POVERTY AS INCOME INSUFFICIENCY *1

References :

- *Neri, M. (2017) "Poverty". In: Geraldo Di Giovanni ; Marco Nogueira. (Org.). Dicionário de Políticas Públicas..
- *Deaton, A.(1997): The Analysis of Household Surveys, Washington, World Bank., chapter 3, pags 140 to 151 OBS: Seen in the 1st class see inequality part of the course https://www.cps.fgv.br/cps/bd/curso/5-Angus-Deaton-Welfare-poverty-and-distribution.pdf
- ** Fields, Gary, (2001) "Distribution and development", chapter 4 and Chapter 5 (*pages 86 to 94 and 100-102) https://www.cps.fgv.br/cps/bd/curso/pobreza/3BES2-The-Measurement-of-Poverty.pdf
- ***Ferreira, Neri and Lanjouw (2003), "A Robust Poverty Profile for Brazil Using Multiple Data Sources", In **Revista Brasileira de Economia**, 2003.

- See the second page of Social Welfare and Inequality in the course webpage:

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Approaches Overview :

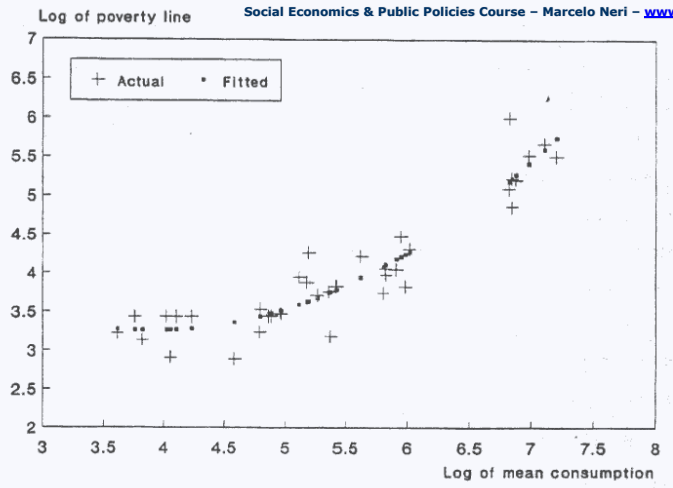
i) Social welfare versus poverty

ii) Relative poverty versus absolute poverty;

iii) poverty versus indigence

iv) multi-dimensional versus one-dimensional

v) Objective versus Subjective



PPP Adjusted

Figure 1: Poverty Lines for 36 Countries. The poverty lines are plotted against private consumption per capita from national accounts, both at purchasing power parity around 1985. Fitted values based on a regression of log poverty line against a quadratic function of log mean consumption. (Source: See Ravallion, Datt and van de Walle 1991; data available from the author.)

Absolute Poverty lines are relative in practise (country specific lines)
Relative Poverty: Typically, half of the mean per capita income or 2/3 of its median

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Absolute Poverty Line Development:

- Poverty Line = Indigence Line***(1/% food in HH budget)**
- where the **Engel Coefficient above**, is a function of the household income ratio spent with food (which decreases with income – inferior good)

The Indigence Line is calculated as the monetary value required to obtain the calories needed at the market (Ex: 2288 calories intakes per day, following WHO - World Health Organization standard).

ONEDIMENSIONAL AND ABSOLUTE

FGT Indicator (Foster, Greer and Thorbeck (1984)):

$$p^{\alpha} = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^{\alpha}$$

(1)

where
n = population
q = population below poverty line
Z = poverty line
Y_i = **income level for the individual i**
alpha = poverty aversion degree

P^0

If α is equal to 0 we have the proportion of poor ($P^0 = q/n$).

P^1

Advantage: Distinguishes different levels of poverty;

$$P^1 = \frac{q}{N}\left(\frac{Z - \bar{Y}_p}{Z}\right)$$

P^1 measures how far, on average, it is from the poverty line.

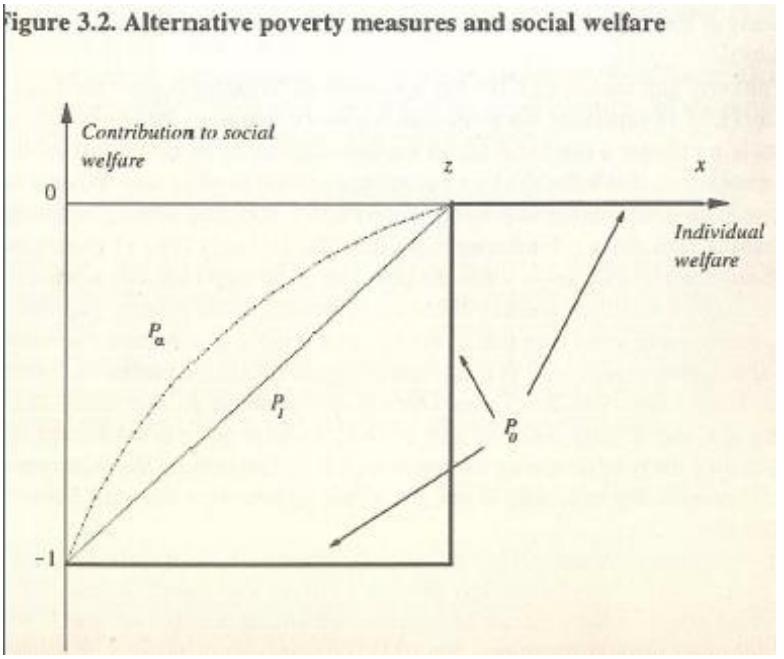
Disadvantage: P^1 does not take the inequality between the poor into account.

P^2

P^2 proportionately gives more weight to the poorest.

Advantage: Take into account inequality between the poor;

All poverty indicators above are fully decomposable!



Source Deaton (1997) Section 4.2

Sen (1976)

$P_s = P^0 \delta^P + P_1 (1 - \delta^P)$

if $\delta^P = 0 \rightarrow P_s = P_1$

if $\delta^P = 1 \rightarrow P_s = P_0$

Previously Popular Poverty Indexes

Watts (1968)

$P_W = (1/n) \Sigma \log (Z/ y_i)$

Clark, Hemming and Hulp (1981)

$P_{C\text{-}H\text{-}U} = (1/nc) \Sigma [1 – (y_i / Z)^c]$

Key–Questions:

