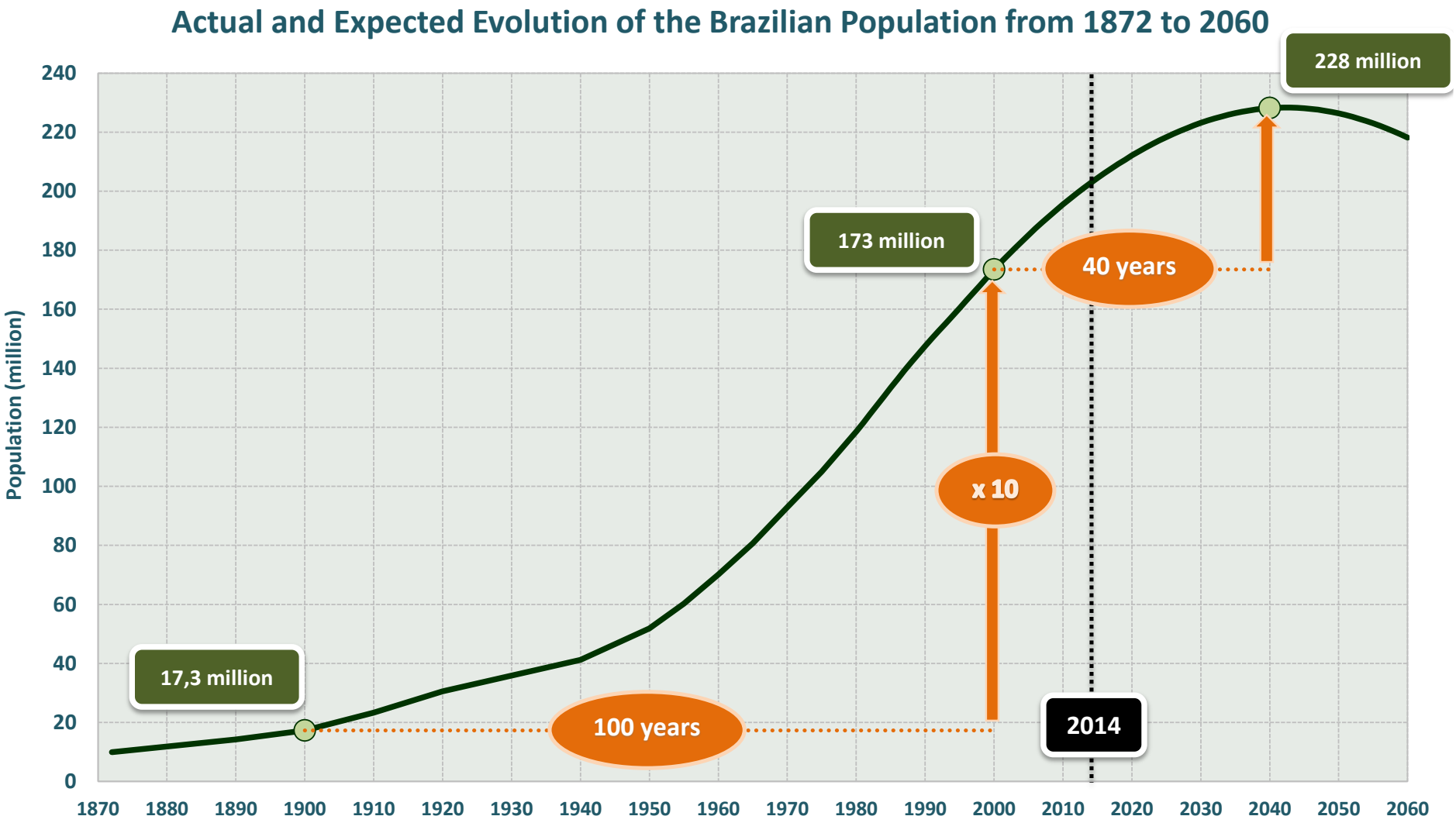
A. Demographic dynamics



Source: SAE/PR based on population records and projections from IBGE

A. Demographic dynamics

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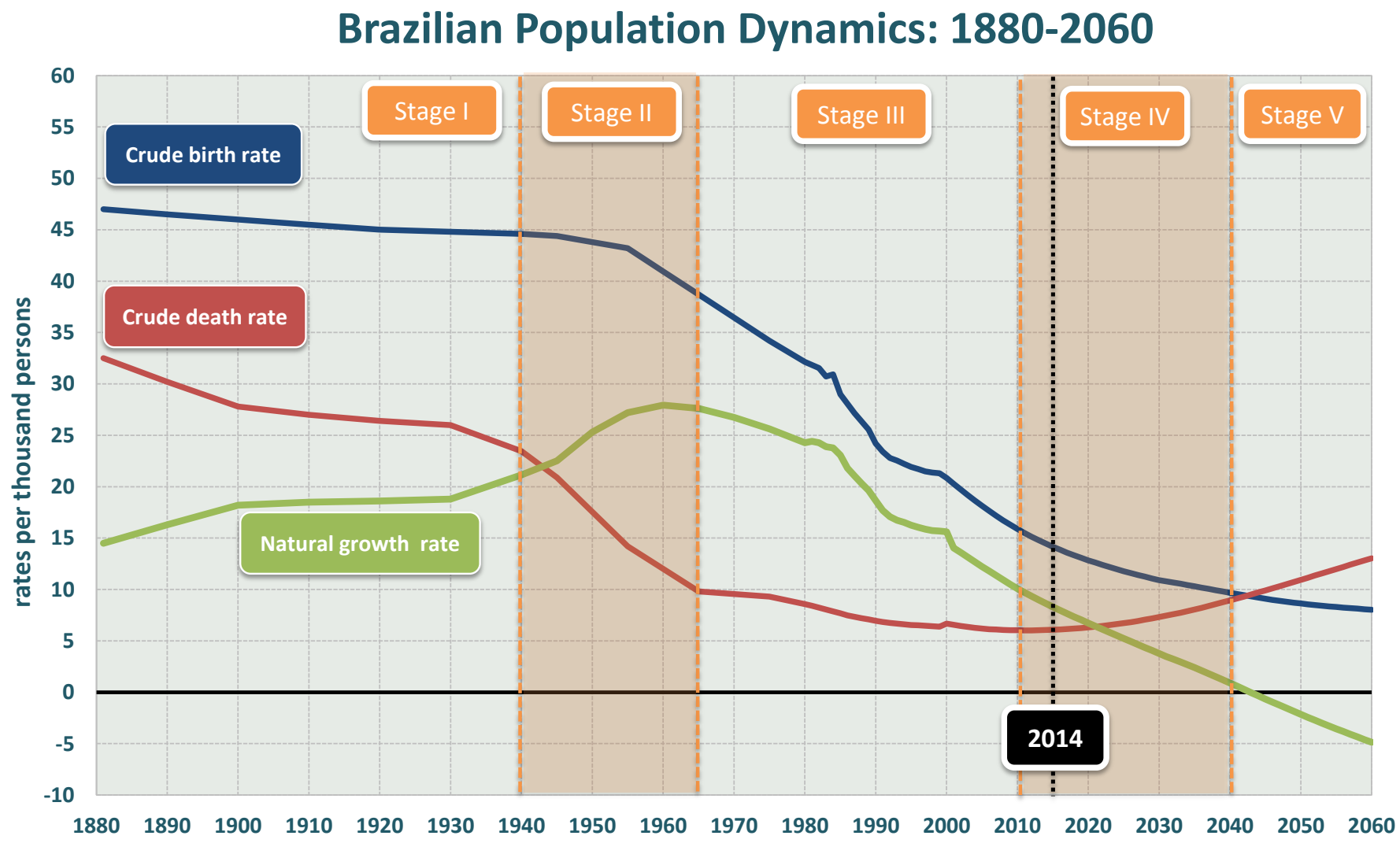

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A. Demographic dynamics

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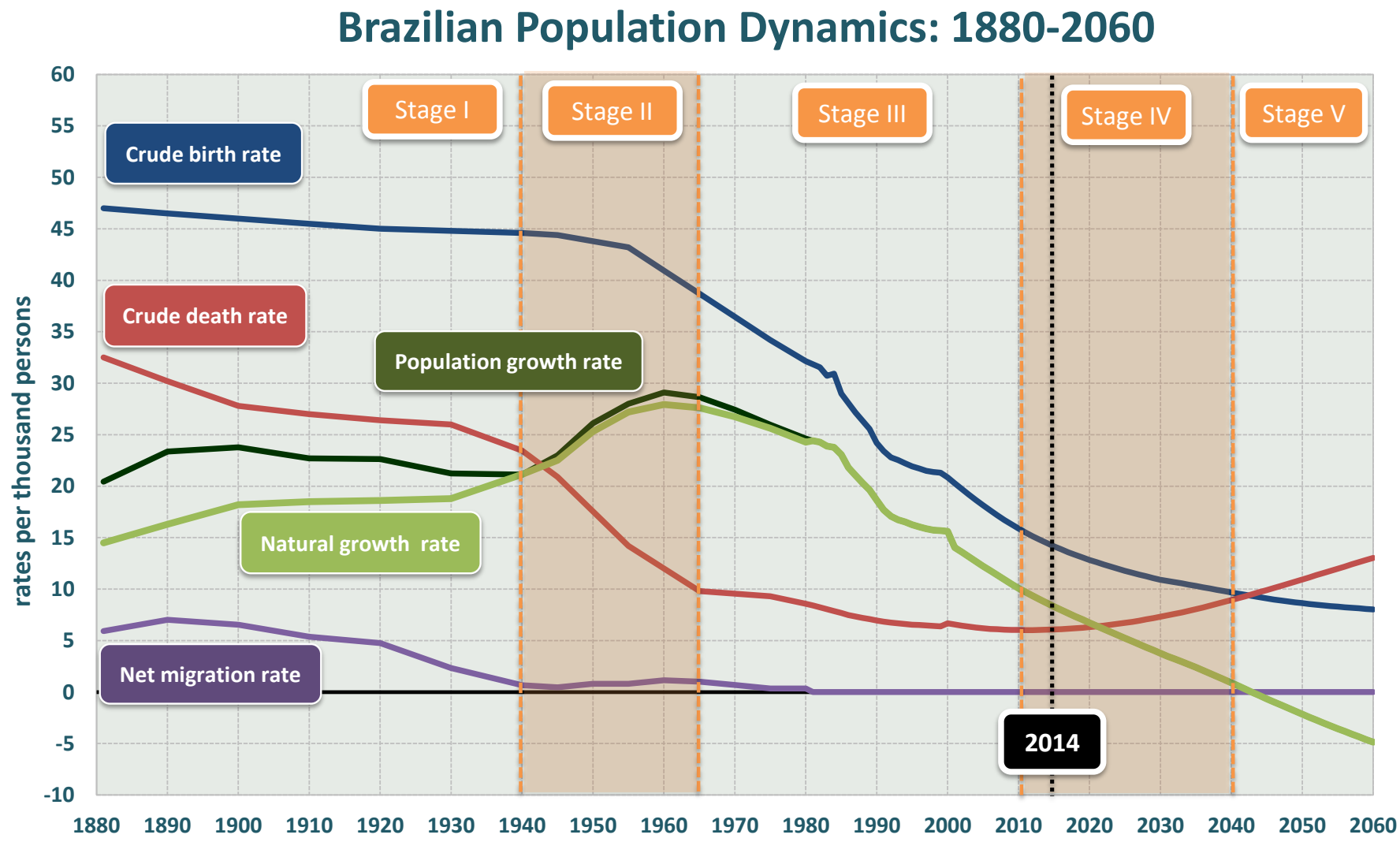
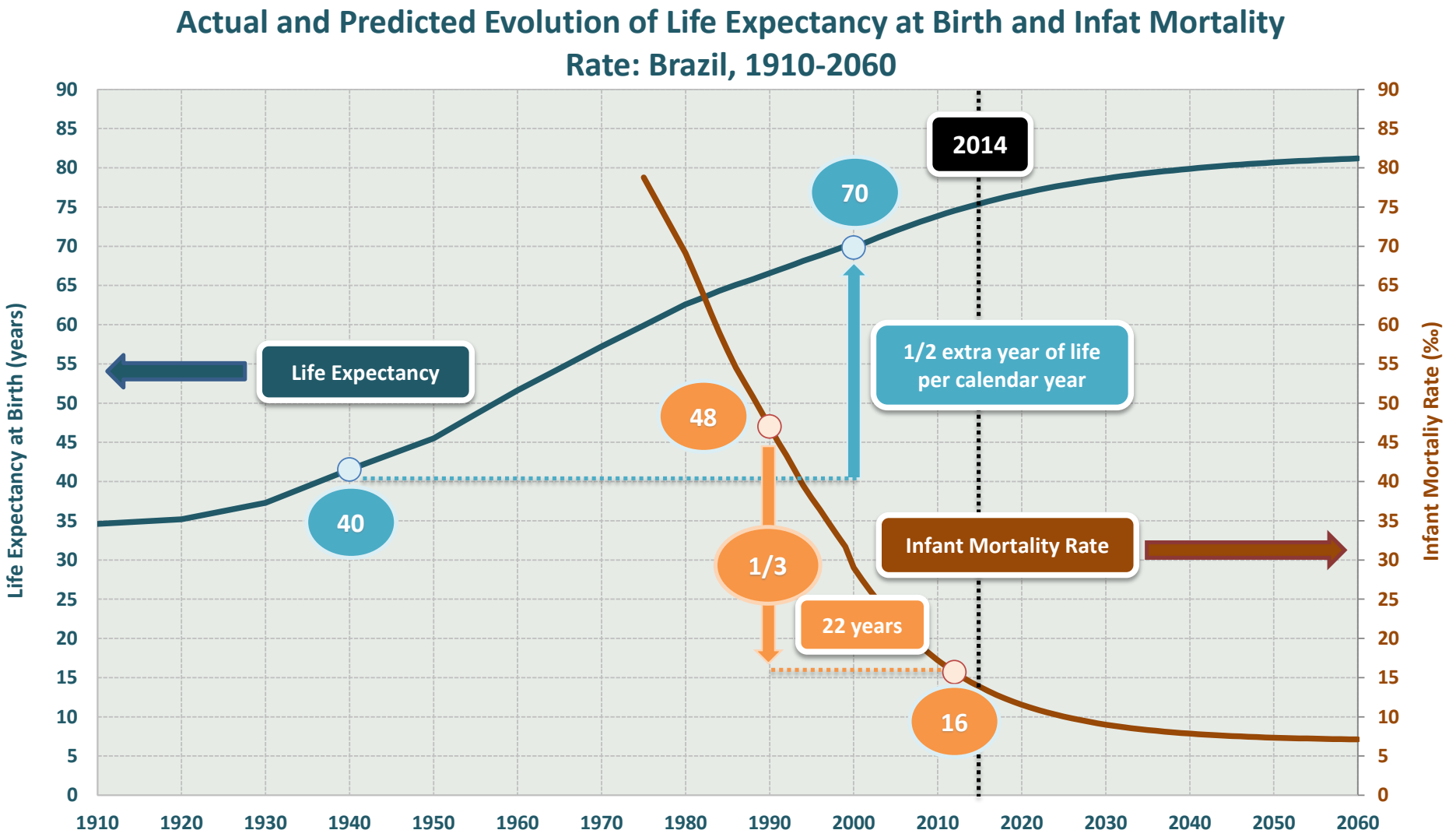


