POVERTY AS INCOME INSUFFICIENCY

References :
-*Text - Neri, M. (2017) "Poverty": in Giovanni and Nogueira. (Org.). Dicionário de Políticas Públicas..
-*Text - Deaton (1997), Chapter 3, section 3.2 The Analysis of Household Surveys,, World Bank, pags 140 to 151
-*Text - Fields, Gary, (2001) "Distribution and development", chapters 4 and 5 (pages 86 to 94 and 100-102)

See more detailed poverty materials on the second page of Inequality and Poverty section in the course webpage (including longer versions of the chapters above):

Social Economics & Public Policies Course – Marcelo Neri – www.fgv.br/cps

Approaches Overview :

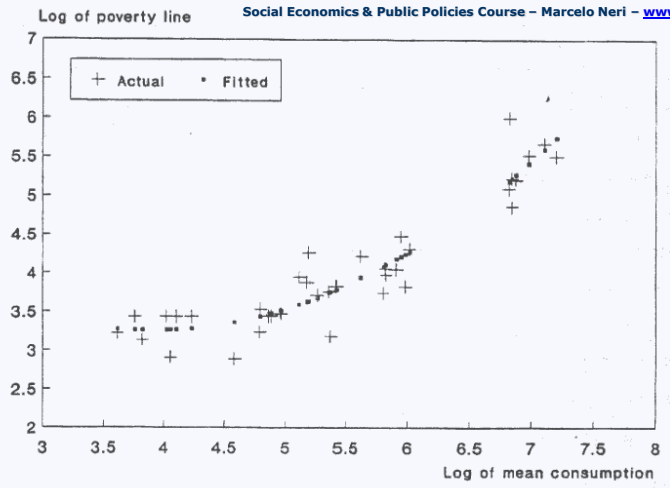
i) Social welfare versus poverty

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.

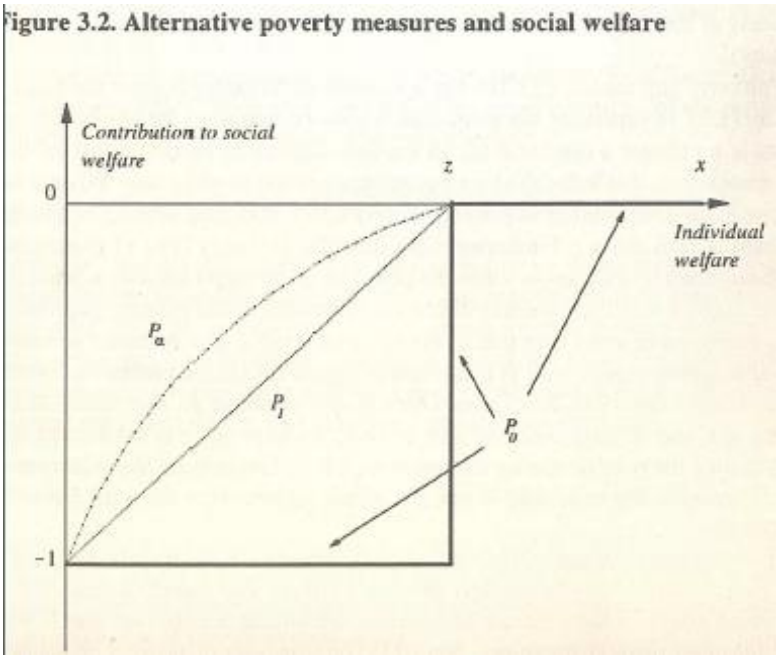
Disadvantage: P^1 does not take the inequality between the poor into account.

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 $\delta^P = 1 \rightarrow P_s = P^0$

where δ^P is the Gini index among the poor

Previously Popular Poverty Indexes: What is your favorite measure?

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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☞ 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 $ 261 per person).

Transfers of R$ 8,27 refer to the mean lowest value per person capable of completely alleviating completely 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 this minimum)

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

- Total Cost of Eradication:

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

- Cost of Eradication per person:

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

- Cost of Eradication per non-poor:

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

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

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

** R$ 261 now Source: FGV Social/CPS with PNAD microdata*

Applying the same idea of P1 to the funding side: Where are the "rich" in Brazil?
Mean Monthly Income declared in Personal Income Tax (PIT) registries
over Total Population (R$ Brazilian *Reais*) – splitting PIT income (or Real Net Worth Stocks) for everyone
Units of the Federation

Resume of Top Spatial Rankings – Ordered by Mean Income over the Whole Population **2020** FGV SOCIAL

www.fgv.br/cps/wealth

Federation Units (Top 6 Of 27)