P^0 **How many are poor?**

P^1 **How serious is the problem?**

P^2 **Where should we start?**

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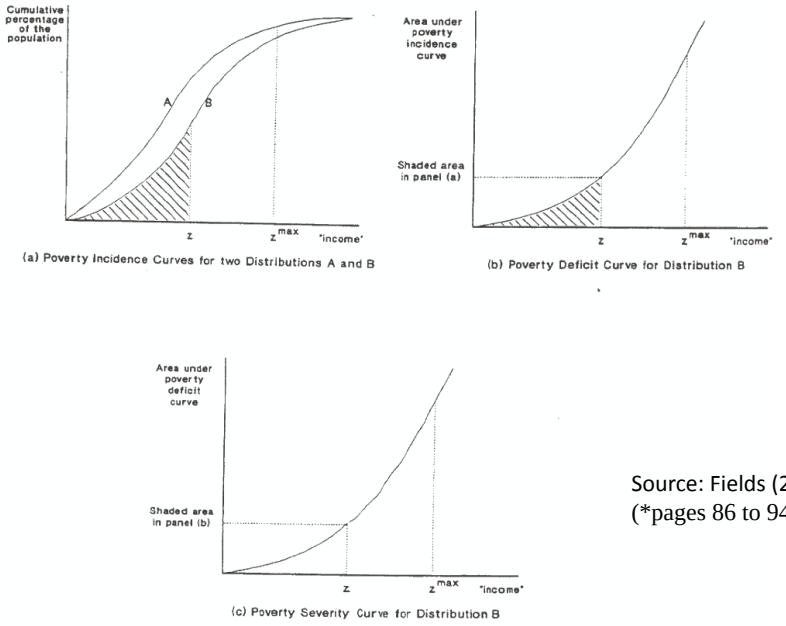
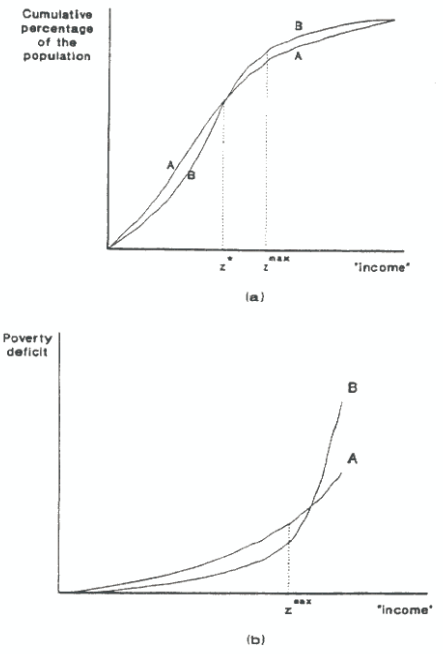
Poverty Dominance

- A dominates B in 1st order (FOD) => $P^0A > P^0B$ for every z
- A dominates B in 2nd order (SOD) => $P^1A > P^1B$ for every z
- A dominates B in 3rd order (TOD) => $P^2A > P^2B$ for every z



Source: Fields (2001)
(*pages 86 to 94)

Figure 4: The Construction of the Three Poverty Curves. Each point on the "poverty deficit curve" (panel b) is the area under the "poverty incidence curve" (a) up to that consumption or income level. Similarly, each point on the poverty severity curve (c) is obtained from the corresponding area under the poverty deficit curve.



Source: Fields (2001)
(*pages 86 to 94)

Theorem

(FOD) => (SOD) => (TOD)

Source: Fields (2001)
(*pages 86 to 94)

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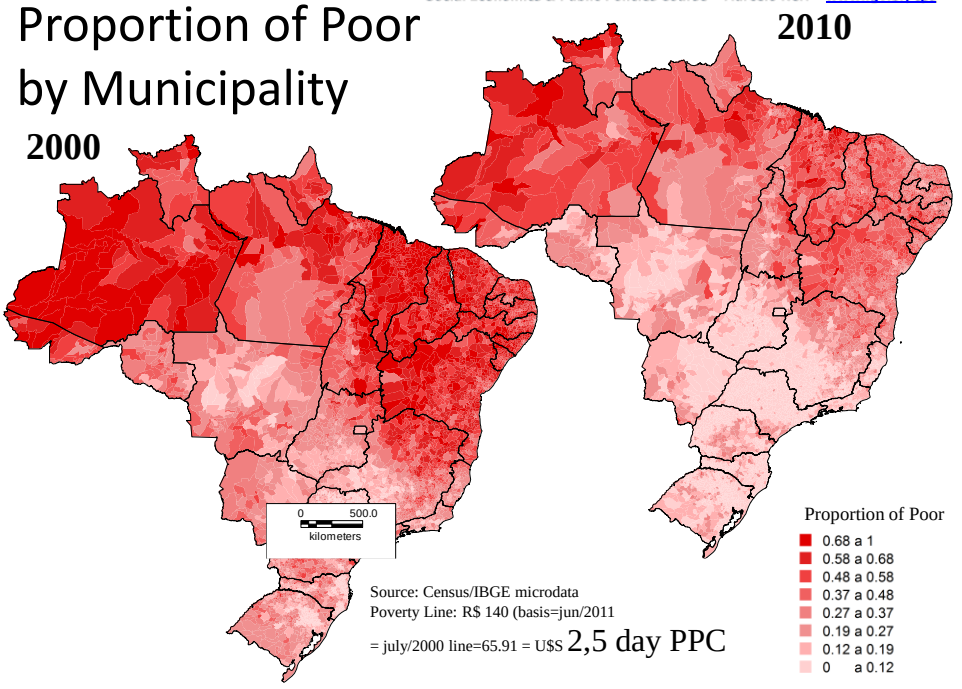
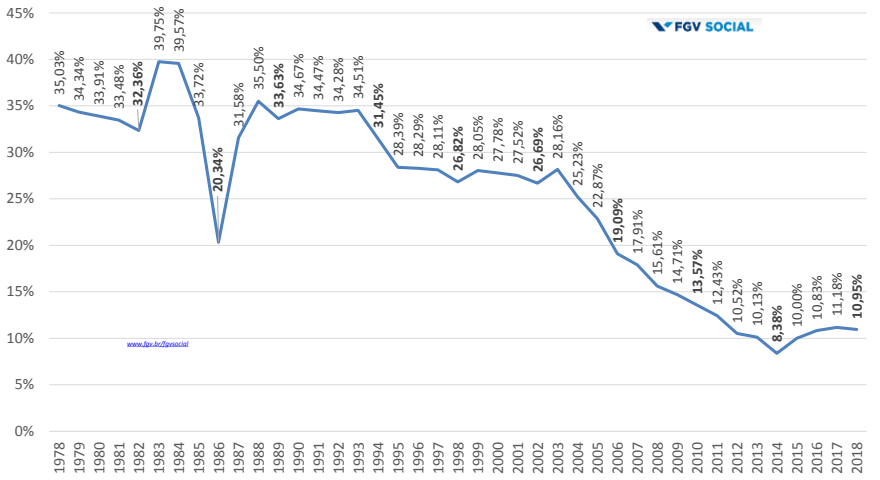
Proportion of Poor by Municipality

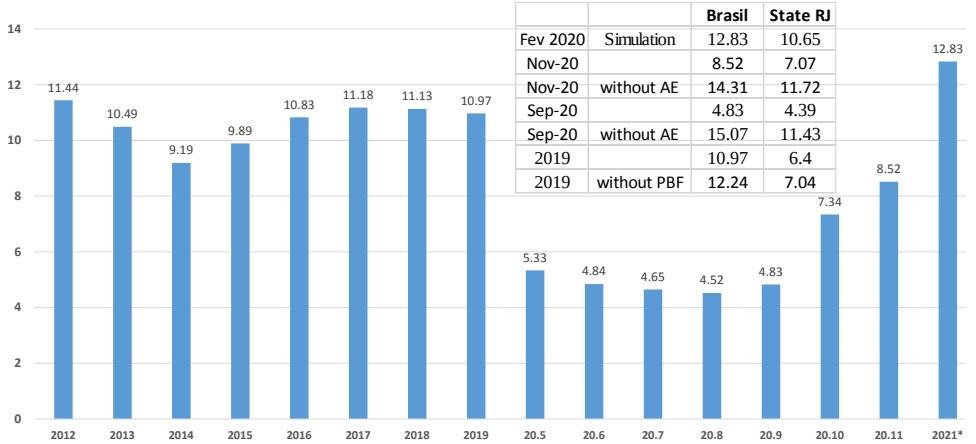


Poverty Longer Series - % Poor (P^0)



Source: FGV Social/CPS Harmonized series from microdata PNAD, PNADC Trimestral and PNADC Anual/IBGE. Poverty line; FGV Social/CPS, Augst 2018 was equal to 233 reais month per person.