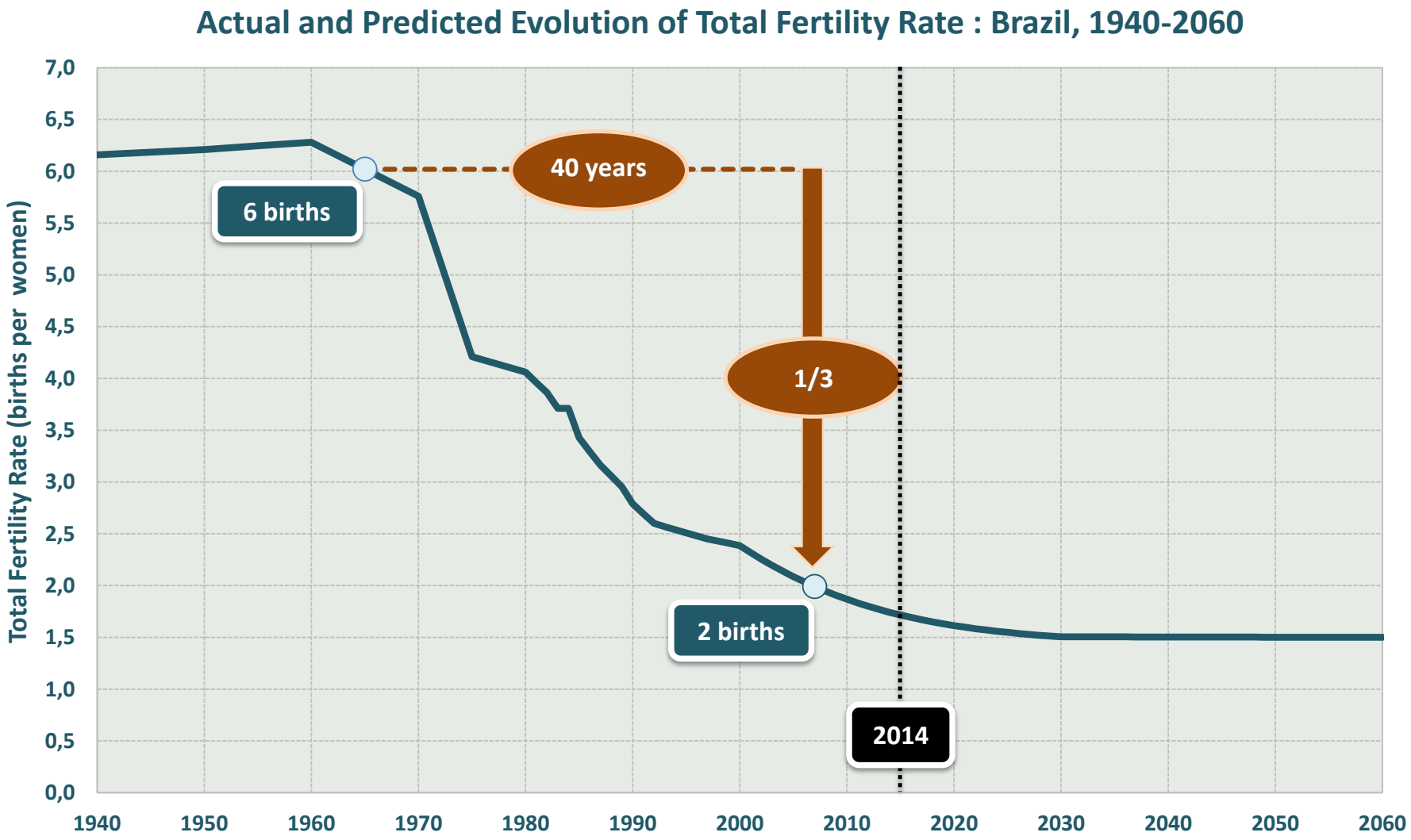
Source: SAE/PR based on population records and projections from IBGE

B. Health transition



Source: SAE/PR based on population records and projections from IBGE

C. Fertility decline



Source: SAE/PR based on population records and projections from IBGE

C. Fertility decline

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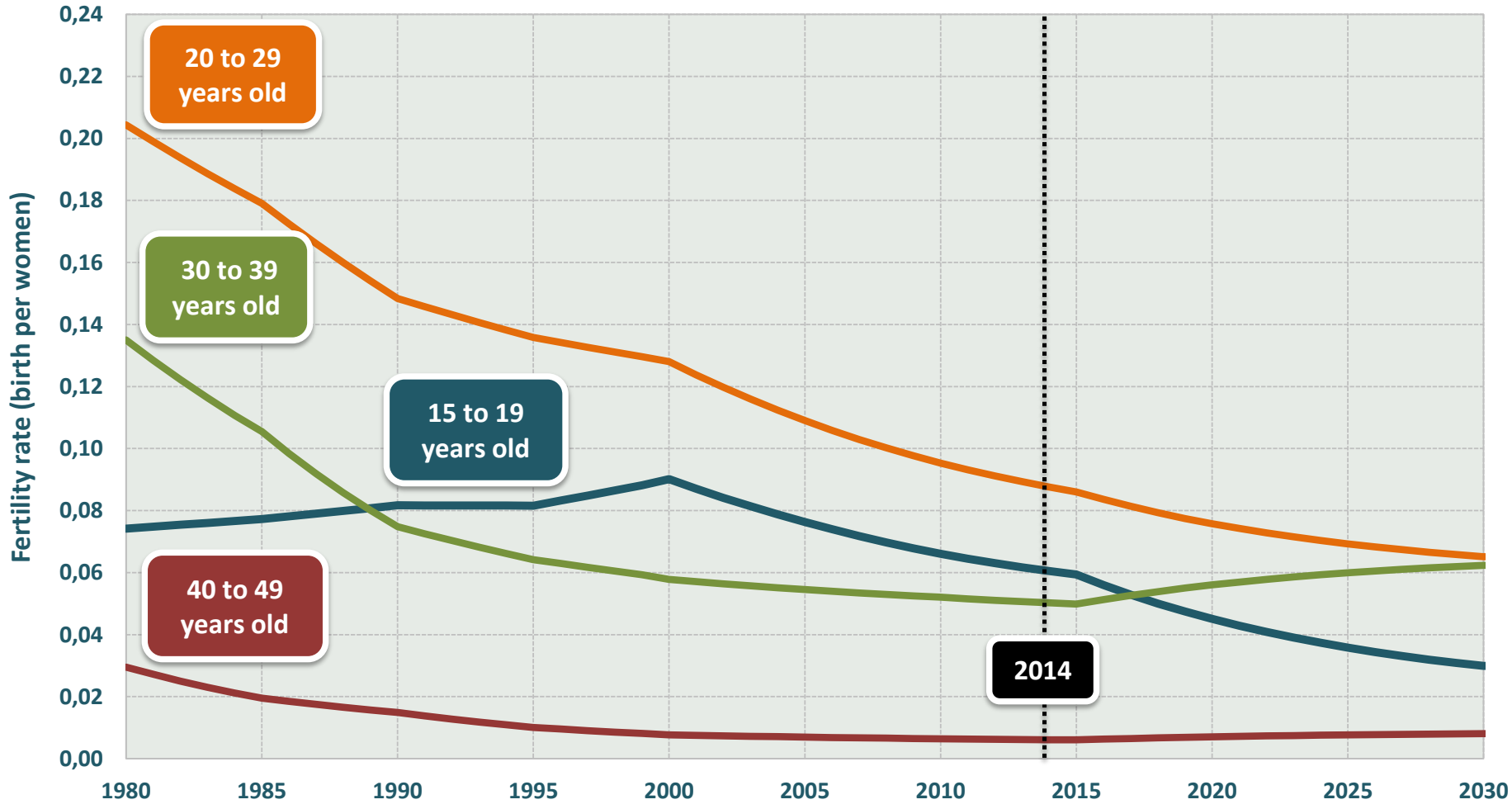
Evolution of the Brazilian age-specific fertility rates: 1980-2030



Source: SAE/PR based on population records and projections from IBGE

C. Fertility decline

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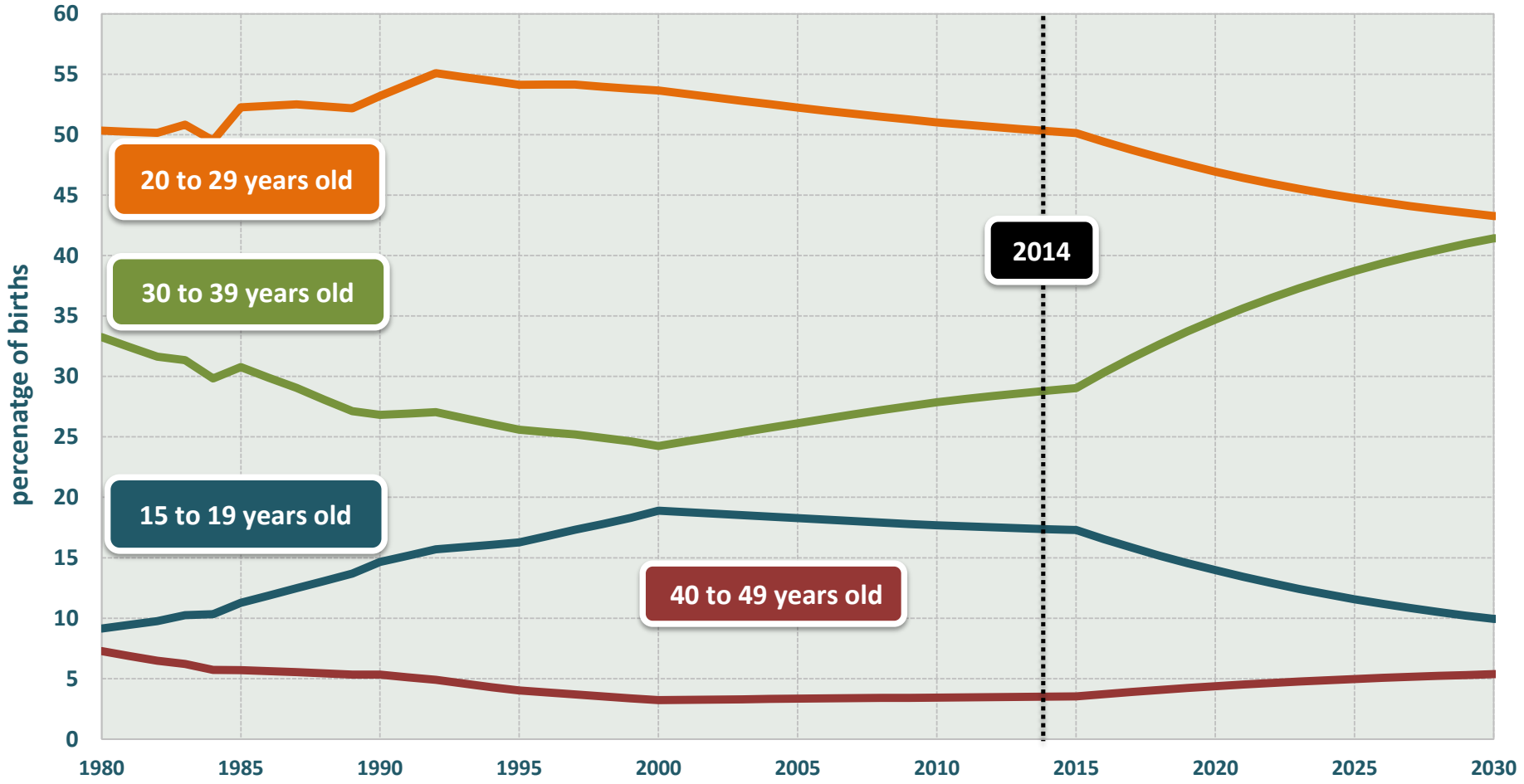
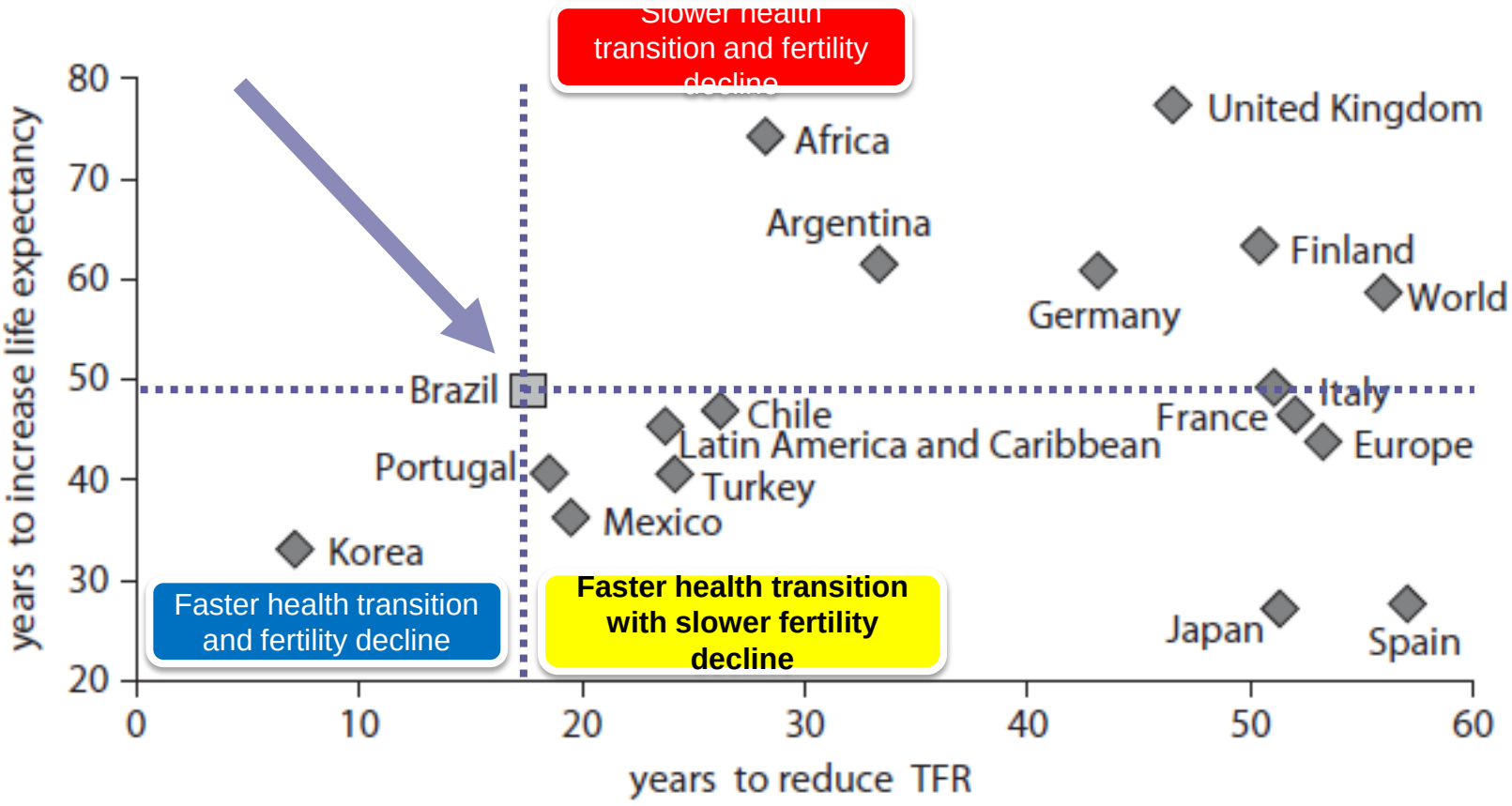
Evolution of births according the the age of the mother: Brazil, 1980-2030