	% Declarants in the Population		Mean Income over Whole Population		Mean Net Wealth over Whole Population		Declarants' Mean Income		Declarants' Mean Net Wealth	
Brasil	14,93%	rank br	R$ 1.310	rank br	R$ 47.432	rank br	R$ 8.776	rank br	R$ 317.788	rank br
DF	24,93%	1	R$ 3.148	1	R$ 94.684	1	R$ 12.627	1	R$ 379.832	2
SP	22,06%	2	R$ 2.093	2	R$ 90.776	2	R$ 9.488	3	R$ 411.448	1
RJ	17,70%	6	R$ 1.754	3	R$ 63.128	5	R$ 9.907	2	R$ 356.565	3
RS	19,60%	4	R$ 1.673	4	R$ 64.113	3	R$ 8.537	5	R$ 327.161	5
SC	20,43%	3	R$ 1.652	5	R$ 63.414	4	R$ 8.086	9	R$ 310.357	6
PR	18,05%	5	R$ 1.559	6	R$ 63.098	6	R$ 8.639	4	R$ 349.662	4

Capitals (Top 6 Of 27)

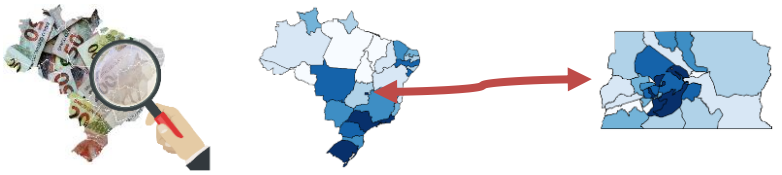
Florianópolis - SC	33,79%	1	R$ 4.215	1	R$ 168.989	*2*	R$ 12.474	*4*	R$ 500.161	*6*
Porto Alegre - RS	30,45%	2	R$ 3.775	2	R$ 160.267	*3*	R$ 12.398	*5*	R$ 526.394	*2*
Vitória - ES	28,81%	4	R$ 3.736	3	R$ 147.716	*5*	R$ 12.968	*2*	R$ 512.725	*5*
São Paulo - SP	27,05%	5	R$ 3.542	4	R$ 188.165	*1*	R$ 13.092	*1*	R$ 695.521	*1*
Curitiba - PR	30,41%	3	R$ 3.427	5	R$ 158.361	*4*	R$ 11.271	*9*	R$ 520.829	*4*
Brasília - DF	24,93%	7	R$ 3.148	6	R$ 94.684	*8*	R$ 12.627	*3*	R$ 379.832	*8*

Administrative Regions of Brasília (Top 3 Of 31)

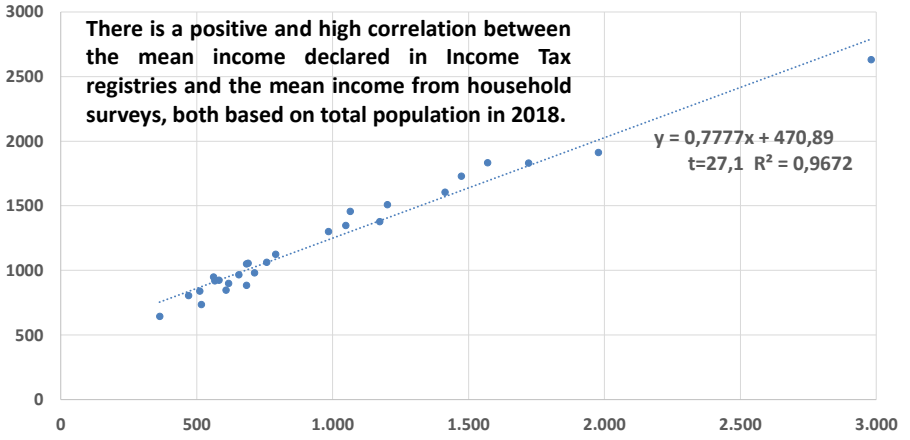
	Rank BR	Rank BSB		Rank BSB		Rank BSB		Rank BSB
Lago Sul	58,53%	5	R$ 23.141	1	R$ 1.430.855	1	R$ 39.535	2	R$ 2.444.513	2
Lago Norte	60,96%	3	R$ 12.582	2	R$ 505.713	5	R$ 20.637	5	R$ 829.515	5
Jardim Botânico	65,34%	2	R$ 12.453	3	R$ 588.604	3	R$ 19.060	7	R$ 900.840	4

Municipalities (Top 8 of 5570)	% Declarants in the Population		Mean Income over Whole Population		Mean Net Wealth over Whole Population		Declarants' Mean Income		Declarants' Mean Net Wealth	
Nova Lima - MG	32,93%	7	R$ 8.897	1	R$ 475.065	2	R$ 27.017	3	R$ 1.442.584	6
Aporé - GO	12,26%	1520	R$ 8.109	2	R$ 836.994	1	R$ 66.125	1	R$ 6.824.968	1
Nova Alvorada - RS	16,08%	709	R$ 6.150	3	R$ 106.291	45	R$ 38.244	2	R$ 661.028	25
Santana de Parnaíba - SP	28,66%	17	R$ 5.791	4	R$ 296.995	3	R$ 20.210	6	R$ 1.036.434	13
São Caetano do Sul - SP	43,87%	1	R$ 4.698	5	R$ 222.475	6	R$ 10.709	47	R$ 507.098	49
Florianópolis - SC	33,79%	6	R$ 4.215	6	R$ 168.989	15	R$ 12.474	26	R$ 500.161	51
Niterói - RJ	34,14%	4	R$ 4.192	7	R$ 151.021	20	R$ 12.276	29	R$ 442.302	73
Douradina - PR	16,27%	672	R$ 4.074	8	R$ 170.016	14	R$ 25.037	4	R$ 1.044.957	12