% Poor (P^0) Before, During and After Auxílio Emergencial

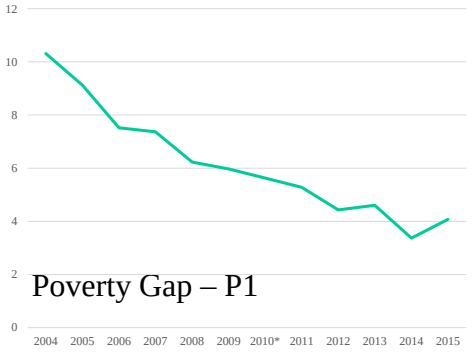


		Brasil	State RJ
Fev 2020	Simulation	12.83	10.65
Nov-20		8.52	7.07
Nov-20	without AE	14.31	11.72
Sep-20		4.83	4.39
Sep-20	without AE	15.07	11.43
2019		10.97	6.4
2019	without PBF	12.24	7.04

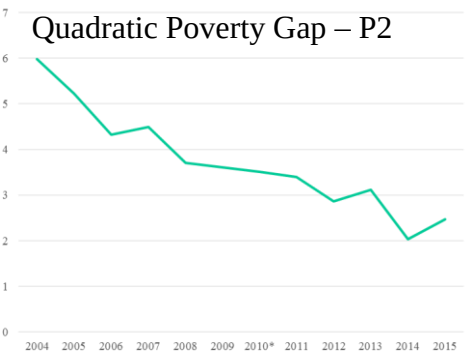
A diferença entre agosto de 2020 e fevereiro de 2021 cerca de 17,79 milhões de pessoas voltaram a pobreza com o fim do Auxilio Emergencial (apesar da volta do Bolsa Família).Em agosto de 2020 a população pobre era cerca de 9,5 milhões (4,52% de 210,23 milhões da população) passando em Fevereiro para 27,29 milhões de pobres (12,83% de 212,7 milhões da população).Os dados mostram um cenário desolador em fevereiro de 2021.A linha de pobreza FGV Social: 246 reais mensais por pessoaProporção de Pobres: Antes da pandemia (2019 média do ano): 10,97%

Fonte: Microdados da PNAD Contínua e da PNAD Covid /IBGE

Poverty Measures dropped more than 50% in 10 Years 2004 - 2015



Poverty Gap – P1



Quadratic Poverty Gap – P2

Source: FGV Social/CPS with PNAD microdata

***Equivalence Scales:**

F income sources (labor, rents, social security, Bolsa Familia etc
N household members

Per capita HH Income usual:

$$\frac{1}{N}\sum_{i=1}^{N},\sum_{f=1}^{F} Y_{if}$$

+ general case:

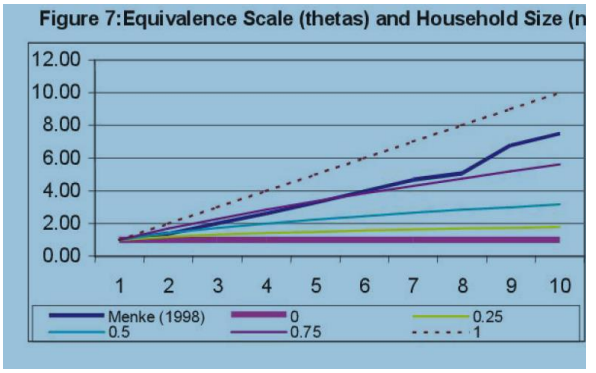
$$\frac{1}{N^{\theta}}\sum_{i=1}^{N},\sum_{f=1}^{F} Y_{if}$$

$0 \leq \theta \leq 1;\ \theta\ is$ an economy of scale parameter

$If\ \theta = 1$ per capita HH income

$If\ \theta = 0$ Total HH income

$If\ \theta = 1/2$ Equivalized per capita ,HH income – Square root rule



The so-called square root rule used in OECD countries applies a theta equals to 0,5. But 0,75 seems perhaps more realistic according to the graph above

Poverty Profiles *6

- Bivariate Analysis - *The objective of the bivariate analysis is to draw a simple profile of the variables indicative of the studied universe in relation to the main socio-demographic attributes observable in the survey (i.e. sex, race, age, schooling, immigration status etc) or region, as below:*

POVERTY PROFILE								
Indigence Line								
						Contribution to Pc		
Sub-Groups	P0	Standard	P1	P2	Pop.	P0	P1	P2
	(%)	Error	(%)	(%)	(%)	(%)	(%)	(%)
Total	28,72	0,12	13,28	8,40	100	100	100	100
North	37,30	0,45	15,80	9,19	5,74	7,46	6,83	6,28
Northeast	52,61	0,28	25,60	16,00	28,61	52,42	55,13	54,47
Center-Wes	22,53	0,32	9,11	5,51	7,05	5,53	4,84	4,62
Southeast	17,18	0,15	7,86	5,31	43,53	26,05	25,75	27,52
South	16,29	0,20	6,57	3,96	15,06	8,54	7,45	7,11

Incidence rate versus contribution

- Two types of statistics: the contribution (or participation) of a given group (or attribute) in the poor population and the poverty incidence rate in this group (Pi). The former concept refers to the latter concept divided by poverty (P) in total population times its respective share in the population (Ni/N).
- **Contribution of group i to total poverty = Pi . Ni / P . N = (Pi/P) . (Ni/N) =** Relative to Mean Poverty * Population Share
- The poverty incidence rate indicates which groups are the most vulnerable, regardless of the relative size of this group. If a given minority, which by definition represents a small portion of the total population, register the highest rate of extreme poverty, then preventive measures in this group will be more efficient than when applied to society as a whole. However, such targeted policy measures will not have a relevant impact on total poverty.

Poverty Profiles*

- Modalities
  - Individual characteristics
  - Reference person characteristics (or head of the household)
  - Main income provider characteristics

Example Poverty Rates: Female Headed X Female Maintained Households

	headed by women	women as main income provider
Urbana		
Total	0.31	0.36
Pobres (US$60 ppa)	0.32	0.37
Pobres: Canasta familiar	0.34	0.39
Extremadamente pobres: Canasta familiar	0.36	0.43

☞ The main Numbers

20 million poor people are the number of Brazilians who would not have enough income to supply their basic food needs (2280 daily calories evaluated at São Paulo prices corresponds to a monthly income of R $ 203 per person).

Transfers of R$ 8,27 refer to the mean lowest value per person capable of completely alleviating the needs of the 20 million poor each month.