Source: SAE/PR based on population records and projections from IBGE

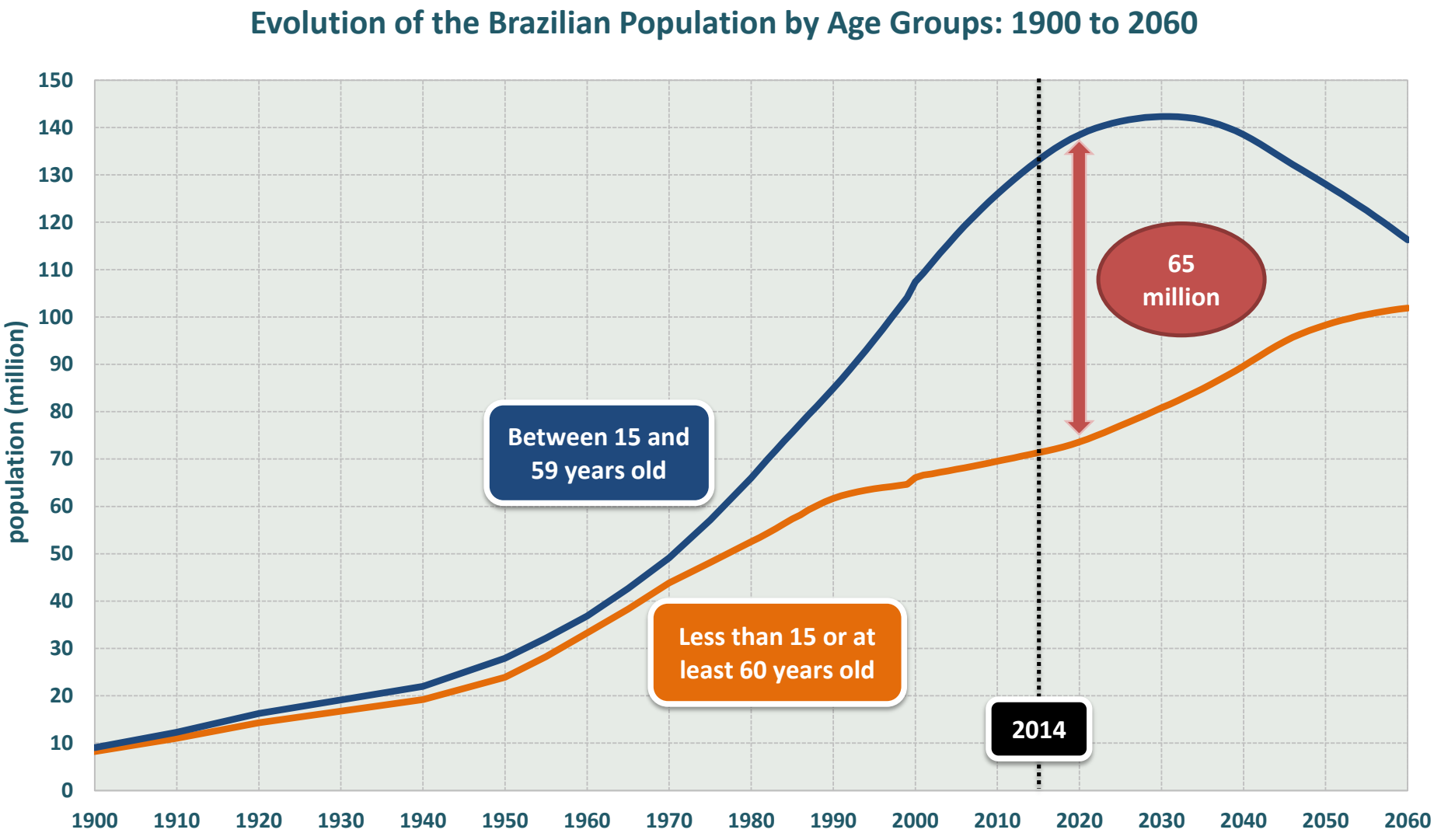
C. Health transition and fertility decline

Figure 1.3 Years to Reduce Fertility (TFR) from 3 to 2 and Increase Life Expectancy from 50 to 70[a]



Source: Growing old in an older Brazil : implications of population aging on growth, poverty, public finance and service delivery / Michele Gragnolati, et al. Washington D.C.: The World Bank, 2011. p. 3.

D. Demographic bonus



Source: SAE/PR based on population records and projections from IBGE

D. Demographic bonus

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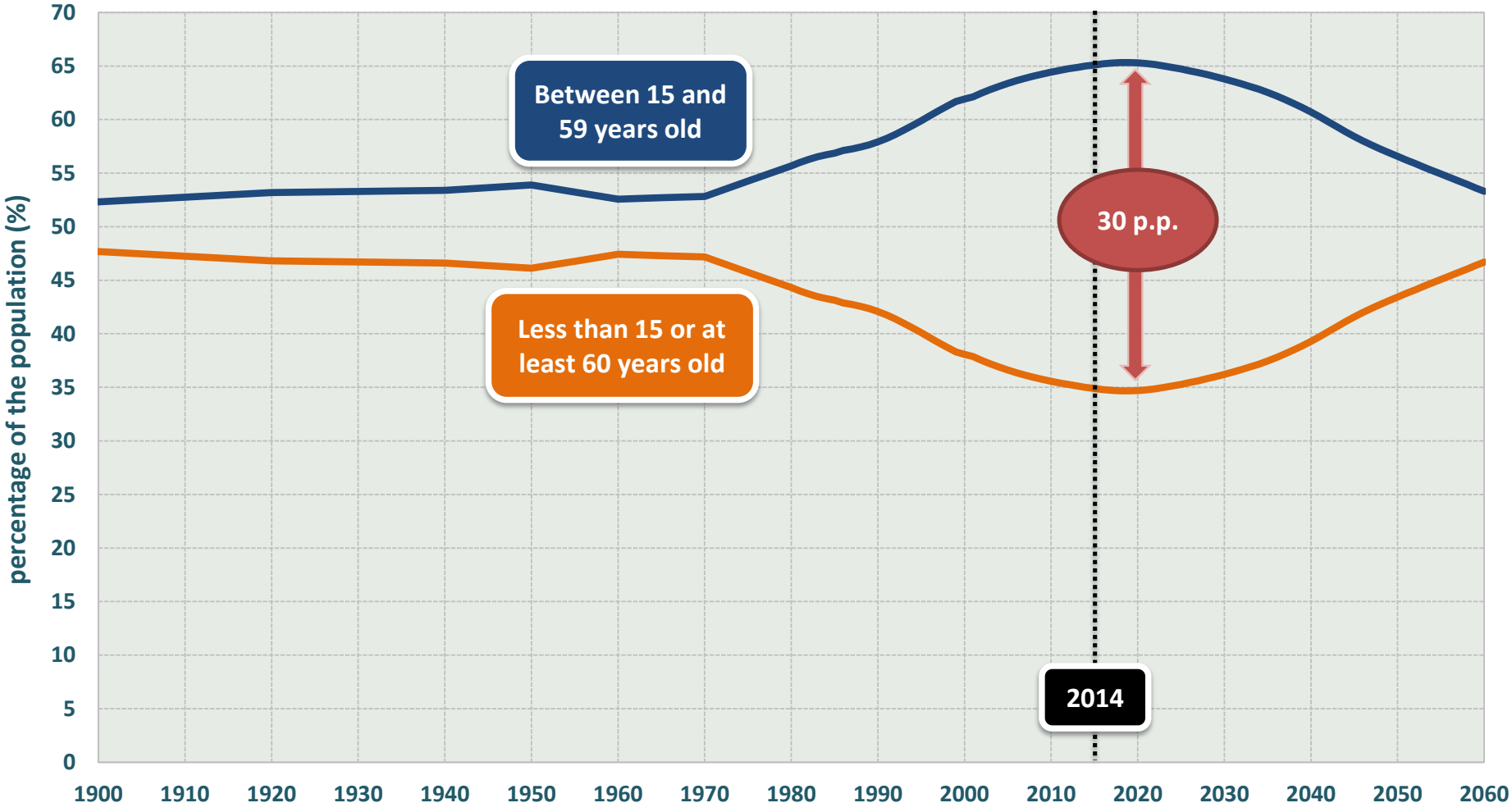
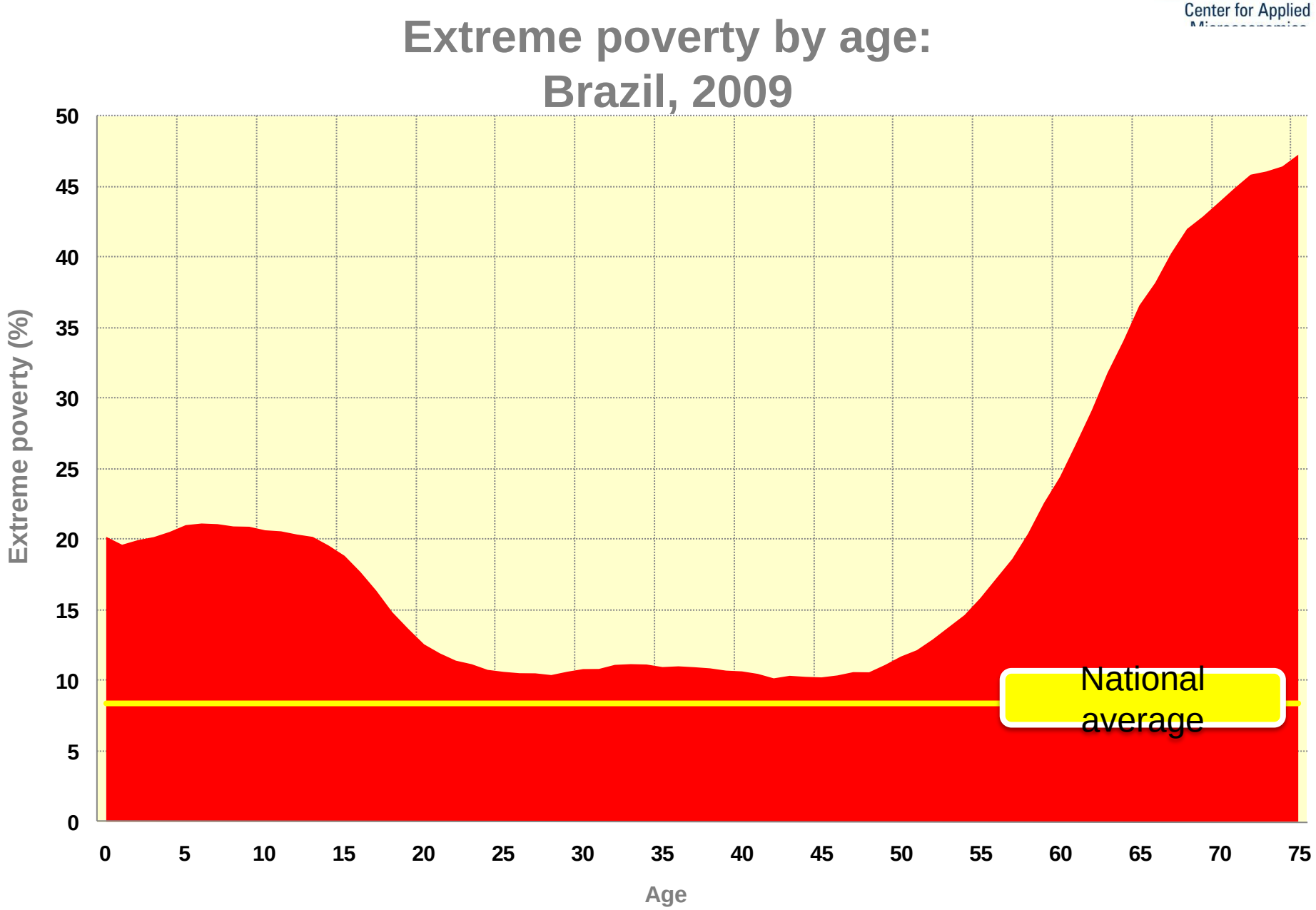
Evolution of the Distribution of the Brazilian Population by Age Groups: 1900 to 2060