Source: FGV Social using Income Tax registries (IRPF 2020) and population (TCU/IBGE)



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



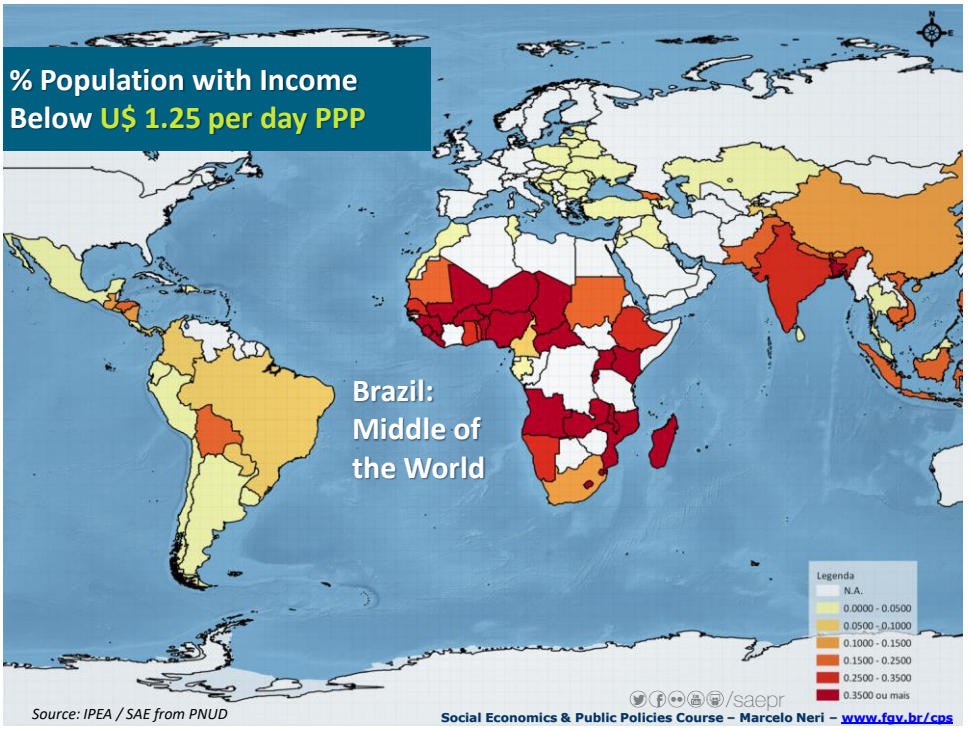
Source: FGV Social using data from Income Tax registries (IRPF 2018) and household surveys (PNADC/IBGE 2018)

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 SM = Minimum Wages*

If you raise the poverty line the cost of overcoming poverty rises more than proportionately Because you affect not only income needed to overcome poverty plus the ellegibility


% Population with Income
Below U$ 1.25 per day PPP
Brazil:
Middle of
the World
Legenda
N.A.
0.0000 - 0.0500
0.0500 - 0.1000
0.1000 - 0.1500
0.1500 - 0.2500
0.2500 - 0.3500
0.3500 ou mais
/saepr
Source: IPEA / SAE from PNUD
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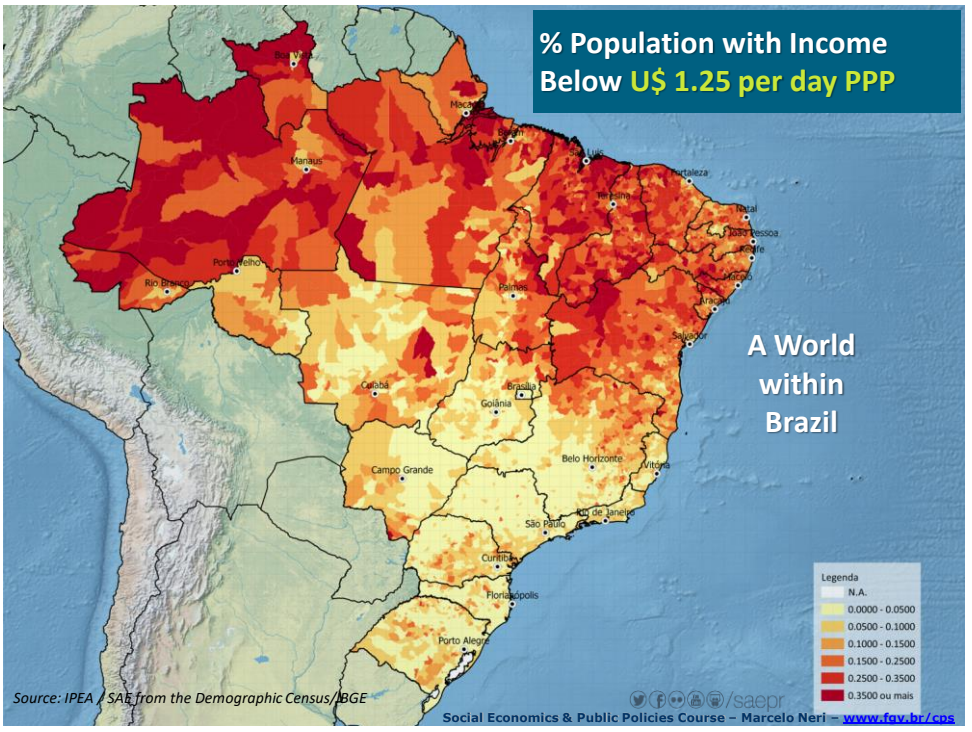
% Population with Income
Below U$ 1.25 per day PPP
A World
within
Brazil
Manaus
Fortaleza
Natal
Palmas
Salvador
Cuiabá
Brasília
Goiânia
Belo Horizonte
Vitória
Campo Grande
São Paulo
Curitiba
Florianópolis
Porto Alegre
Legenda
N.A.
0.0000 - 0.0500
0.0500 - 0.1000
0.1000 - 0.1500
0.1500 - 0.2500
0.2500 - 0.3500
0.3500 ou mais
/saepr
Source: IPEA / SAE from the Demographic Census/IBGE
Social Economics & Public Policies Course – Marcelo Neri – www.fgv.br/cps