(OBS: a universal program with the same transfer for each and every Brazilian would require 24,5 times more resources than the minimum)

Cost of Overcoming Poverty in *Reais (R$)*:

- Total Cost of Eradication:

$$P^1 * Z * N = \frac{q}{N}\left(\frac{Z - \overline{Y}_p}{Z}\right) * Z * N = q\left(Z - \overline{Y}_p\right)$$

- Cost of Eradication per person:

$$P^1 * Z = \frac{q}{N}\left(\frac{Z - \overline{Y}_p}{Z}\right) * Z = \frac{q}{N}\left(Z - \overline{Y}_p\right)$$

- Cost of Eradication per non-poor:

$$P^1 * Z * \frac{N}{N - q} = \frac{q}{N - q}\left(Z - \overline{Y}_p\right)$$

Rankings - 2010

POOREST		Municipalities	Poor			Municipalities	Cost/person
1	RR	Uiramutã	78.19%	1	RR	Uiramutã	89.06
2	MA	Marajá do Sena	78.00%	2	RR	Amajari	83.80
3	MA	Belágua	74.31%	3	AC	Santa Rosa do Purus	77.66
4	MA	Cachoeira Grande	74.30%	4	AM	Santa Isabel do Rio Negro	77.37
5	AM	Itamarati	73.99%	5	MA	Marajá do Sena	75.80
6	RR	Amajari	73.28%	6	AM	Maraã	74.55
7	AM	Santo Antônio do Içá	73.24%	7	AM	Itamarati	74.24
8	AC	Santa Rosa do Purus	72.54%	8	AM	Santo Antônio do Içá	73.46
9	PA	Melgaço	71.81%	9	MA	Belágua	73.16
10	AM	Santa Isabel do Rio Negro	71.34%	10	RR	Alto Alegre	72.38
LEAST POOR							
5556	RS	Teutônia	0.59%	5556	RS	Nova Araçá	0.21
5557	RS	Montauri	0.47%	5557	SC	Botuverá	0.19
5558	RS	Cotiporã	0.37%	5558	RS	Cotiporã	0.15
5559	RS	Carlos Barbosa	0.37%	5559	RS	Westfalia	0.14
5560	RS	Nova Pádua	0.34%	5560	RS	Nova Pádua	0.11
5561	RS	Westfalia	0.33%	5561	RS	Nova Candelária	0.10
5562	SC	Botuverá	0.13%	5562	RS	São Vendelino	0.10
5563	SC	Rio Fortuna	0.11%	5563	SC	Serra Alta	0.08
5564	RS	Nova Candelária	0.07%	5564	SP	Poloni	0.07
5565	RS	São Vendelino	0.07%	5565	SC	Rio Fortuna	0.02

Source: Census microdata

MAPA DO FIM DA FOME DA POPULAÇÃO TOTAL

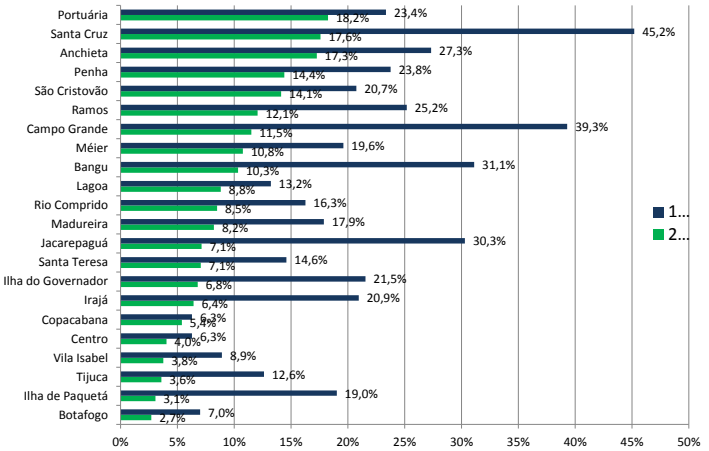
*Rio de Janeiro - Medidas de Miséria – CPS Line**

	Subdistritos	% de Miseráveis	Transferências Mínimas para Erradicar a Miséria		
			R$ total mês	R$ não miserável	R$ miserável
5 menos	Botafogo	3,14	362.954	1,61	49,82
	Copacabana	3,54	287.274	1,91	52,00
	Lagoa	3,99	299.310	1,85	44.55
	Centro	5,06	94.971	2,64	49.49
	Tijuca	5,91	439.416	2,63	41.84
5 mais	Complexo do Alemão	29,40	769.867	16,77	40,28
	Santa Cruz	27,63	3.568.197	15,87	41,57
	Jacarezinho	27,54	360.977	13,67	35,97
	Guaratiba	26,93	1.075.805	14,76	40,04
	Cidade de Deus	26,02	439.851	15,64	44,48

Fonte: CPS/IBRE/FGV processando os microdados da amostra do Censo Demográfico 2000/IBGE.

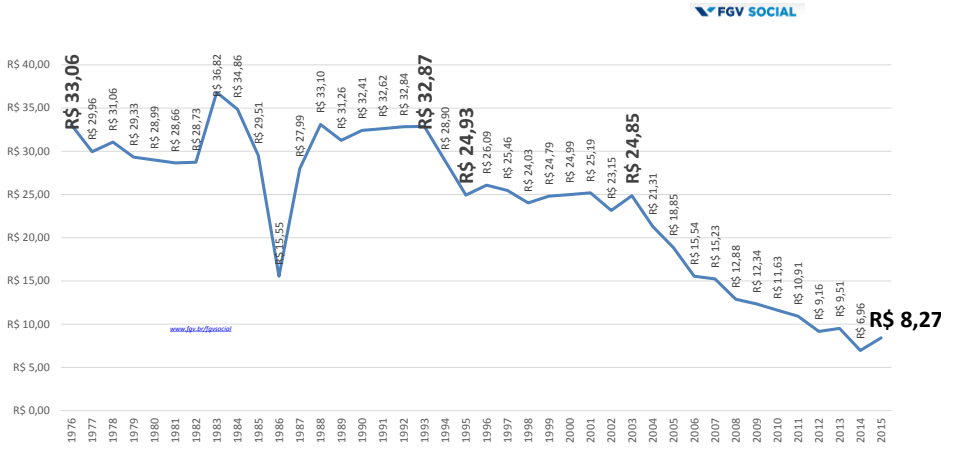
*Notas: Membros efetivos do domicílio. *A preços de São Paulo ajustado pelo custo de vida regional;*

Poverty (P^0) Administrative Regions (RAs) of Rio (1970-2010)



Fonte: FGV Social a partir dos microdados do Censo/IBGE. Nota: Linha de Pobreza CPS/FGV Social.

Minimum Per Capita Cost of Overcoming Poverty Longer Series - (z*P[1])



Source: FGV Social/CPS Harmonized series from microdata PNAD, PNADC Trimestral and PNADC Anual/IBGE. Poverty line; FGV Social/CPS, Augst 2018 was equal to 233 reais month per person.