Source: SAE/PR based on population records and projections from IBGE

Public and intergenerational transfers



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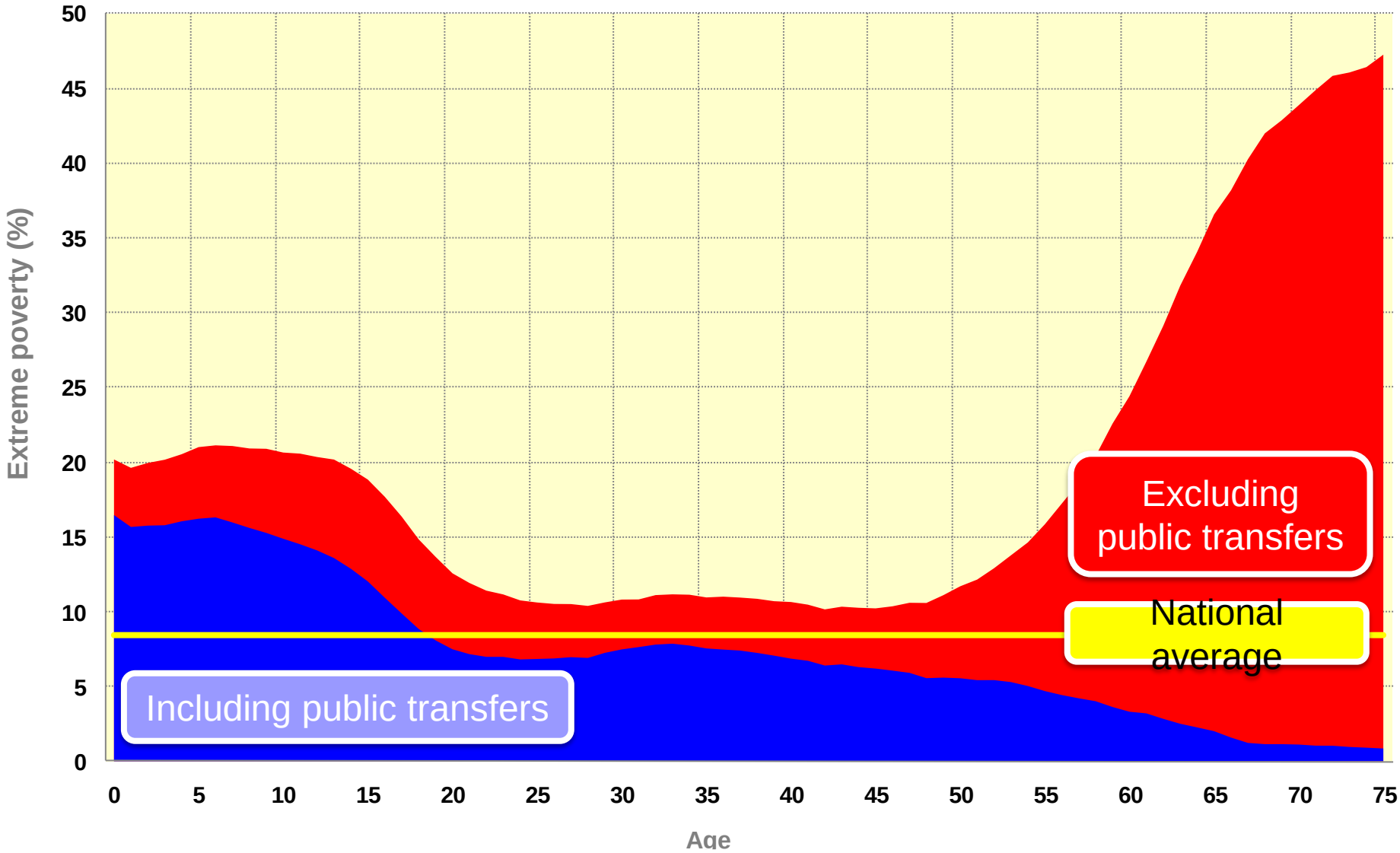
Extreme poverty by age: Brazil, 2009



Public and intergenerational transfers

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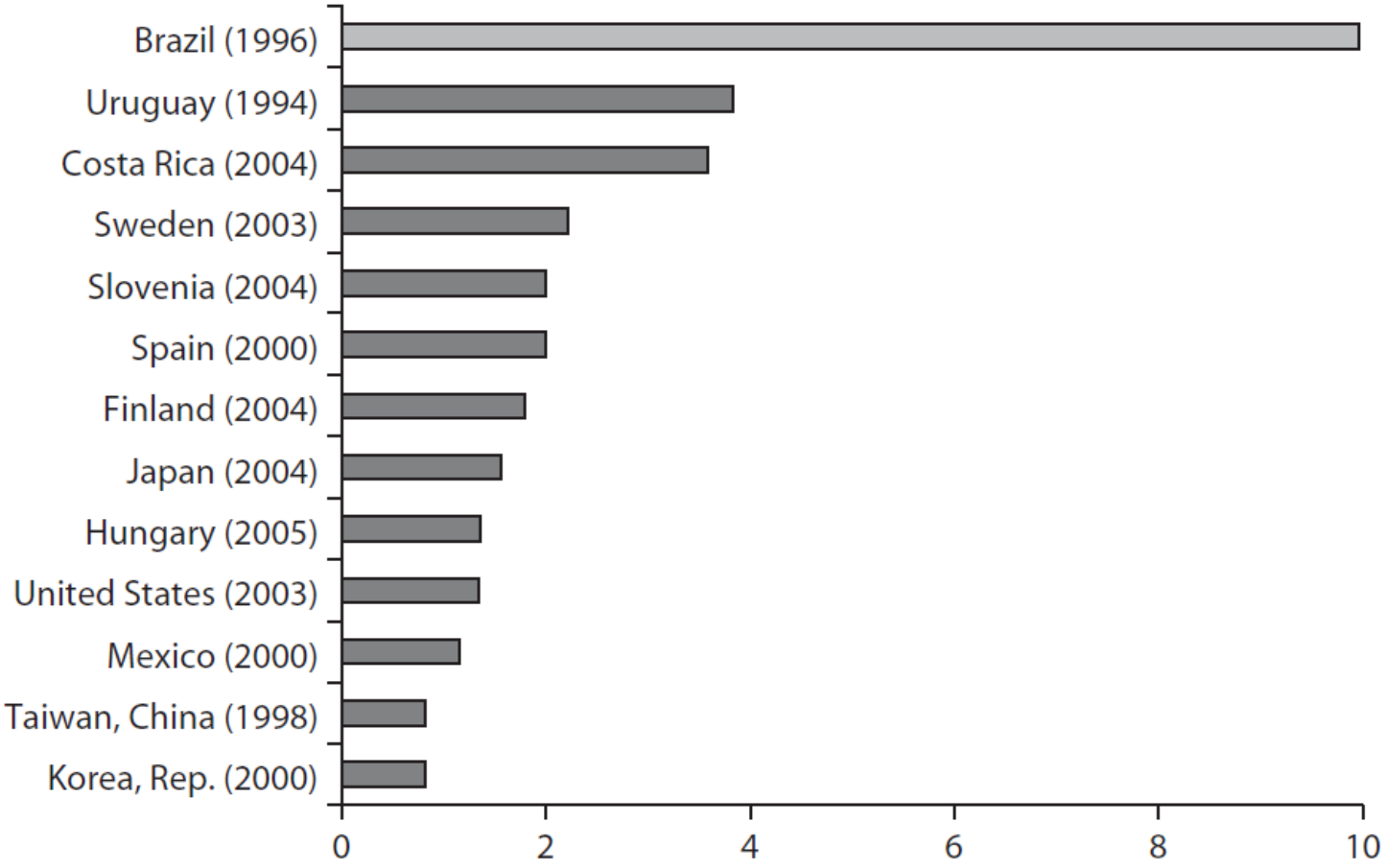
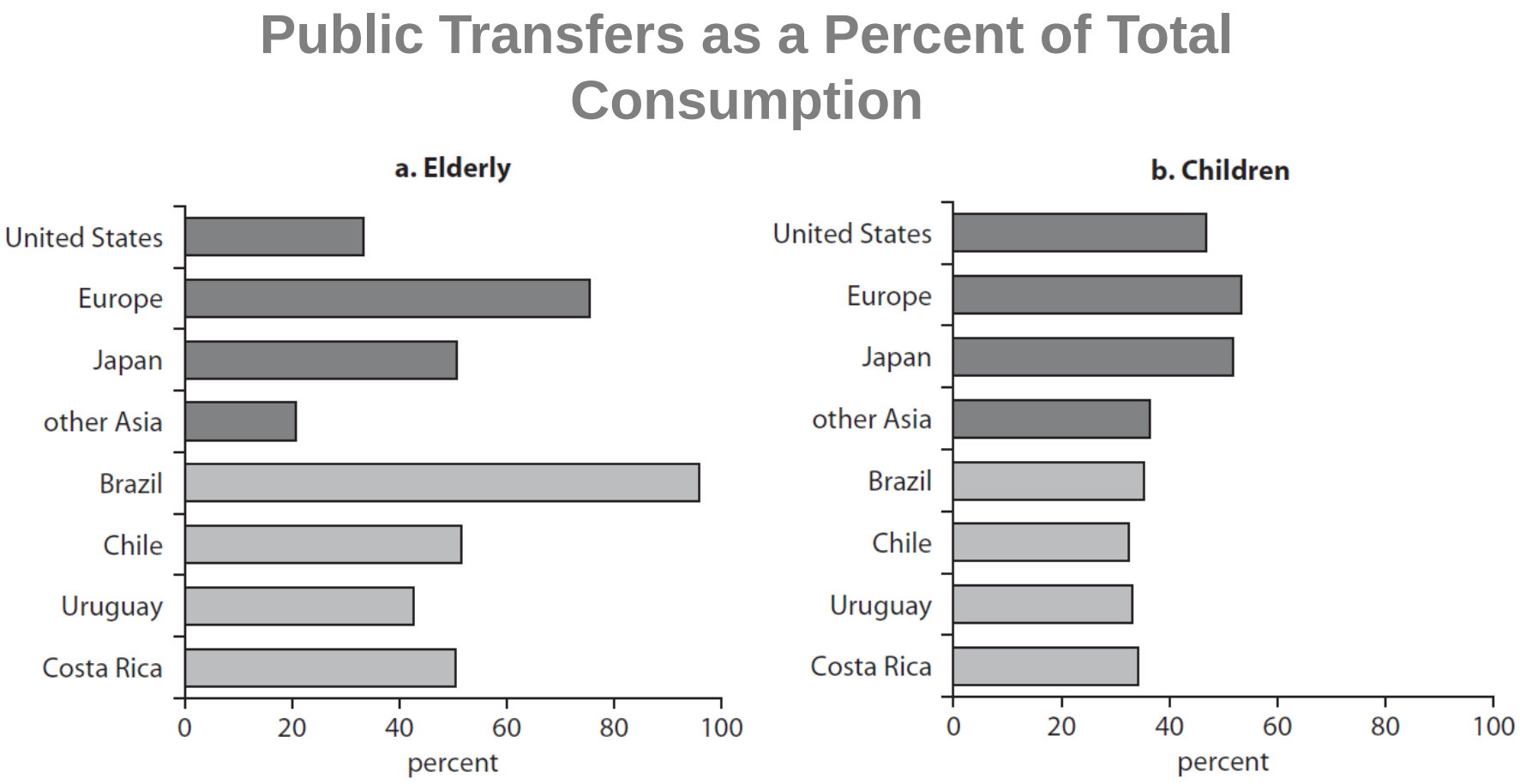
Ratio of net per capita public transfers (elderly to children)



Fonte: Growing old in an older Brazil : implications of population aging on growth, poverty, public finance and service delivery / Michele Gragnolati, et al. Washington D.C.: The World Bank, 2011. p. 12.

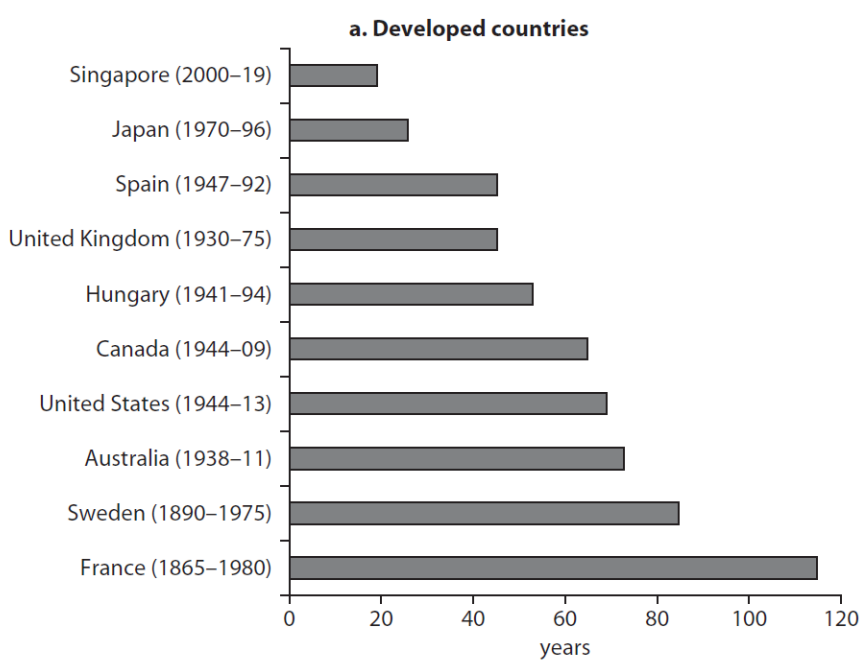
Public and intergenerational transfers

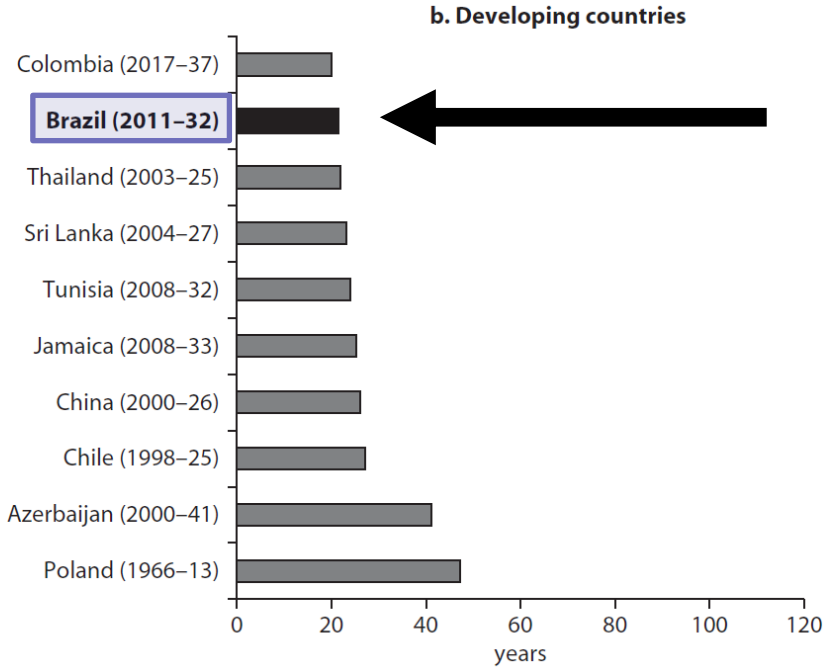


Fonte: Growing old in an older Brazil : implications of population aging on growth, poverty, public finance and service delivery / Michele Gragnolati, et al. Washington D.C.: The World Bank, 2011. p. 12.

Speed of the population aging

Number of years for population 65+ to increase from 7% to 14%





Fonte: Growing old in an older Brazil : implications of population aging on growth, poverty, public finance and service delivery / Michele Gragnolati, et al. Washington D.C.: The World Bank, 2011. p. 12.