Poverty Lines

– Seek connection with international lines, in particular those in the UN Millennium Development Goals (MDGs) or Sustainable Development Goals (SDGs)
  - 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.

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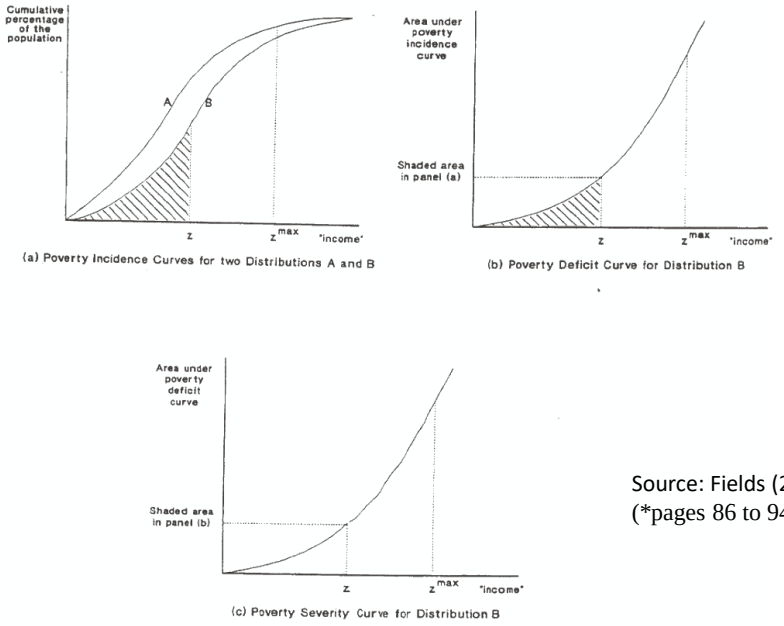
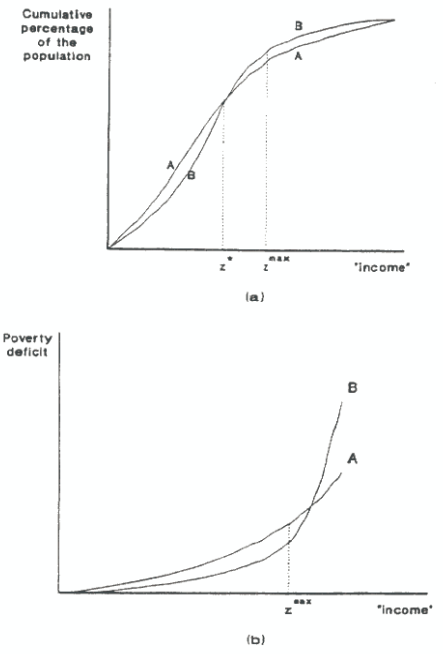
Poverty Dominance

- 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)

Poverty Profiles *6

- Bivariate Analysis - *The objective of the bivariate analysis is to take advantage of decomposability 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

