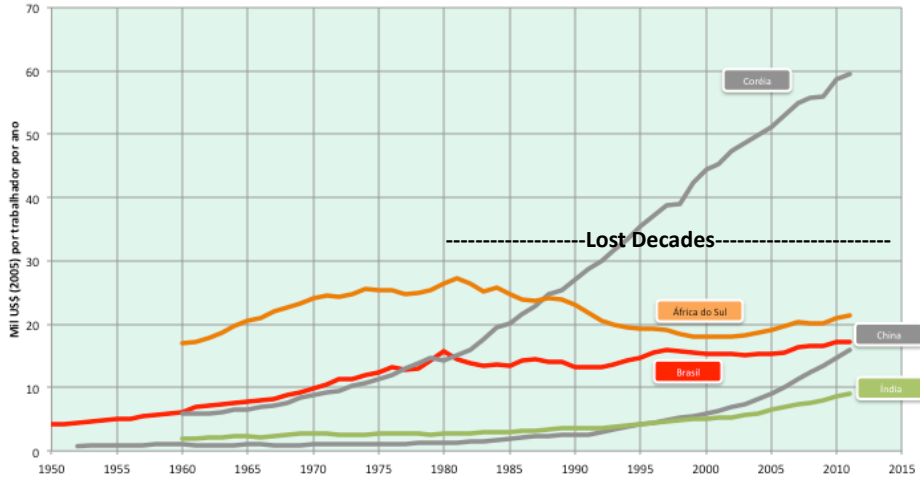


***Main Productive Inclusion Question**

Why Brazil has remained behind in terms of labor productivity?



Fonte: SAE/PR com base na Penn Tables.
 Produtividade média igual a PIB/trabalhador (PIB real a preços constantes).

**Compensation vs Productivity
 Is there a gap?**

Labor Productivity and Labor Compensation



PNAD real income grew 2 percentage points above GDP since 2003. (same phenomena).
 In China was the opposite.

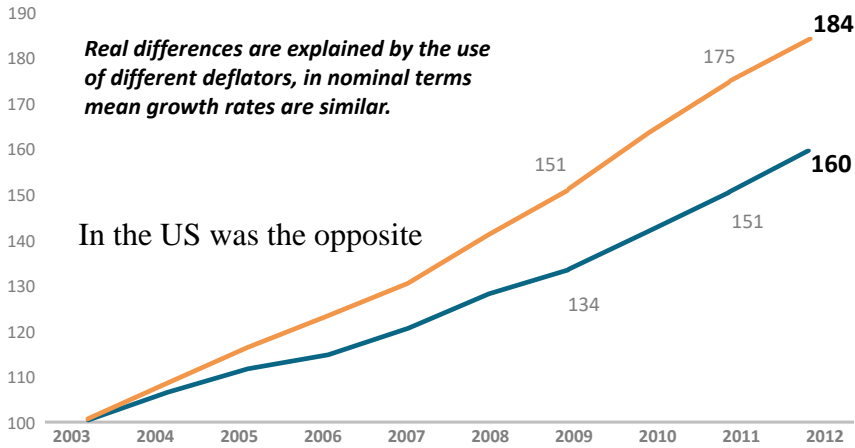
Nota: Renda deflacionada com INPC; PIB com deflator implícito do PIB.
 Fonte: Renda, Pesquisa Nacional por Amostra de Domicílios (PNAD/IBGE); PIB, Sistema de Contas Nacionais (SCN/IBGE).

How much did it grow?

Prosperity

GDP Implicit Deflator X CPI Deflator (INPC)

Real Per Capita 2003 = 100



Real differences are explained by the use of different deflators, in nominal terms mean growth rates are similar.

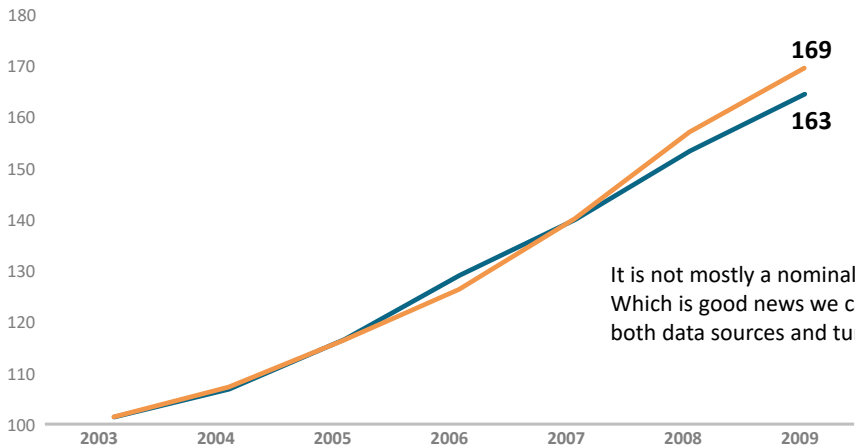
In the US was the opposite

Source: FGV Social from PNAD/IBGE microdata and National Accounts/IBGE

How much did it grow?