Challenges to public policy for a older population

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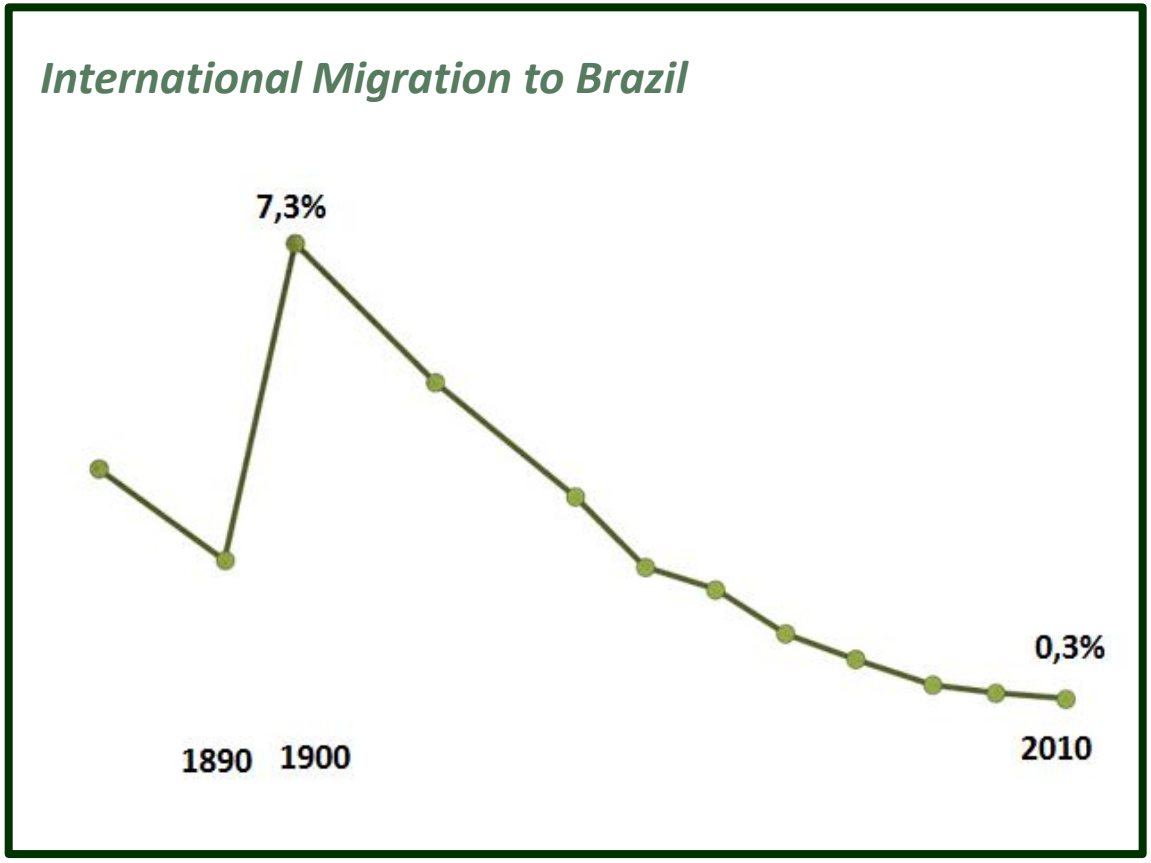
1. Increase in life expectancy need to be accompanied by reduction in morbidity and expansion of the working life cycle.
2. Exponential increase in social security costs requires Brazil to adjust social security rules to the real needs and working potential of the elderly.
3. Adjustment must be fast, since the aging of the population has been very fast and it takes a life time to adjust.
4. Inevitable increase in health expenditures.
5. Increase in demand for long-term care for dependent old persons. Defining the roles for the family and public services.

Economic development and international migration



In 1900, Brazil has reached 7.3% of the population composed of immigrants, today it has just 0.3%.

Fonte: Censos Demográficos

Economic development and international migration

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Age structure of immigrants in Brazil and in the World

Region	Immigrants (millions)	Immigrants over 65 years old (millions)	Immigrants over 65 years of age as a percentage of the immigrant population
World	214	24,7	12
Africa	19	0,8	4
Asia	61	6,3	10
Europe	70	9,7	14
North America	50	5,9	12
Latin Amerrica and Caribbean	7	0,9	13
Oceania	6	1,1	18
Brazil	0,6	0,2	36

5x
Latin America Average

10x
World Average

50x
North America and Oceania Average

Fonte: United Nations, Department of Economic and Social Affairs, Population Division (2009) e Pesquisa Nacional por Amostra de Domicílios (PNAD, 2009).

Challenges: to increase productivity

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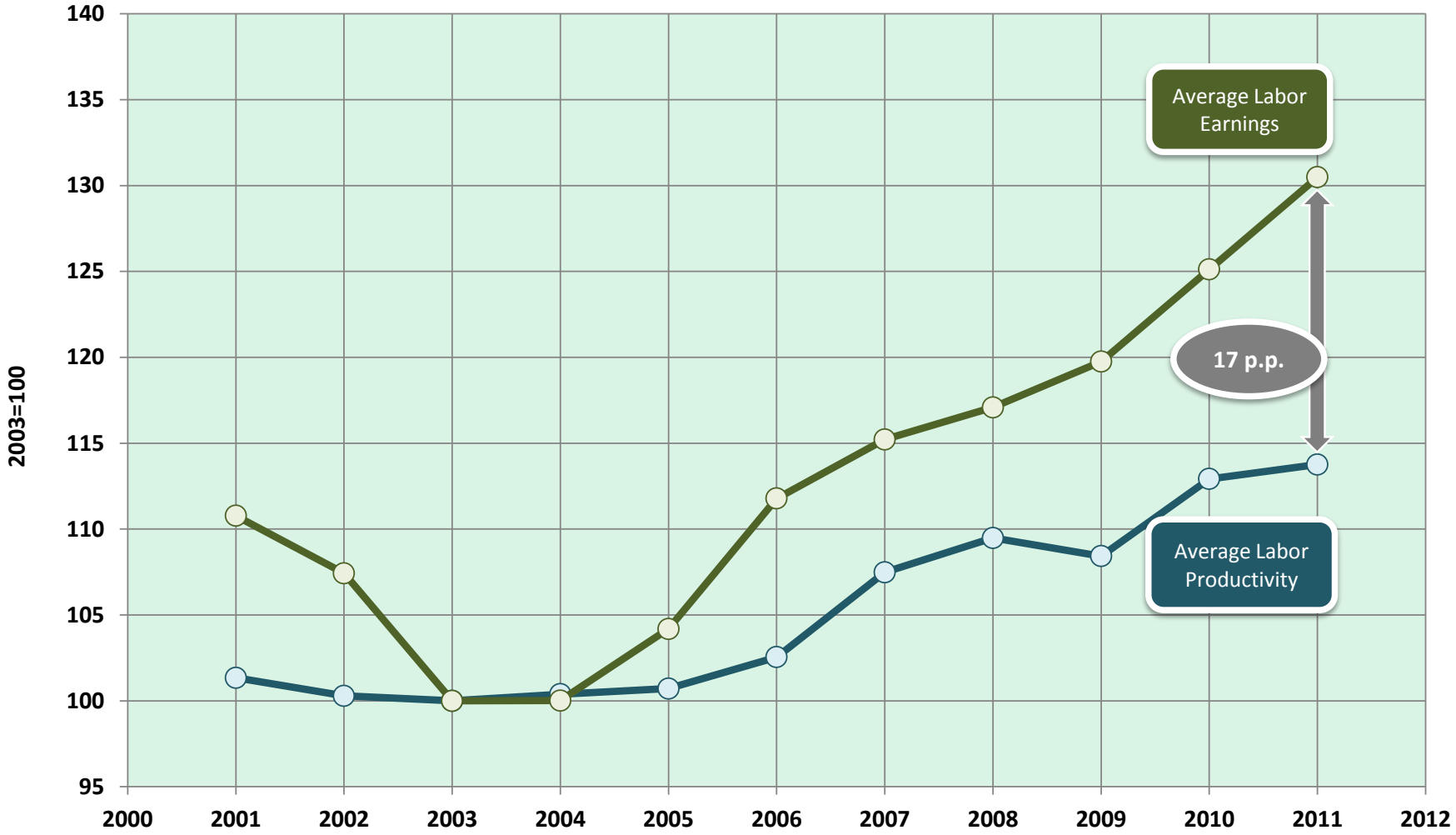
The evolution of labor earnings and of the average labor productivity
Brazil: 2001-2011



Source: SAE/PR based on the PNAD (Labor Earnings) and Penn World Tables (Labor Productivity).
Average labor productivity as GDP/worker (Real GDP at constant 2005 national prices).

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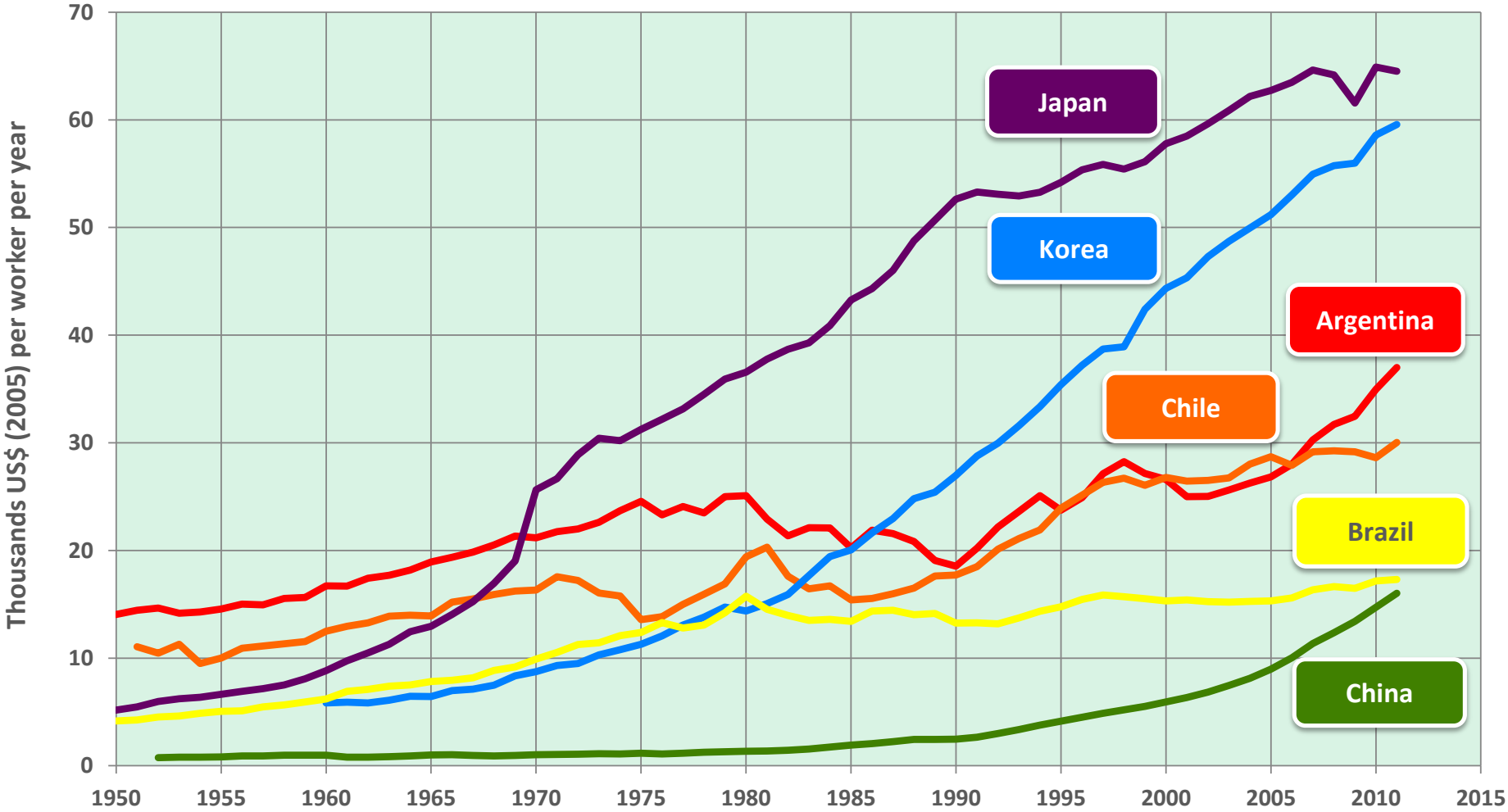
The Evolution of the Average Labor Productivity
Selected countries: 1950-2011



Source: SAE/PR based on the Penn World Tables.
Labor productivity as GDP/worker (Real GDP at constant 2005 national prices).

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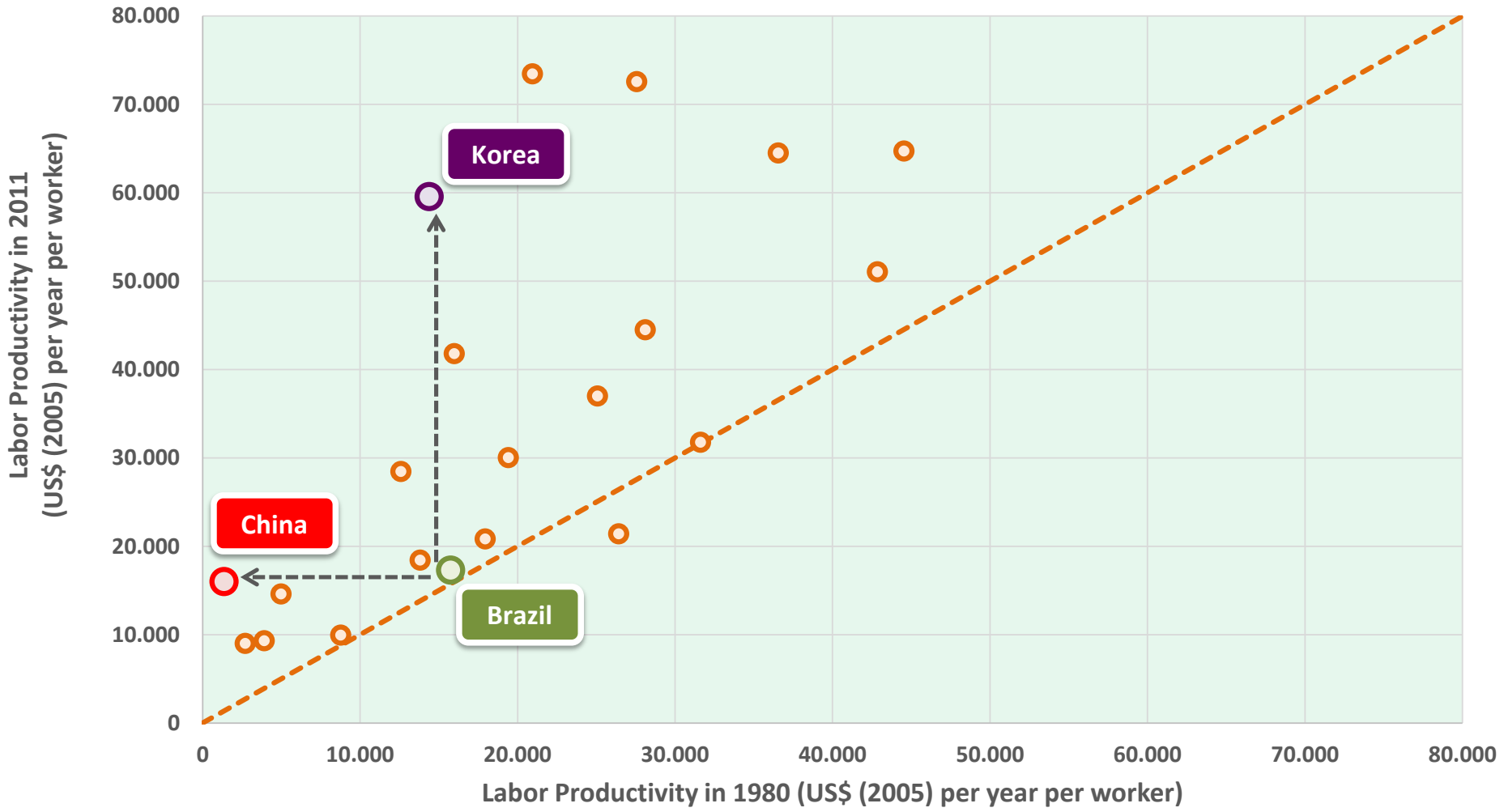
Ratio between labor productivity in 1980 and 2011



Source: SAE/PR based on the Penn World Tables.
Labor productivity as GDP/worker (Real GDP at constant 2005 national prices).