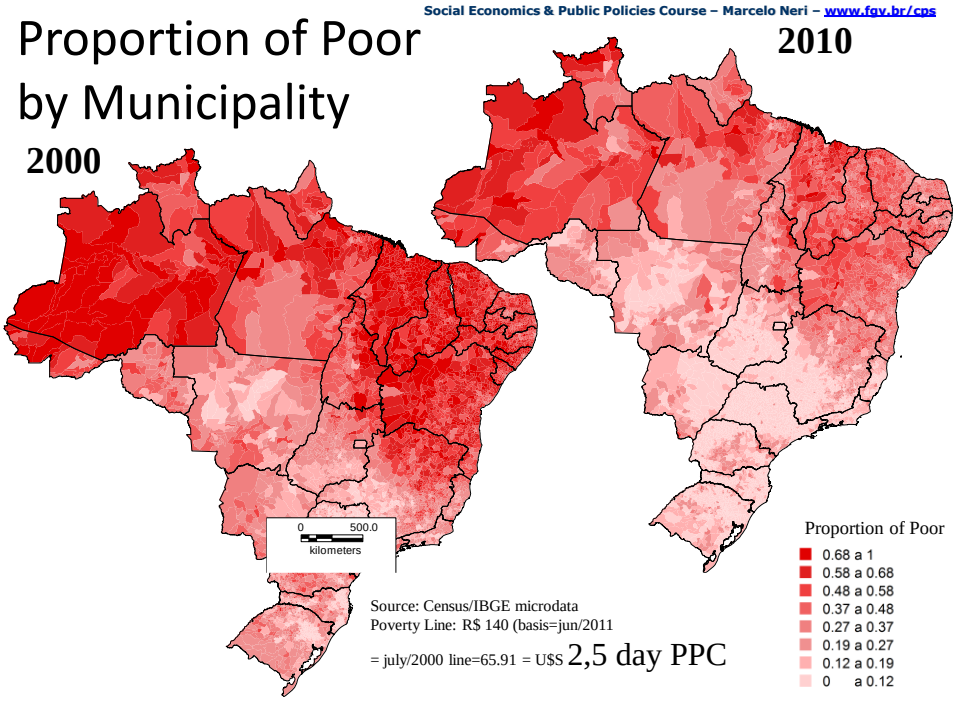
- Two types of statistics: the contribution (or participation) of a given group (or attribute) in the poor population and the poverty incidence rate in this group (Pi). The former concept refers to the latter concept divided by poverty (P) in total population times its respective share in the population (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.

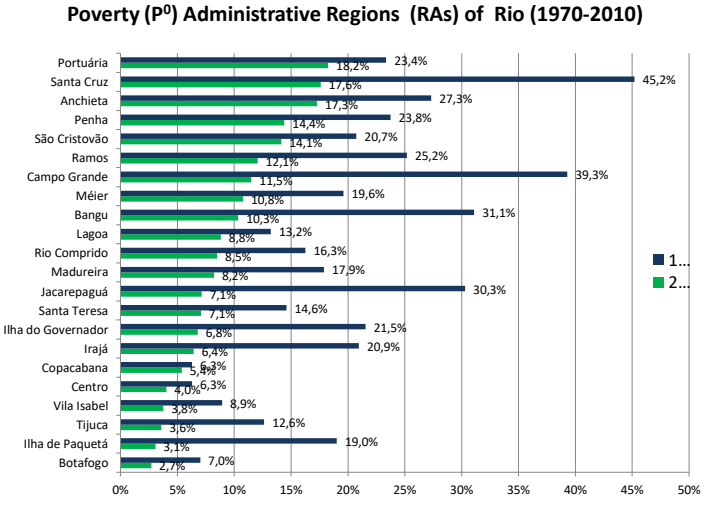
Poverty Profiles*

- 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





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

https://www.cps.fgv.br/social/3/Simulador/CenarioPobreza

***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:

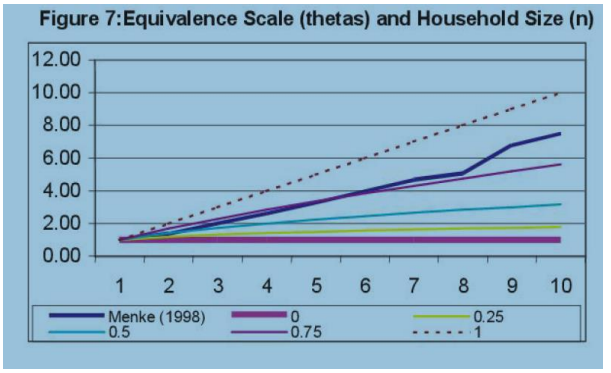
$$\frac{1}{N^{\theta}}\sum_{i=1}^{N},\sum_{f=1}^{F} Y_{if}$$

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

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

$If\ \theta = 0$ Total HH income

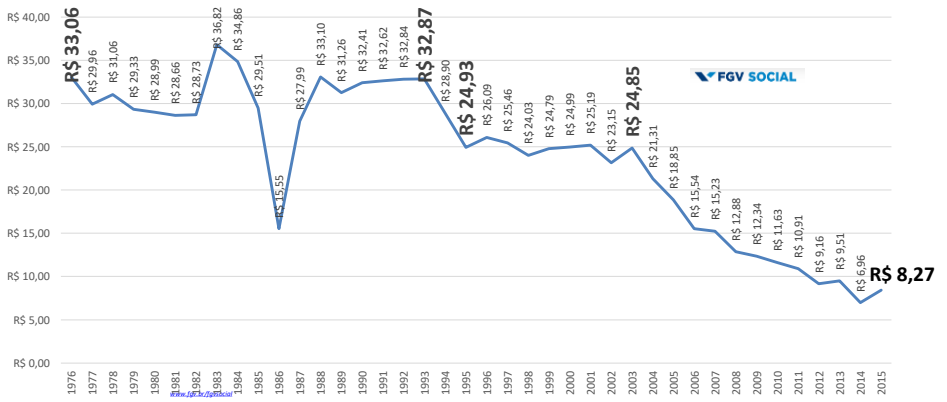
$If\ \theta = 1/2$ Equivalized per capita ,HH income – Square root rule