Cost of Overcoming Poverty

	Line R$	Total Population	Proportion of Poor	Poor Population	P1*	P2**
2015	R$ 203	199.120.820	10,00	19.912.082	4,07	2,47
2004	R$ 203	178.208.306	25,23	44.961.956	10,31	5,98
	R$ person	**R$ total in month**	**R$ total in year**	**R$ non Poor**	**R$ Poor**	
2015	R$ 8,27	R$ 1.646.729.181	R$ 19.760.750.177	R$ 9,19	R$ 82,74	
2004	R$ 20,94	R$ 3.731.681.928	R$ 44.780.183.132	R$ 28,00	R$ 82,98	
		Non-Poor Wealth Transfers#				
		0,5% p.m.	**1% p.m.**	**2% p.m.**		
	2015	R$ 1.838	R$ 919	R$ 460		
	2004	R$ 5.600	R$ 2.800	R$ 1.400		

 # Simple perpetuity formula = minimum cost 8,27 per month divided by the rate of return

Source: FGV Social/CPS with PNAD microdata

Poverty Line X Minimum Cost of Poverty Eradication

Poverty Line	*R$*	*% of Poor*	*Cost per Brazilian by month*	*Minimum Annual Cost*
1 SM	R$ 465	59.3	R$ 138.92	R$ 313,727,564,236
1/2 SM	R$ 233	30.58	R$ 31.16	R$ 70,369,643,691
CPS/FGV*	R$ 138	15.32	R$ 9.33	R$ 21,070,243,121
R$ 120	R$ 120	12.55	R$ 6.82	R$ 15,401,828,305
1/4 SM	R$ 116	11.87	R$ 6.36	R$ 14,362,995,311
R$ 60	R$ 60	5.06	R$ 1.79	R$ 4,042,415,347

Source: FGV Social/CPS with PNAD 2009/IBGE (prices for set/2009)
**adjusted by regional cost of living*

If you raise the poverty line the cost of overcoming poverty rises more than proportionately

*4 Datt-Ravallion Decompositions and Simulations (Macro-Style)

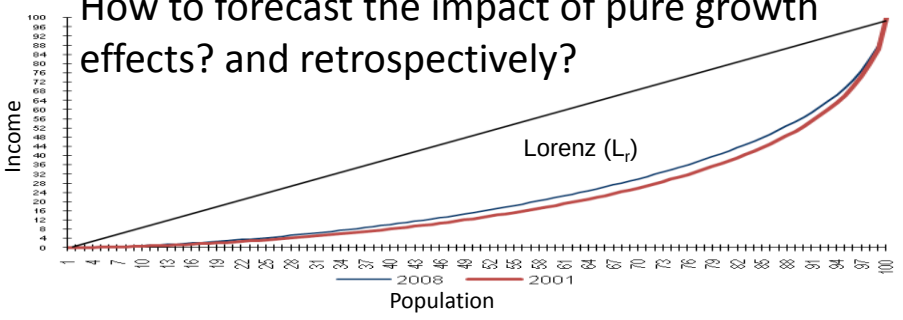
***Reference Fields (2001) page 100-102** https://www.cps.fgv.br/cps/bd/curso/pobreza/3BES2-The-Measurement-of-Poverty.pdf

$$P_{t+n} - P_t = G(t, t+n; r) + D(t, t+n; r) + R(t, t+n; r)$$

$$G(t, t+n; r) \equiv P(z/\mu_{t+n}, L_r) - P(z/\mu_T, L_r);$$

$$D(t, t+n; r) \equiv P(z/\mu_r, L_{t+n}) - P(z/\mu_r, L_t)$$

How to forecast the impact of pure growth effects? and retrospectively?



DATT-RAVALLION DECOMPOSITION

We apply Datt and Ravallion (1992) decomposition methodology of poverty changes into a balanced growth component, a change in inequality component and residual term. This decomposition throws light in what is driving the poverty change process discussed last subsection. we describe the methodology then we apply it to the Brazilian case.

We confine attention to poverty measures which can be fully characterized in terms of poverty line, the mean of income of the distribution, and the Lorenz curve representing, the structure of relative income inequalities. The poverty measure P_t at date (or region/country) t is written as $P_t = P(z/\mu_t, L_t)$ where z is the poverty line, μ_t is the mean income and L_t is a vector of parameters fully describing the Lorenz curve at date t. The level of poverty may change due to a change in the mean income μ_t relative to the poverty line, or due to a change in relative inequalities L_t.

The growth component of a change in the poverty measure is defined as the change in poverty due to a change in the mean while holding the Lorenz curve constant at some reference level L_r. The redistribution component is the change in poverty due to a change in the Lorenz curve while keeping the mean income constant at the reference level μ_r. A change in poverty over dates t and t+n (say) can then be decomposed as follows:

$P_{t+n} - P_t = G(t,t+n;r) + D(t,t+n;r) + R(t,t+n;r)$

in which the growth and the redistribution components are given respectively by:

$$G(t,t+n;r) = P(z/\mu_{t+n}, L_t) - P(z/\mu_t, L_t)\ ;\ D(t,t+n;r) = P(z/\mu_t, L_{t+n}) - P(z/\mu_t, L_t)$$

while R ( ) in (2) denotes the residual . In each case, the first two arguments in the parentheses refer to the initial and terminal dates of the decomposition period, and the last argument makes explicit the reference date r with respect to which the observed change in poverty is decomposed.

Poverty changes across different cells characterized by the household head status can be better understood in terms of three close determinants: changes in mean per capita income, changes in the degree of inequality of per capita income and changes in a residual term that captures the interaction between these two terms (not presented here). This simple decomposition between a balanced growth component that affects all agents and a redistributive component allows quite general comparisons of poverty across different societies and time periods. This simple decomposition between a balanced growth component that affects all agents and a redistributive component allows quite general comparisons of poverty

What explains + Social Inclusion? Growth or + Equity? Retrospective

Dynamic Decomposition of Extreme Poverty Fall 2001-2013 –gross income based (PNAD)

1st MDG: Extreme Poverty Line (U$S 1,25 a day PPP) fell 56% in 12 years

Brazil Main Target

Component that Explains	Proportion of Extremelly Poor
	% of Total Fall (*56%*)
Income growth	46,7%
	The Middle Path
Inequality Fall	53,3%
Total	100%

Source: PNAD/IBGE microdata

#Half Growth, Half Equity

Poverty Levels 2003 and 2015 for Different Poverty Measures and #Lines (%) – ##Final Income Concept

New PPP U$S a day Lines; ##includes direct and indirect taxes

Final Income	2003		2015	
	P0	P1	P0	P1
Imputation of missing values (not here) make PNAD and PNADC poverty estimates consistent				
Poverty – US$1,25 New PPP Line	4.0	2.1	1.0	0.2
Poverty - US$1,9 New PPP Line	8.0	3.4	2.4	0.7
Poverty - US$3,2 New PPP Line	19.6	7.5	6.4	2.1
Poverty - US$4 New PPP Line	27.9	10.8	10.1	3.3
Poverty - US$5,5 New PPP Line	41.0	17.3	19.2	6.3

Source: FGV Social with PNAD's and BRAHMS (UFPE) microdata

Global Purchasing Pover Parity data

Poverty Variation between 2003 and 2015 for Different Poverty Lines (p.p) – Growth Inequality Decomposition