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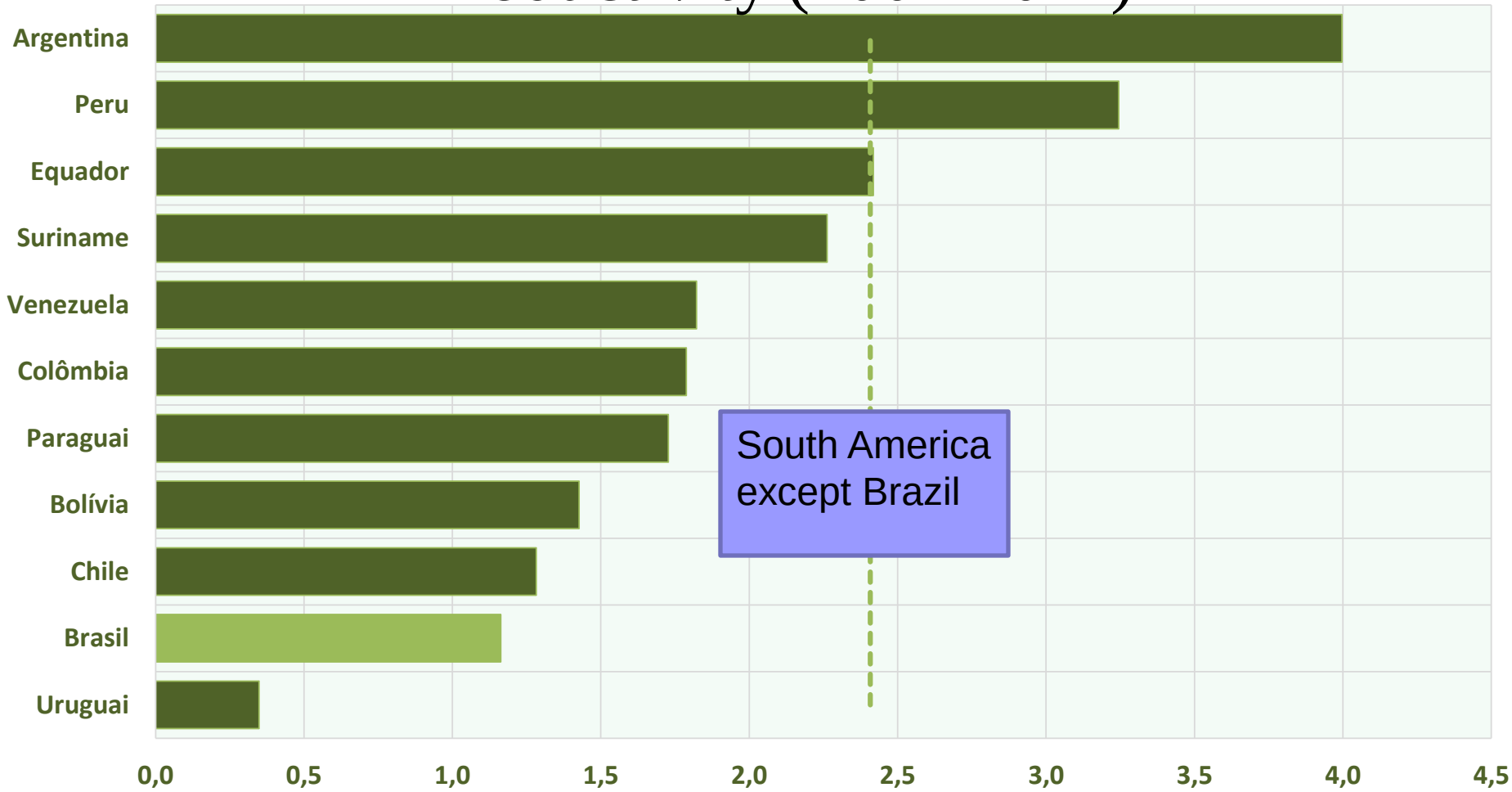
Annual Growth Rate of Average Productivity (2001-2011)



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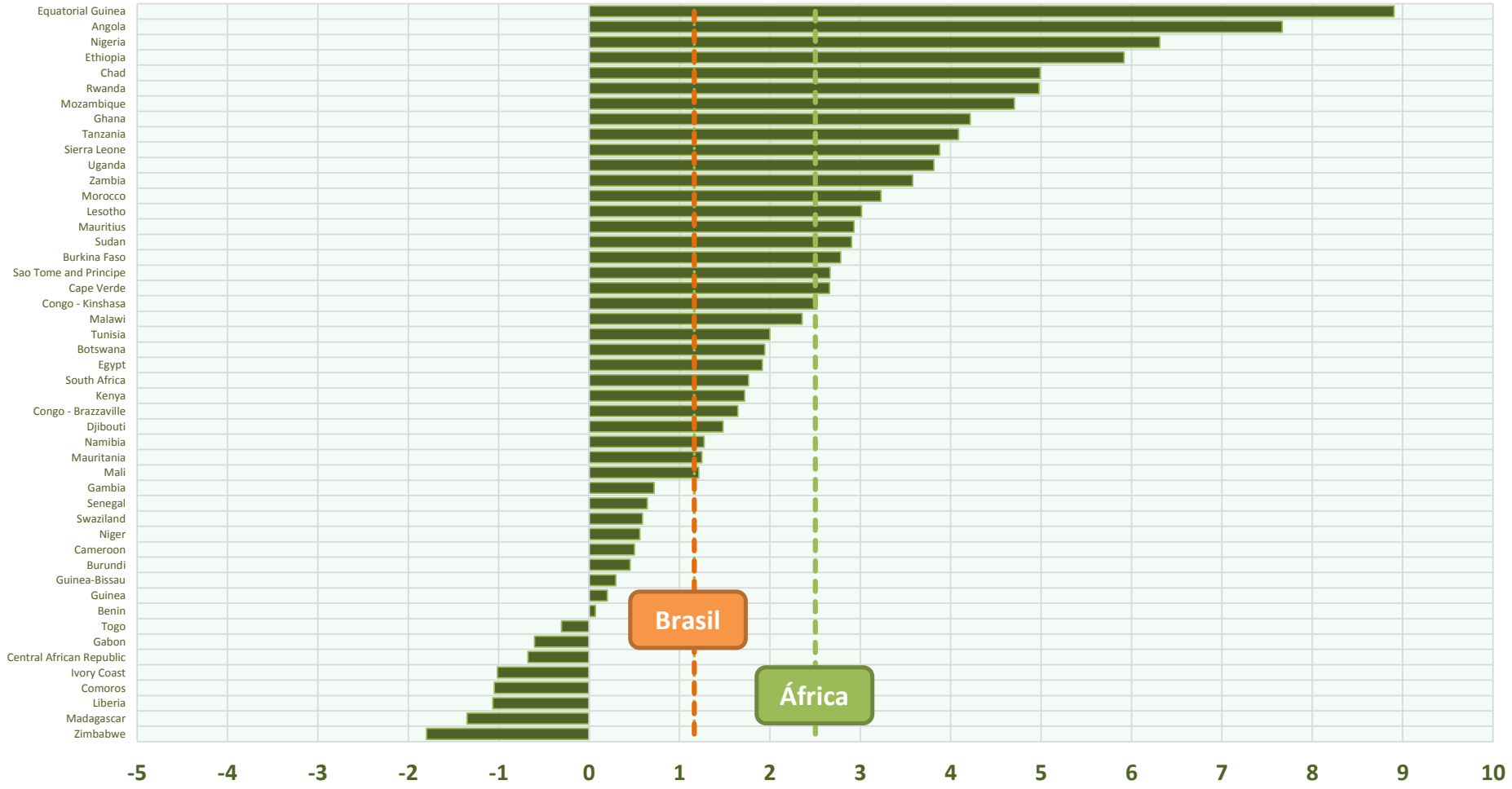
Annual Growth Rate of Average Productivity - Africa



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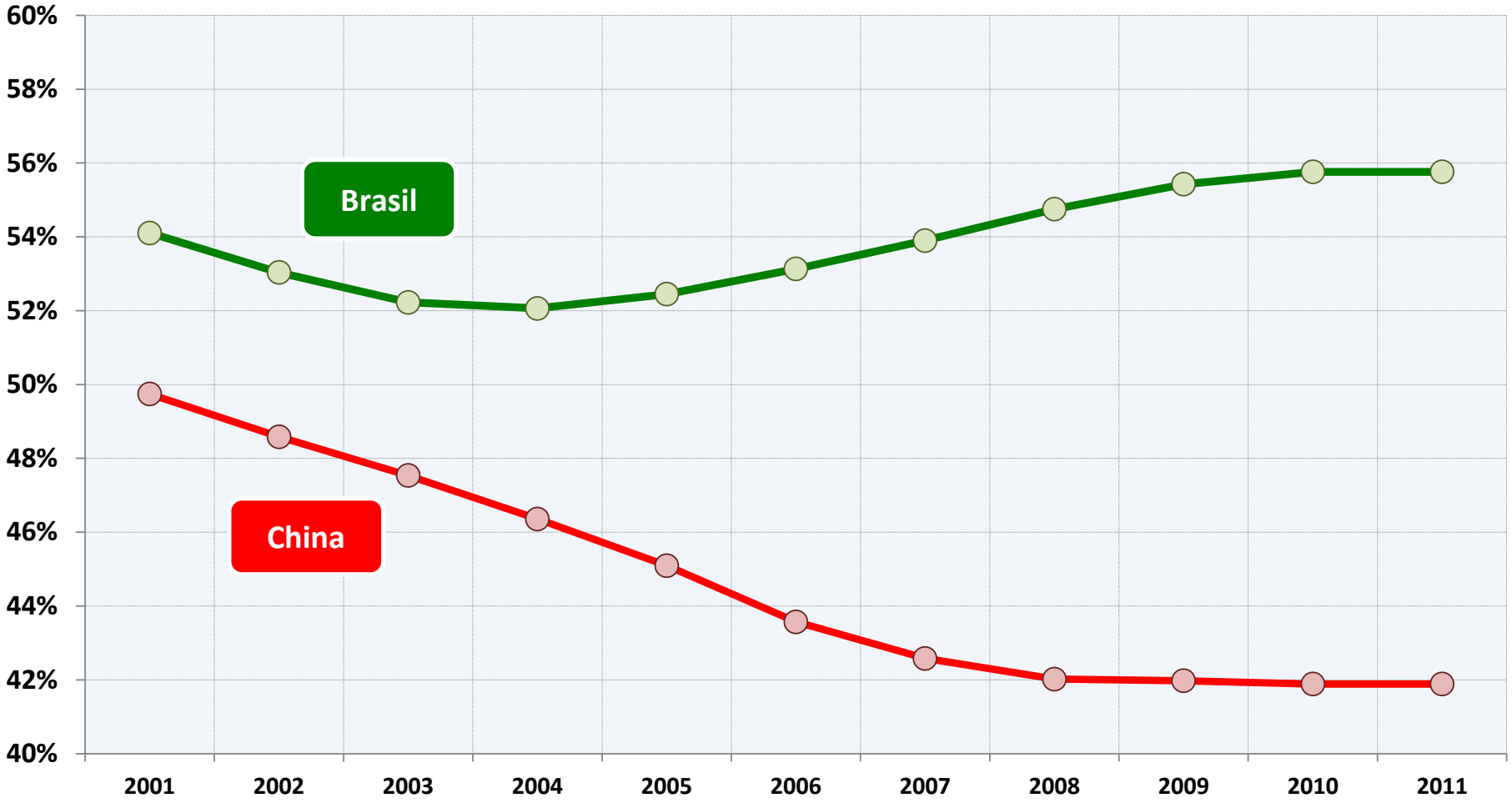
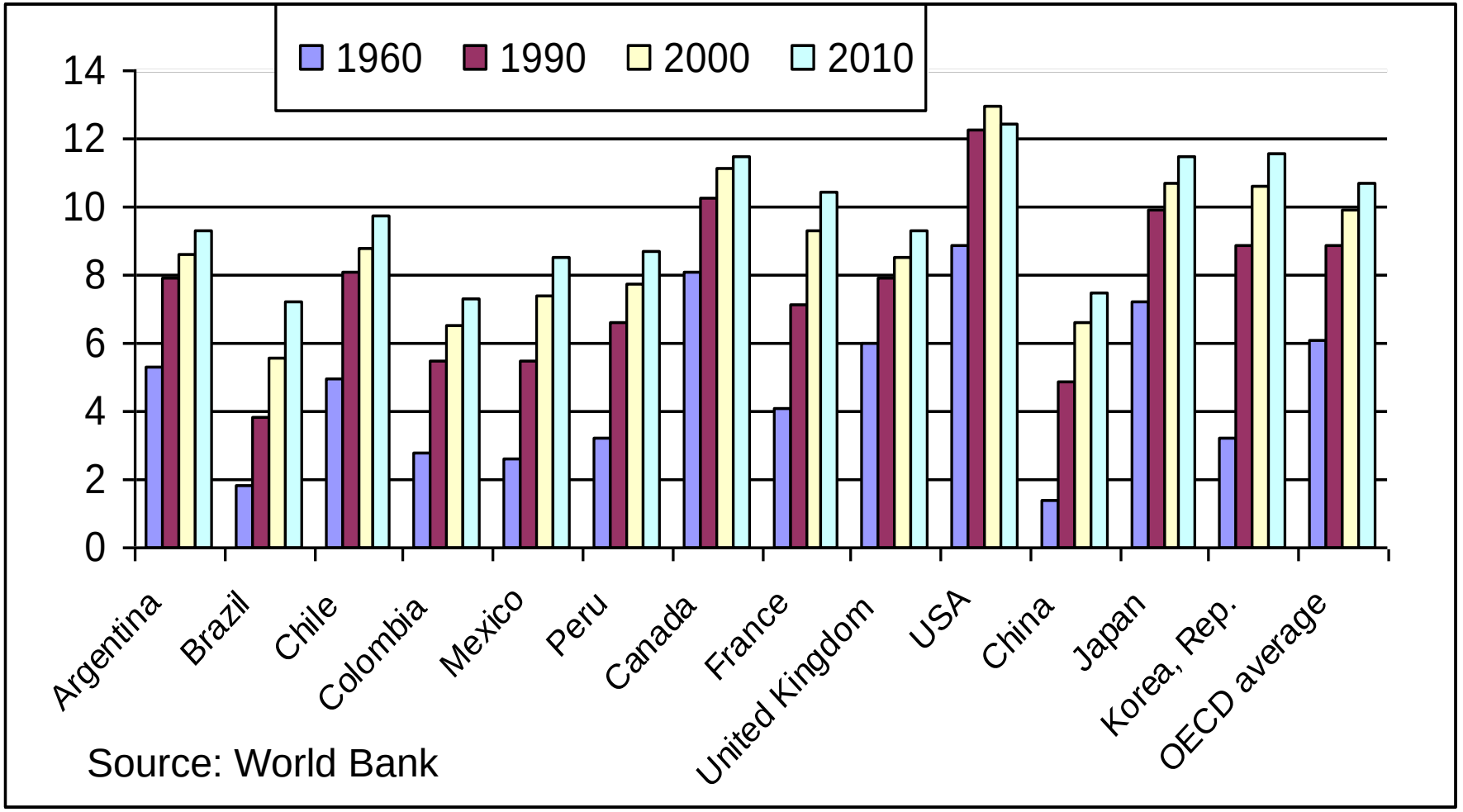
Labor Income Share of National Income