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 evidence above

Regional price index deflation,
Inflation by income level (Ipea) or following the functional form of the poverty index used

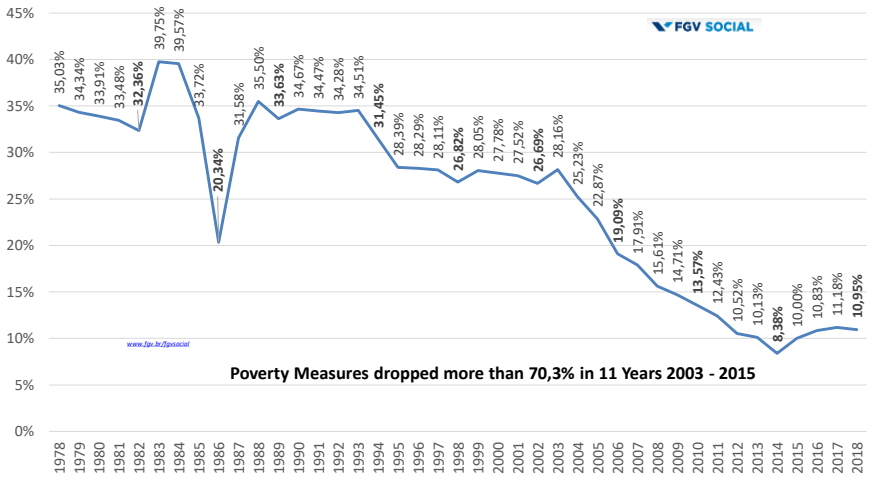
Minimum Per Capita Cost of Overcoming Poverty Longer Series - ($z*P^1$)



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

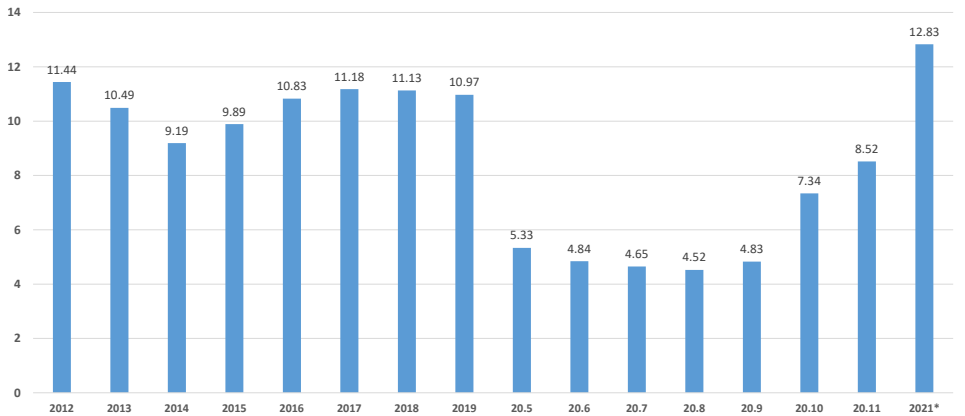
Paradox (Few POF´s in Brazil – Family Budget Survey are rare here (1974, 2003, 2009 and 2018. It is used to calculate poverty lines and inflation weights in CPIs (Consumer Price Indexes). Fixed CPI´s weight structure does not allow for substitution effects – Inflation trends were systematically overestimated here. Lesson: Government paid more much monetary correction in its debt than it should have otherwise. (Substitution effects across time)

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 (Covid19)



2019 Pré-Pandemia 11% da população - 23 milhões de pessoas
Agosto 2020 Pandemia + Auge Auxílio Emergencial 4,5% da população 9,5 milhões de pobres
Outubro 2021 Auxílio Emergencial menor 13% da população 27,6 milhões de pobres
Linha de pobreza da FGV = R$ 261 por pessoa.
Ou 1 família de 4,6 pessoas (tamanho das famílias pobres) que ganham até 1 salário mínimo

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

		Brasil
2021	Simulation	12.83
Nov-20		8.52
Nov-20	without AE	14.31
Sep-20		4.83
Sep-20	without AE	15.07
2019		10.97
2019	without PBF	12.24

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

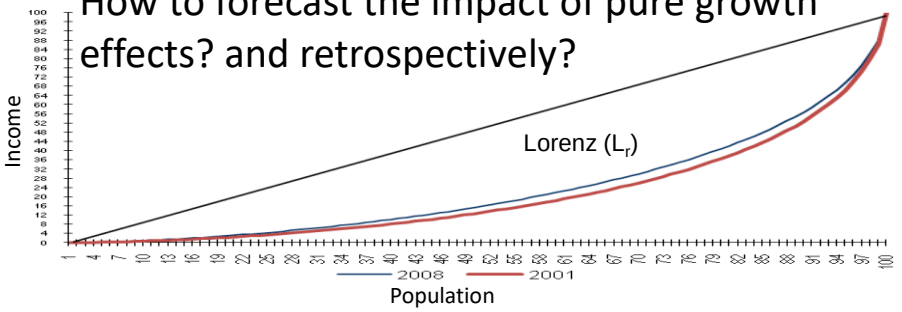
***Reference Fields (2001) page 100-102** https://www.cps.fgv.br/cps/bdt/curso/pobreza/3BES2-The-Measurement-of-Poverty.pdf

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

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

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

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



What explains + Social Inclusion? Growth or Equity?

$$P_{t+25} = P_t\,(1+g)^{25}$$

$$\text{If } P_{t+25} / P_t = 0{,}5 = (1+g)^{25}$$

How fast to halve poverty	Halve	Double
in 25 years?	Poverty	Income
target	0,5	2
ln target	-0,69315	0,693147
ln target/time required	-2,77%	2,77%

How to forecast inequality? A simple strategy is to match with an existing Lorenz curve.