Final Income Concept includes direct and indirect taxes

P0 - Final Income	Inequality - Effect	Growth - Effect	Total (p.p)
Poverty – US$1,25 New PPP Line	79.5%	20.5%	-4.0
Poverty - US$1,9 New PPP Line	71.0%	29.0%	-8.0
Poverty - US$3,2 New PPP Line	62.6%	37.4%	-19.6
Poverty - US$4 New PPP Line	62.9%	37.1%	-27.9
Poverty - US$5,5 New PPP Line	62.4%	37.6%	-41.0
P1 - Final Income	**Inequality - Effect**	**Growth - Effect**	**Total (p.p)**
Poverty – US$1,25 New PPP Line	84.8%	15.2%	-2.1
Poverty - US$1,9 New PPP Line	80.9%	19.1%	-3.4
Poverty - US$3,2 New PPP Line	71.7%	28.3%	-7.5
Poverty - US$4 New PPP Line	65.4%	34.6%	-10.8
Poverty - US$5,5 New PPP Line	63.9%	36.1%	-17.3

Source: FGV Social with PNAD's and BRAHMS (UFPE) microdata

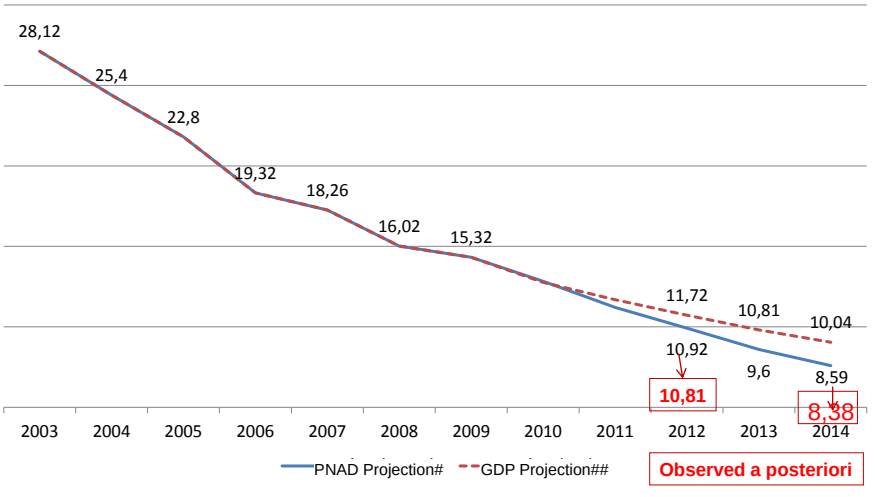
Balanced Growth Poverty Cenarios			
Departing from PNAD 2015			
Cumulative Change			
Income	P0	P1	P2
-16,67%	29,38%	27,81%	31,97%
-15,25%	25,91%	25,75%	28,76%
-13,79%	22,92%	22,52%	25,40%
-12,28%	18,70%	20,16%	23,06%
-10,71%	16,44%	18,18%	20,29%
-9,09%	11,91%	15,79%	17,89%
-7,41%	9,49%	13,70%	15,45%
-5,66%	6,63%	11,61%	11,04%
-3,85%	4,13%	10,11%	8,65%
-2,91%	3,01%	2,91%	6,11%
-1,96%	1,80%	2,00%	5,30%
-0,99%	1,00%	0,81%	1,27%
0,00%	0,00%	0,00%	0,00%
1,00%	-0,93%	-0,58%	-0,94%
2,00%	-5,97%	-2,04%	-1,74%
3,00%	-7,16%	-3,09%	-2,33%
4,00%	-12,43%	-3,97%	-5,72%
6,00%	-14,60%	-5,46%	-7,21%
8,00%	-16,11%	-8,13%	-9,00%
10,00%	-18,59%	-9,62%	-10,52%
12,00%	-20,57%	-12,21%	-12,62%
14,00%	-22,54%	-13,46%	-14,76%

From PNADC 2018 if total growth is 2,5% per year until 2030 but constant Inequality (same Lorenz Curve) we will go back to poverty levels of 2014

A simple strategy is to match with an existing Lorenz curve
Example: Gini from 0,543 to 0,5032
State RGS 2008 distribution

Source: FGV Social/CPS with PNAD/IBGE microdata

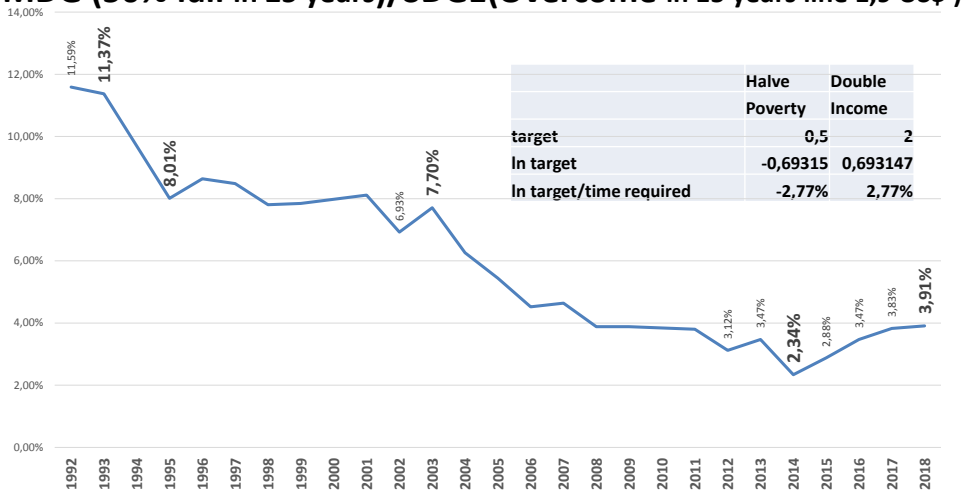
Poverty Reduction Past Projections until 2014#



Source: FGV Social/CPS with PNAD/IBGE microdata

 # Using microdata until 2009 simulating growth and lorenz by states
Using VAR model by state level (Itau/BBA model) plus states Lorenz
State Lorenz change was based on a growth incidence curve by percentile
Macro approach to prospective poverty reduction

Extreme Poverty - Proportion Below 1,25 US$ PPP a day
MDG (50% fall in 25 years)/SDG1(Overcome in 15 years line 1,9 US$)



	Halve Poverty	Double Income
target	0,5	2
ln target	-0,69315	0,693147
ln target/time required	-2,77%	2,77%

1st MDG: Extreme Poverty (U$S 1,25 a day PPP) fell 71,4% from 2001 to 2014 reaching 2,27% then 67% rise in 2014-2018

Source: FGV Social/CPS with PNAD -PNADC/IBGE microdata Harmonized OBS: 1992-2014 do not include North Rural Area; Interpolations in 1994, 2000 and 2010