Challenges: Education

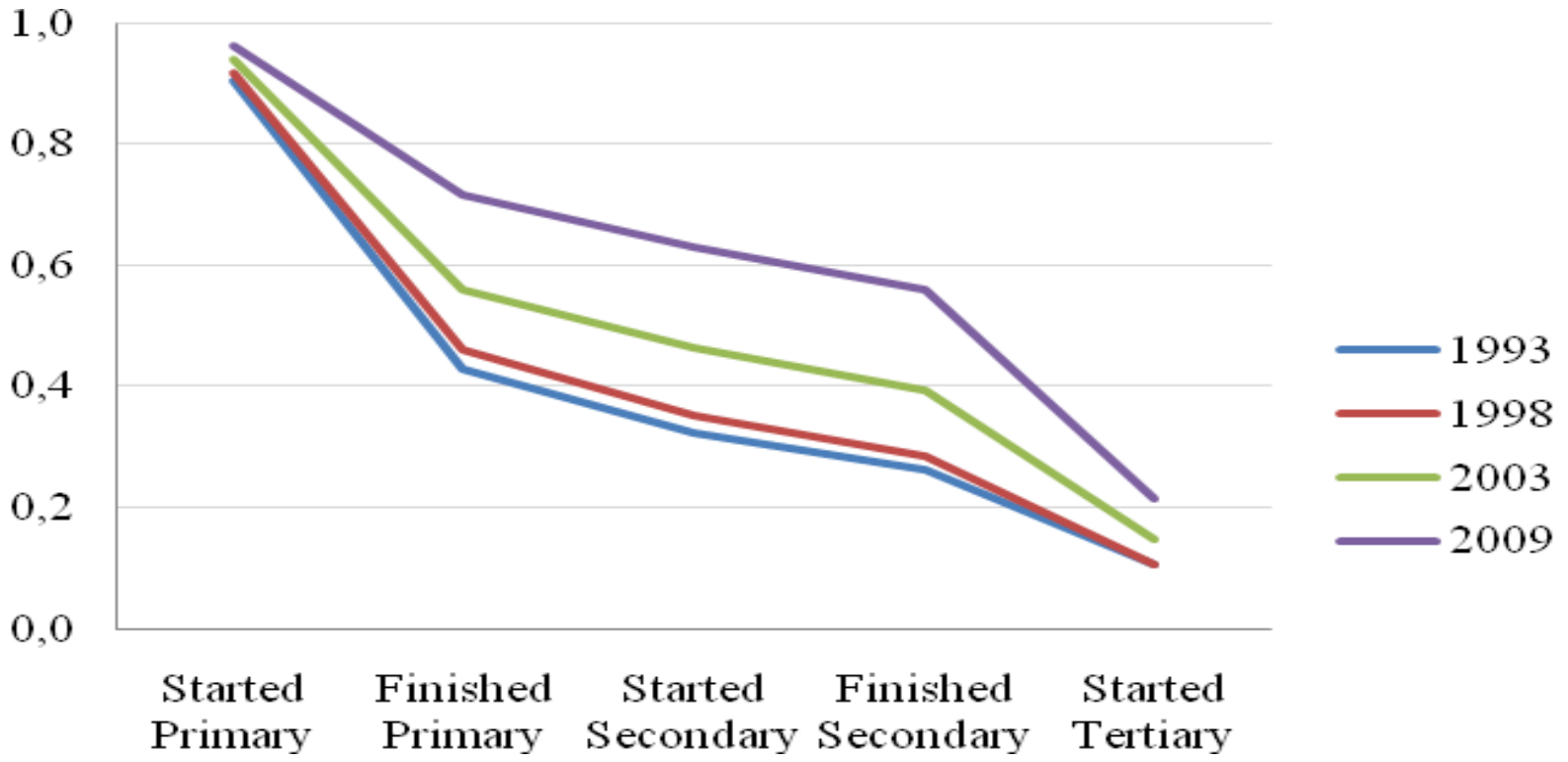
Average Years of Schooling

Adult Population



Source: World Bank

Schooling Flow - Brazil



Source: World Bank, 2010

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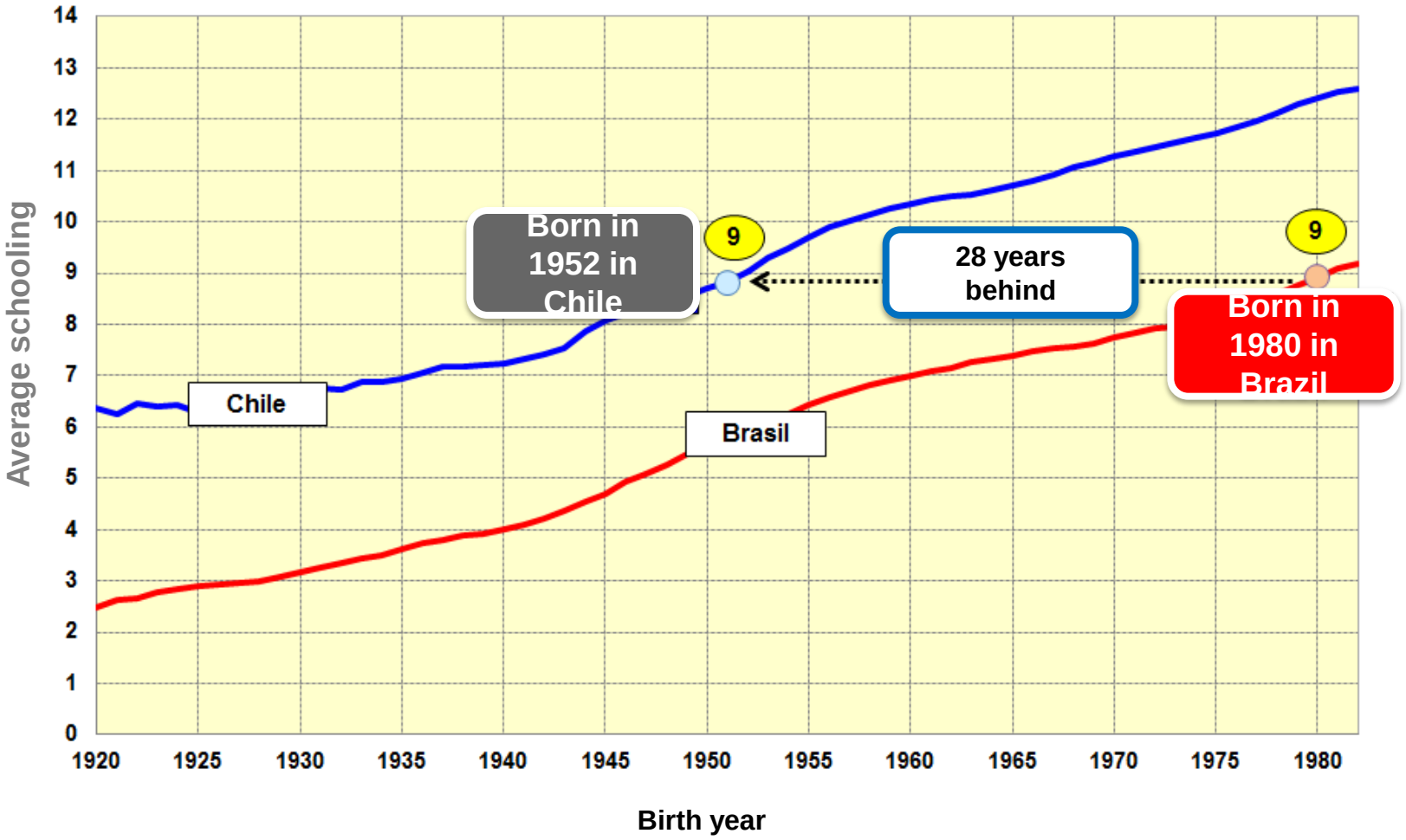
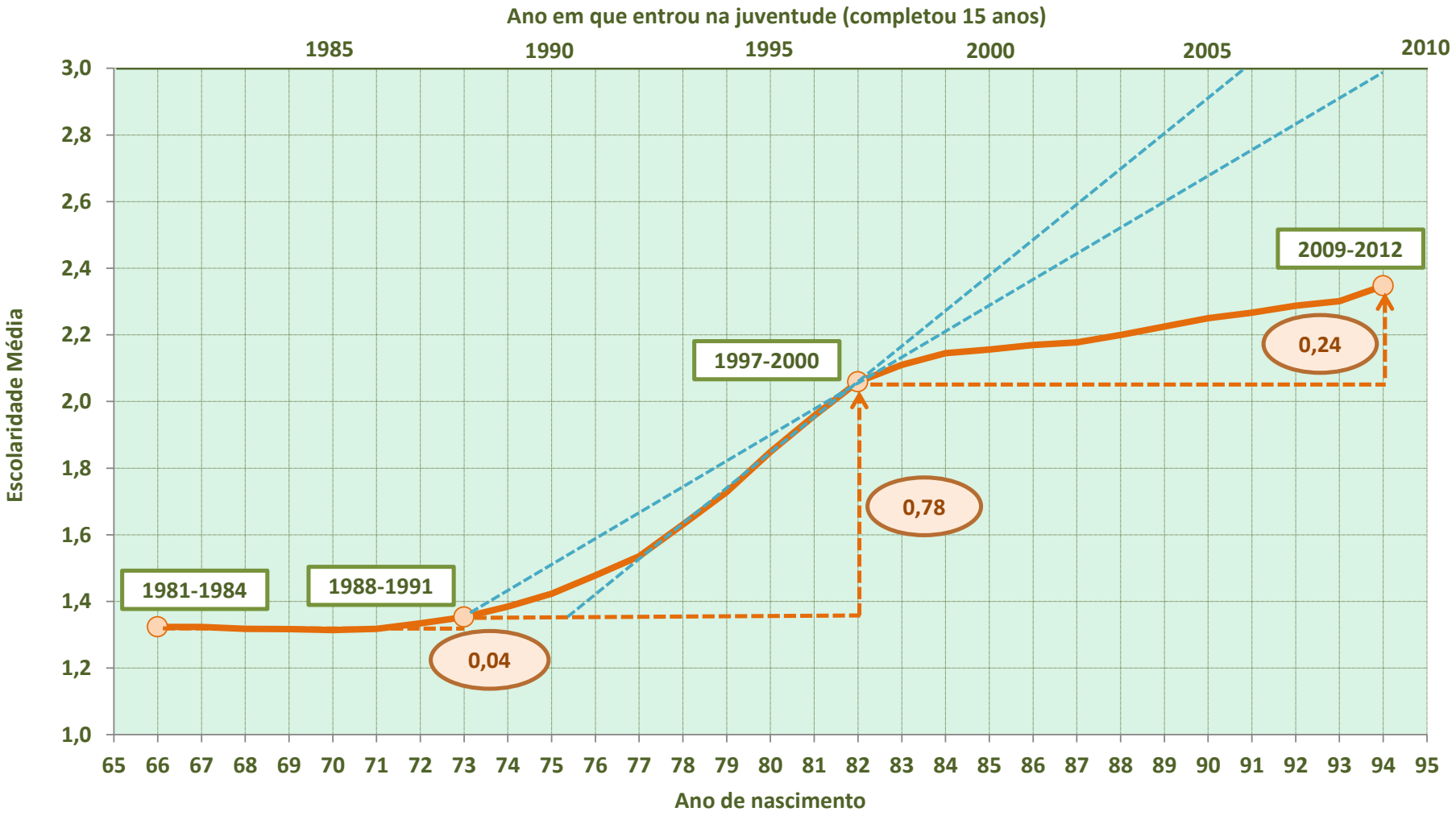
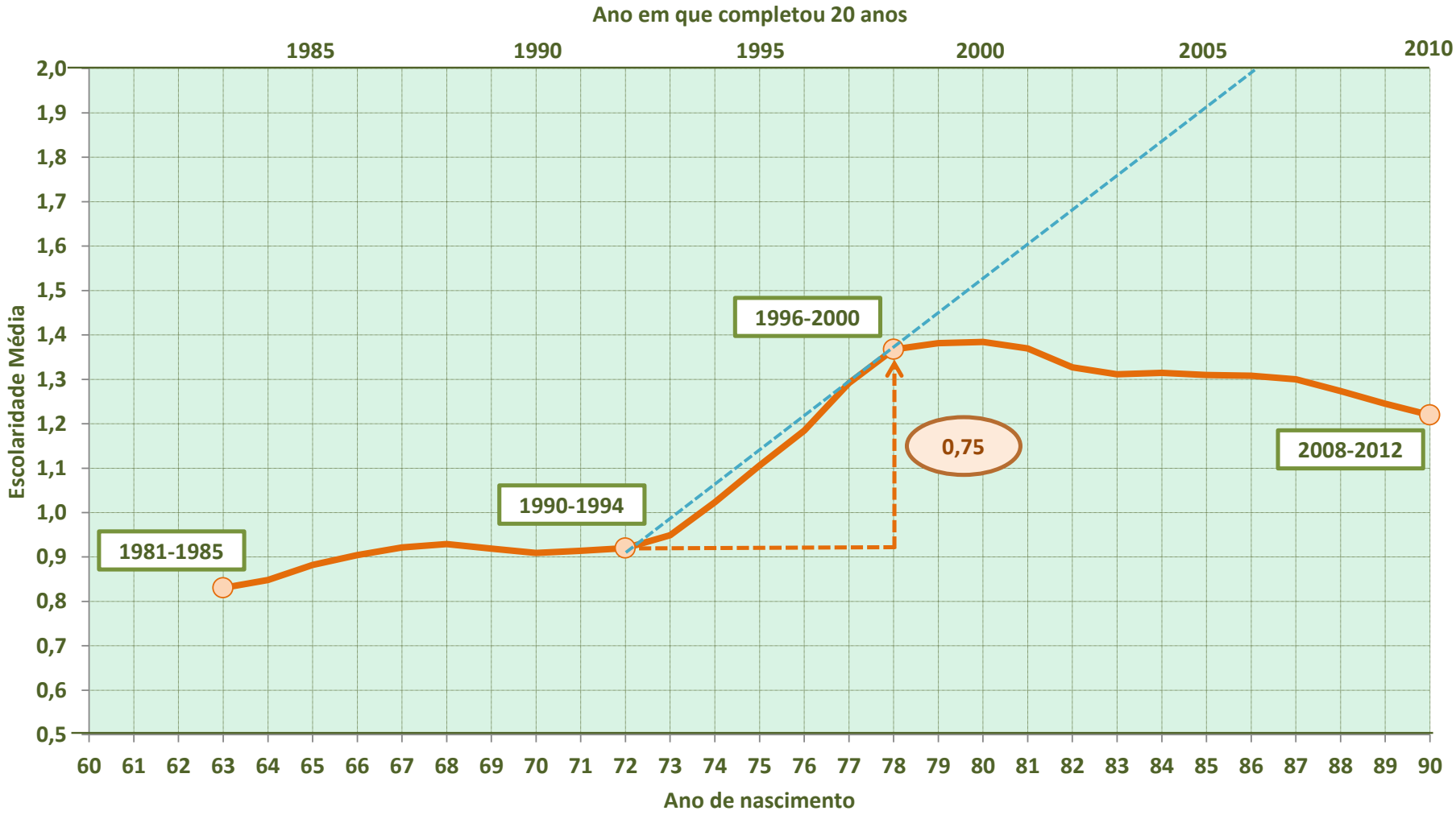
Evolution of average schooling by birth cohort: Brazil