Example: use certain State past level of poverty and express by Gini change

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:

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

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 across different societies and time periods.

Poverty Levels 2003 and 2015 for Different Poverty Measures and Lines (%) – Final Income Concept Microsimulated includes direct and indirect taxes - New PPP U$S a day Lines;

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

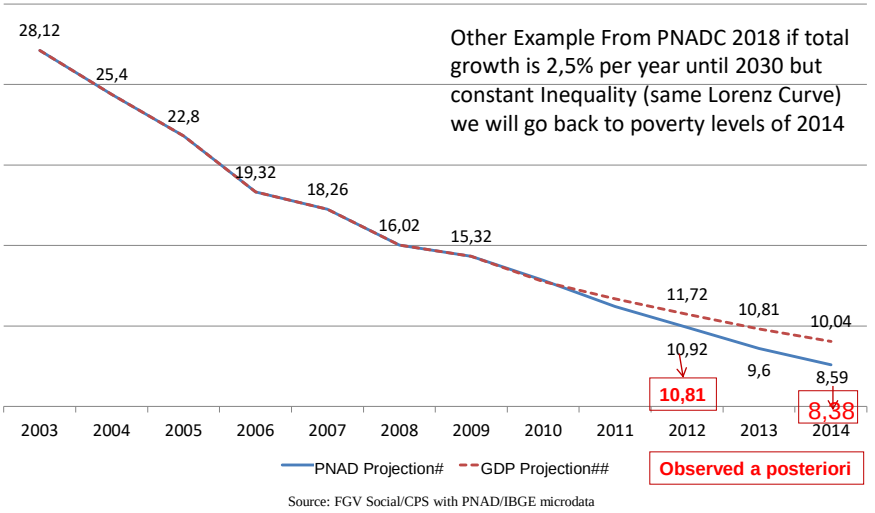
Poverty Variation between 2003 and 2015 for Different Poverty Lines (p.p) – Growth Inequality Decomposition Final Income Concept includes direct and indirect taxes

The lower poverty line and higher weight to poorest the greater impact of inequality in this period

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

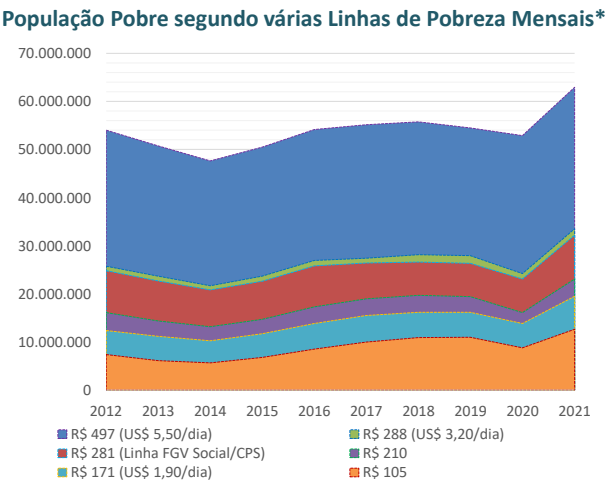
Source: FGV Social with PNAD's and BRAHMS (UFPE) microdata

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 past growth incidence curve by Percentile. Macro approach to prospective poverty reduction



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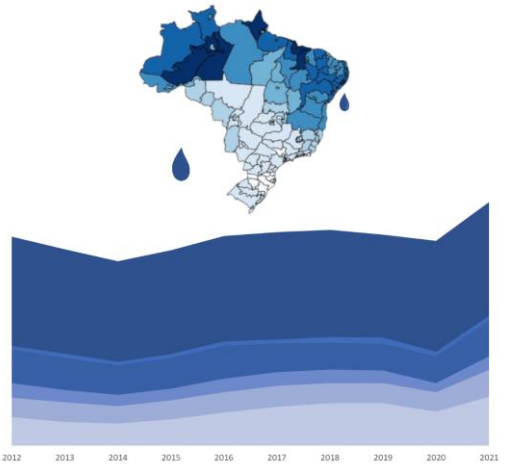
Fonte: FGV Social, a partir dos microdados da PNADC/IBGE. *preços do quarto trimestre de 2021