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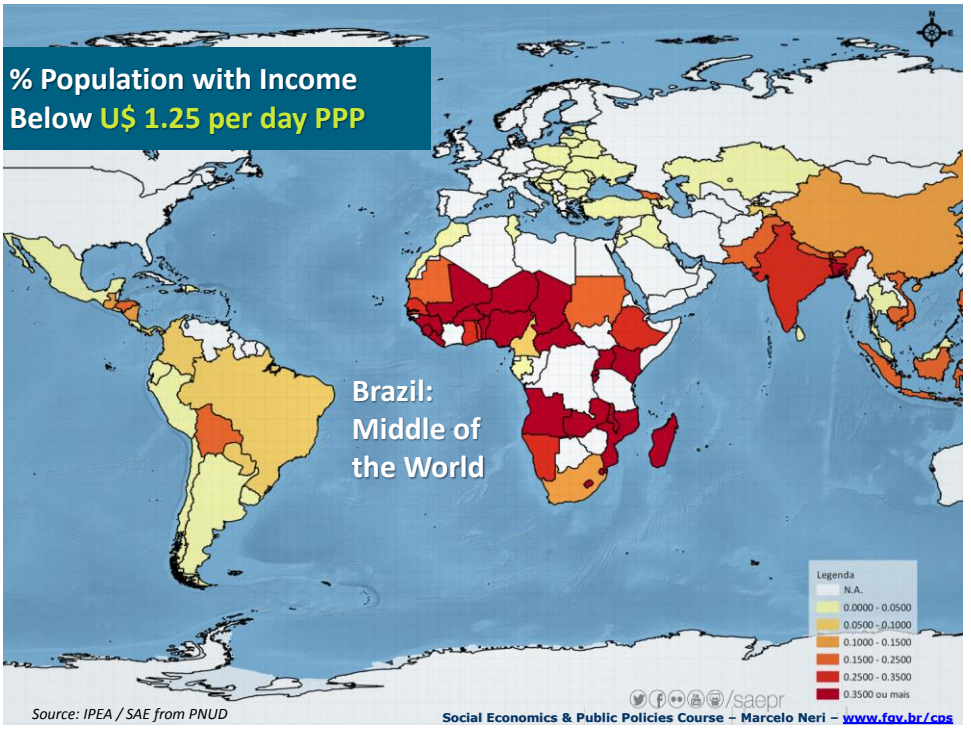
Poverty Lines

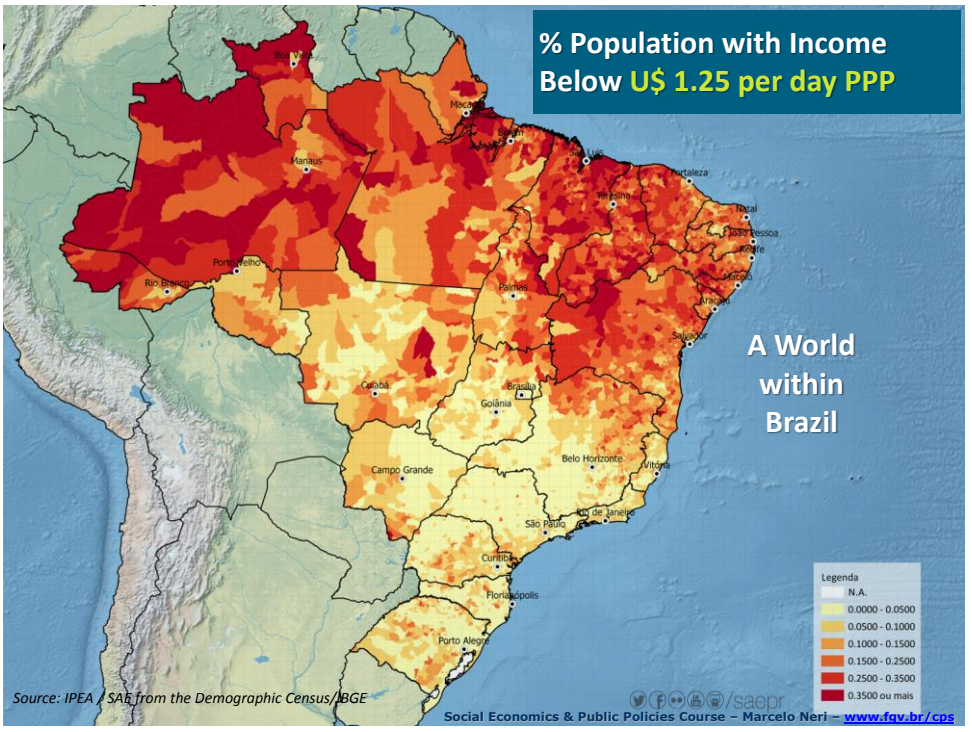
- Seek connection with international lines, in particular the UN Millennium Development Goals (MDGs)
  - Advantages:
    - Already known (no need to gain credibility)
    - Neutral field between federative entities
    - Neutral field beyond political mandate connects challenges
    - Have many comparative references to other countries.

    - Paradox (Few POF´s in Brazil –Family Budget Survey are rare here.

    It is used to calculate inflation (CPI - Consumer Price Indexes). Fixed CPI´s weight structure does not allow for substitution effects – Inflation trends were systematically overestimated here. Lesson: Government paid more much monetary correction in its debt than it should have otherwise.



Source: IPEA / SAE from PNUD



Source: IPEA / SAE from the Demographic Census/IBGE

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Where are the "rich" in Brazil?

Marcelo Neri
FGV Social
http://www.fgv.br/cps/rich

https://cps.fgv.br/en/where-are-the-rich-in-brazil

Where are the "rich" in Brazil?

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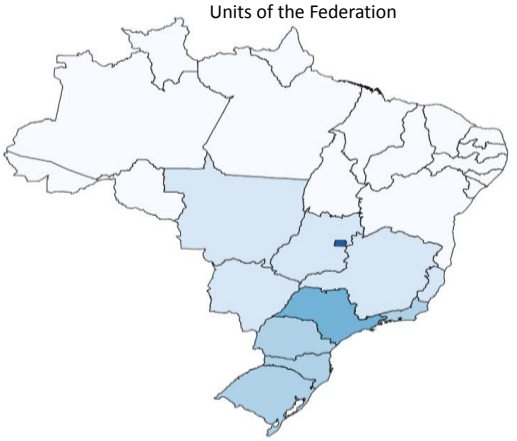
Mean Monthly Income declared in Income Tax registries over Total Population
(R$ Brazilian *Reais*)
Units of the Federation



Unit of the Federation	Monthly Declared Income over Total Population	Rank
Federal District	R$ 2.981,04	1
São Paulo	R$ 1.977,02	2
Rio de Janeiro	R$ 1.720,70	3
Rio Grande do Sul	R$ 1.569,92	4
Santa Catarina	R$ 1.473,49	5
Paraná	R$ 1.413,57	6
Mato Grosso do Sul	R$ 1.200,79	7
Mato Grosso	R$ 1.172,44	8
Espírito Santo	R$ 1.064,54	9
Minas Gerais	R$ 1.047,98	10
Goiás	R$ 984,68	11
Rondônia	R$ 789,59	12
Roraima	R$ 757,26	13
Sergipe	R$ 711,61	14
Rio Grande do Norte	R$ 688,18	15
Tocantins	R$ 682,94	16
Amapá	R$ 682,33	17
Pernambuco	R$ 654,58	18
Acre	R$ 616,77	19
Amazonas	R$ 607,56	20
Bahia	R$ 581,11	21
Paraíba	R$ 565,89	22
Ceará	R$ 561,47	23
Alagoas	R$ 517,19	24
Piauí	R$ 510,69	25
Pará	R$ 469,34	26
Maranhão	R$ 363,30	27

Source: FGV Social using Income Tax registries (IRPF 2018) and data from the Federal Court of Accounts (TCU/IBGE 2019)

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Graph – Mean Income comparisons: Household survey vs Income Tax registries in 2018 by Units of the Federation (R$)