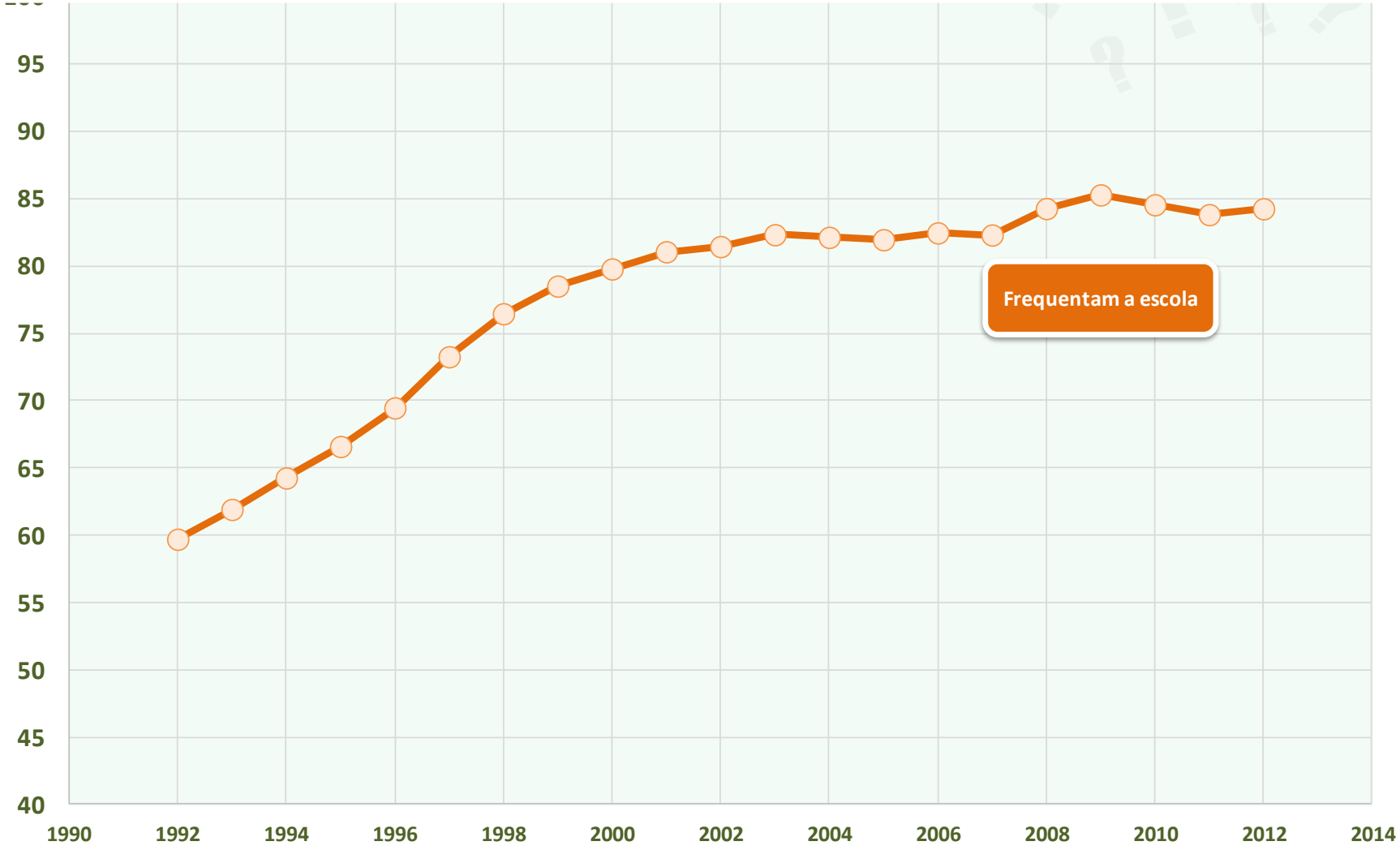
Additional years of schooling obtained during youth (age 15 to 18) by birth year or by year individual was aged 15



Additional years of schooling obtained during 18 to 22 by birth year or by year individual was aged 20

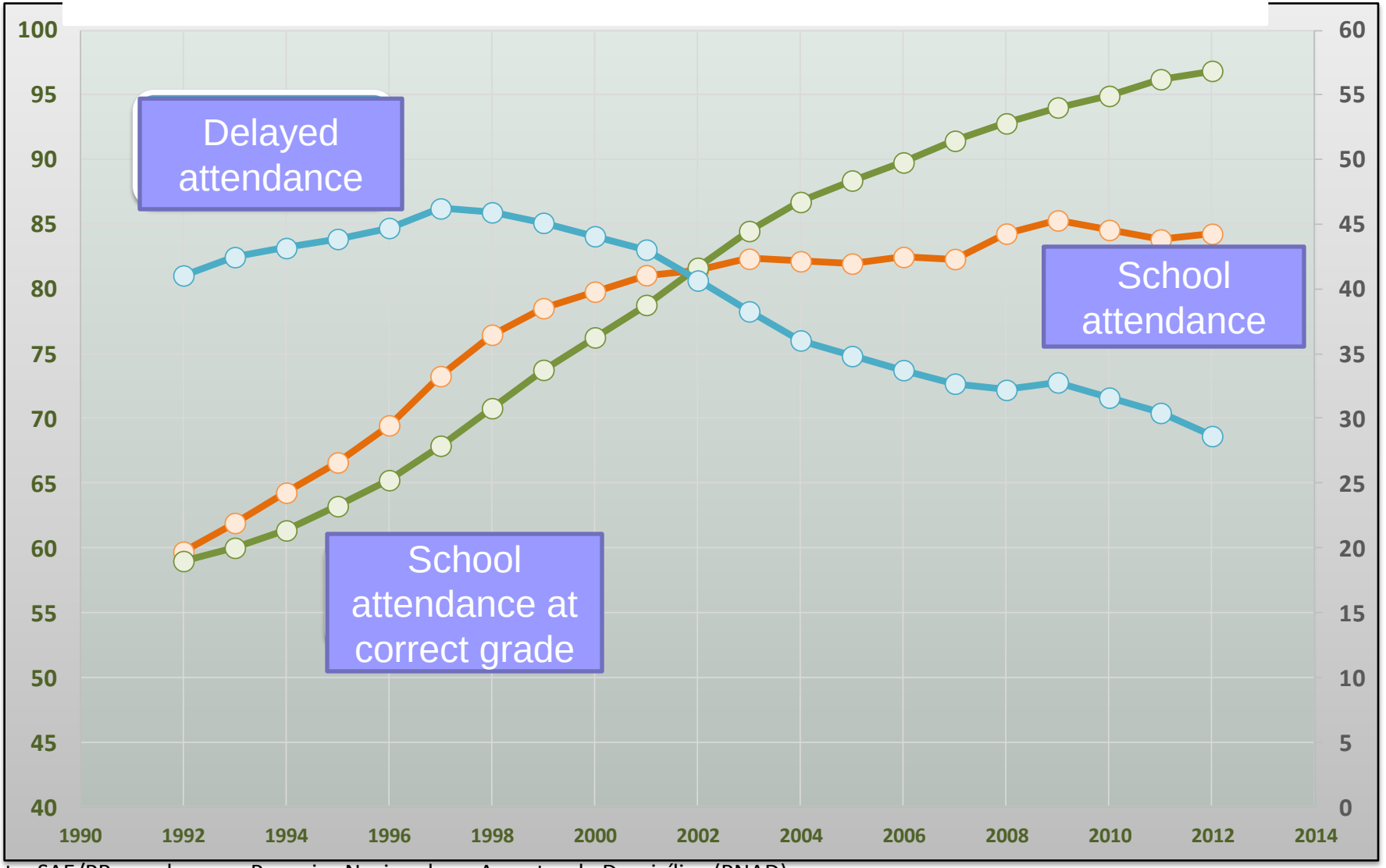


Youth School Attendance by Year - Brazil



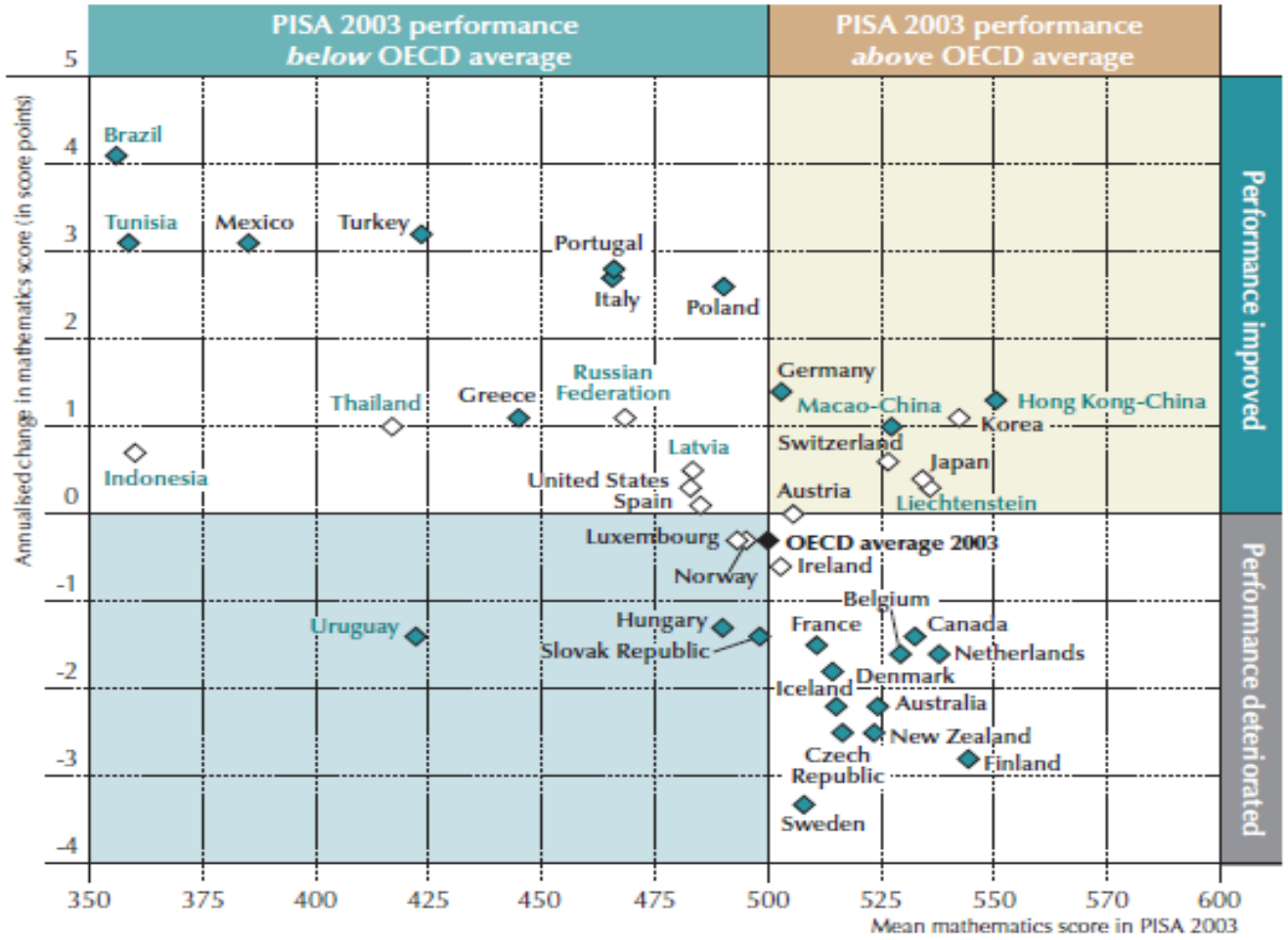
Fonte: SAE/PR com base na Pesquisa Nacional por Amostra de Domicílios (PNAD).

Youth School Attendance



Fonte: SAE/PR com base na Pesquisa Nacional por Amostra de Domicílios (PNAD).

Annualised change in performance between 2003 and 2012 and average PISA 2003 mathematics scores



Notes: Annualised score-point changes in mathematics that are statistically significant are indicated in a darker tone.
The annualised change is the average annual change in PISA score points from a country's/economy's earliest participation in PISA to PISA 2012. It is calculated taking into account all of a country's/economy's participation in PISA.

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Thank you!