Nominal Labor Income National Accounts X Nominal Labor Income PNAD

Real Per Capita 2003 = 100



It is not mostly a nominal difference
Which is good news we can preserve
both data sources and turn to deflators

Source: FGV Social from PNAD/IBGE microdata and National Accounts/IBGE

Growth Gaps Between 2003 and 2013

In Real Terms	Annual Growth
Gap (HH Income per capita (PNAD) – GDP)	1.9%
Gap Labor Cost (PNAD) - Labor Productivity (GDP per Worker)	2.0%

What explains the 2nd Gap?

	Nominal GAP PNAD/GDP	Temporal Adjustment	CPI/Implicit Deflator (ID) Private Consumption (C)	ID Private Consumption(C)/I D Domestic Demand (C+G+I)	ID Domestic Demand (C+G+I)/ID Total Demand (C+G+I+X-M)
Contribution to GAP %	18	0	41	24	17

Nota: Renda deflacionada com IPCA; PIB com deflator implícito do PIB.
 Source: Pesquisa Nacional por Amostra de Domicílios (PNAD/IBGE); Sistema de Contas Nacionais (SCN/IBGE).

$$\begin{aligned} \text{Real PNAD/ Real GDP} &= \text{PNAD/ CPI} * \text{ID (GDP)/ GDP} = \text{PNAD/ GDP} * \text{CPI /ID (GDP)} = \\ &= \text{PNAD/ GDP} * \text{CPI/ ID (C)} * \text{ID (C)/ ID (C+G+I)} * \text{ID (C+G+I) /ID (GDP)} \end{aligned}$$

Where: ID means Implicit Deflator from the National Accounts
 CPI mean Consumer Price Index

Meso – Productivity in Brazil

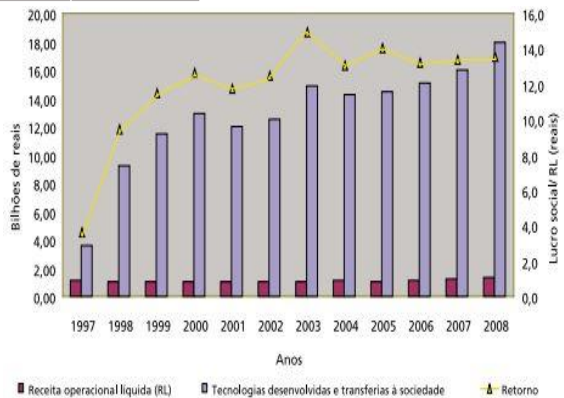
Productivity Growth by Macro Sectors				
	1996-2002	2003-2006	2007-2010	2011-2014
Agriculture	5,7%	2,2%	6,1%	5,3%
Manufacturing	-2,0%	0,1%	0,5%	-0,6%
Services	-0,7%	0,0%	2,2%	0,9%
Total	0,1%	0,4%	2,7%	1,1%

Source: FGV IBRE

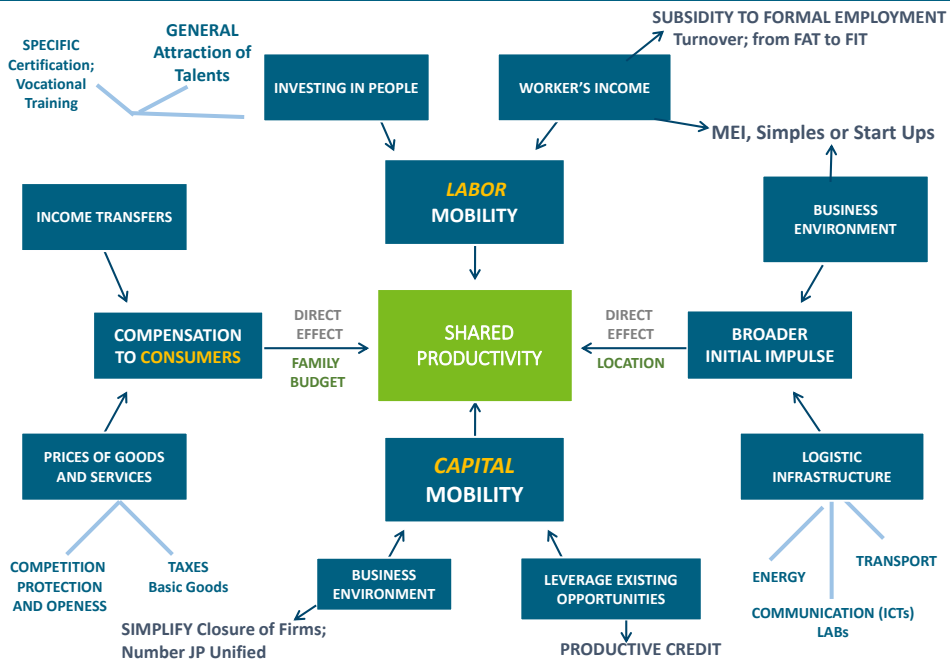
*Brazil: Farm of the World
 Also Mining and Oil (sub-sea)*

Following Barbosa and Velloso (IBRE) between 2014 and 2017 informality rise explains 46% of productivity fall (-3,6% total)

Embrapa



***Productive Inclusion: Channels of Impact from Shared Productivity Policies**



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