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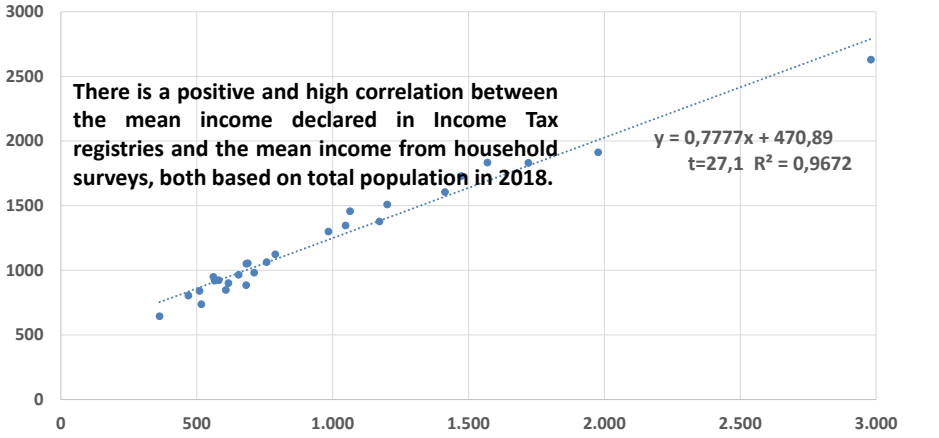

Source: FGV Social using data from Income Tax registries (IRPF 2018) and household surveys (PNADC/IBGE 2018)

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Where are the "rich" in Brasília?

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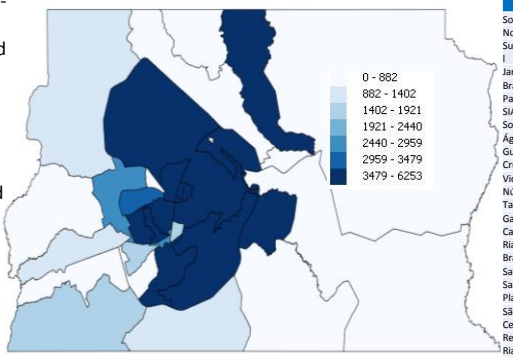
Mean Monthly Income declared in Income Tax registries over Total Population (R$)

31 Administrative Regions (ARs) of the Federal District

https://cps.fgv.br/en/df-mean-monthly-income-declared-income-tax-registries-over-total-population-brl-brazilian-reais

At the richest Unit of the Federation, the Federal District - which corresponds to Brazil's Capital city Brasília, we analysed the income distribution by Administrative Regions. The South Lake, home of rich public servants, appears as the richest one. If South Lake was a municipality, it would be ranked number 3 among all 5570 Brazilian municipalities.



Administrative Regions	Monthly Declared Income over Total Population	Rank
South Lake	R$ 23.019,99	1
North Lake	R$ 12.148,97	2
Sudoeste/Octogonal	R$ 11.460,84	3
Jardim botânico	R$ 10.991,82	4
Brasília	R$ 10.409,60	5
Park Way	R$ 10.338,26	6
SIA	R$ 8.201,51	7
Sobradinho	R$ 7.070,49	8
Águas Claras	R$ 5.800,27	9
Guará	R$ 4.643,40	10
Cruzeiro	R$ 4.400,28	11
Vicente Pires	R$ 3.452,04	12
Núcelo Bandeirante	R$ 2.781,18	13
Taguatinga	R$ 2.625,20	14
Gama	R$ 1.866,44	15
Candangolândia	R$ 1.849,53	16
Riacho fundo I	R$ 1.579,89	17
Brazlândia	R$ 1.003,25	18
Samambaia	R$ 941,93	19
Santa Maria	R$ 923,10	20
Planaltina	R$ 844,86	21
São Sebastião	R$ 834,99	22
Ceilândia	R$ 791,95	23
Recanto das emas	R$ 544,97	24
Riacho Fundo II	R$ 490,59	25
Paranoá	R$ 442,29	26
Sobradinho II	R$ 235,01	27
SCIA-Estrutural	R$ 183,73	28
Varjão	R$ 168,42	29
Itapoã	R$ 154,01	30
Fercal	R$ 15,75	31

The ranking of occupations shows that six out of the ten better-paid jobs are related to the public sector, according to Income Tax data (link [in Portuguese]): https://www.cps.fgv.br/cps/bd/docs/ranking/TOP_Municipio.htm#en

Source: FGV Social using Income Tax registries (IRPF 2018) and data from the Federal Court of Accounts (TCU/IBGE 2019)

https://cps.fgv.br/en/where-are-the-rich-in-brazil

Where are the "rich" in Brazil?

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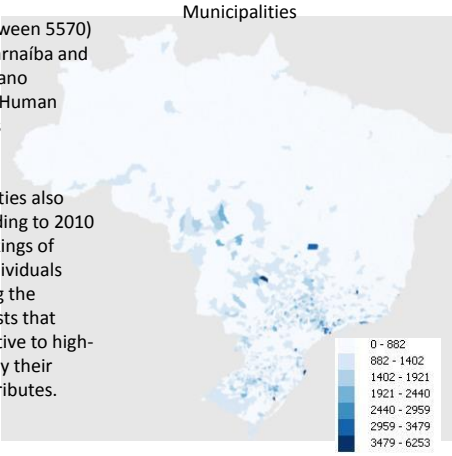
Mean Monthly Income declared in Income Tax registries over Total Population (R$)

Municipalities

The top-3 municipalities (between 5570) are Nova Lima, Santana do Parnaíba and Aporé, respectively. São Caetano - the leader in the ranking of Human Development Index - appears in fourth place, followed by Niterói, Florianópolis, Santos and Vitória. These municipalities also lead different rankings according to 2010 Census data, such as the rankings of doctors per inhabitant; or individuals with university degree among the population; Thus, data suggests that coastal cities are more attractive to high-income individuals not only by their productive and economic attributes.



Top-10 Municipalities

Municipalities	Monthly Declared Income over Total Population	Rank
Nova Lima - MG	R$ 6.253,03	1
Santana de Parnaíba - SP	R$ 5.384,77	2
Aporé - GO	R$ 5.233,93	3
São Caetano do Sul - SP	R$ 4.565,34	4
Niterói - RJ	R$ 4.186,51	5
Florianópolis - SC	R$ 3.998,30	6
Santos - SP	R$ 3.763,84	7
Porto Alegre - RS	R$ 3.725,15	8
Vitória - ES	R$ 3.516,16	9
Campos do Jordão - SP	R$ 3.493,98	10

Bottom-10 Municipalities

Municipalities	Monthly Declared Income over Total Population	Rank
Fernando Falcão - MA	R$ 19,89	5570
Matões do Norte - MA	R$ 26,70	5569
Cachoeira do Piriá - PA	R$ 31,48	5568
Centro do Guilherme - MA	R$ 32,99	5567
Chaves - PA	R$ 34,10	5566
Jenipapo dos Vieiras - MA	R$ 34,72	5565
Primeira Cruz - MA	R$ 34,86	5564
Turilândia - MA	R$ 35,90	5563
Milagres do Maranhão - MA	R$ 36,14	5562
São João do Soter - MA	R$ 36,33	5561

Source: FGV Social using Income Tax registries (IRPF 2018) and data from the Federal Court of Accounts (TCU/IBGE 2019)

www.fgv.br/fgvsocial