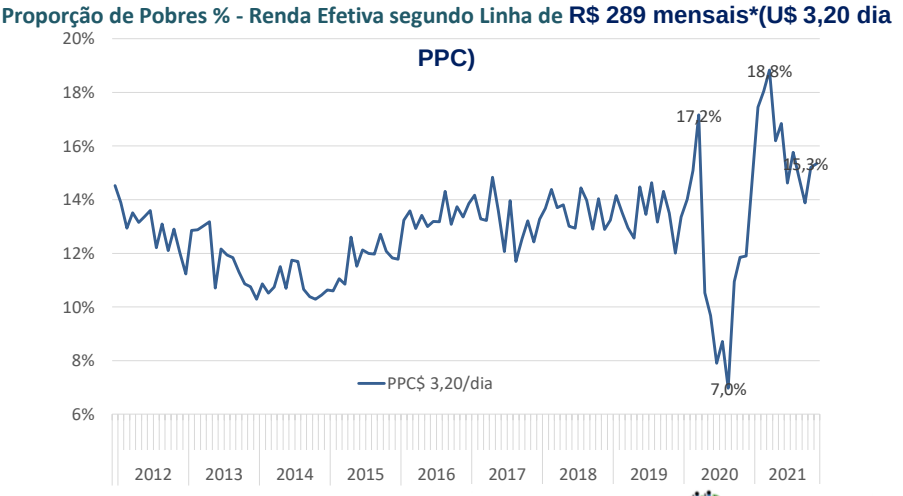
Pobreza na Pandemia

Marcelo Neri



FGV SOCIAL
CENTRO DE POLÍTICAS SOCIAIS

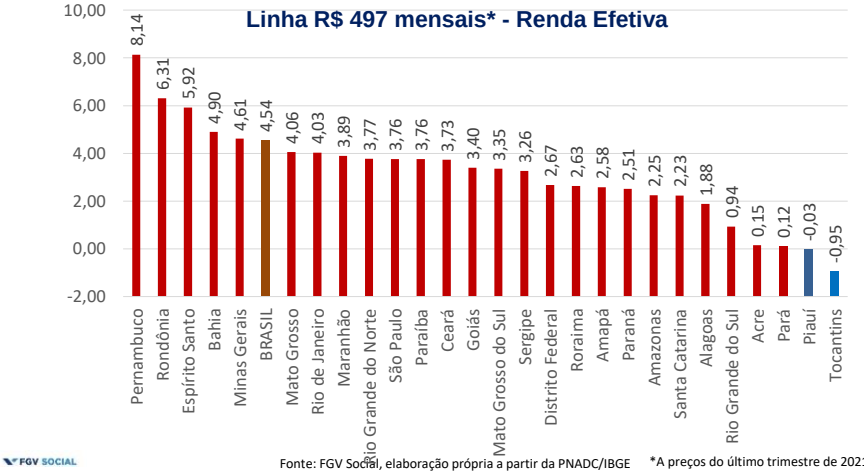
https://cps.fgv.br/en/NewPovertyMap



Fonte: FGV Social, elaboração própria com mensalização da PNADC/IBGE.

A Montanha-Russa da Pobreza

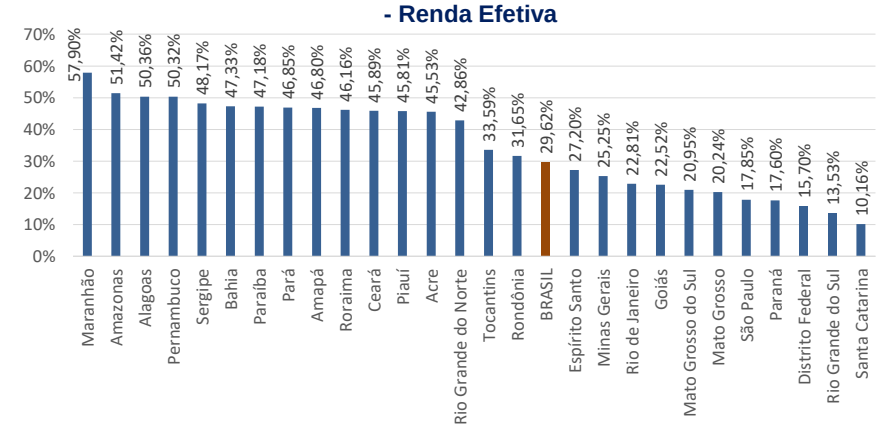
Mudança da Pobreza Monetária 2019 a 2021 por Unidade da Federação em pontos percentuais



FGV SOCIAL

Fonte: FGV Social, elaboração própria a partir da PNADC/IBGE *A preços do último trimestre de 2021

Proporção de Pobres em 2021 por Unidade da Federação (%) Linha R$ 497 mensais* - Renda Efetiva



FGV SOCIAL

Fonte: FGV Social, elaboração própria a partir da PNADC/IBGE *A preços do último trimestre de 2021

Abertura por 146 Estratos Geográficos

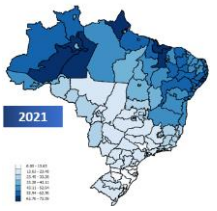
Maior Pobreza em 2021

FGV SOCIAL		2021		2020		2019	
UF	Estrato	%	Class	%	Class	%	Class
Maranhão	Litoral e Baixada Maranhense	72,59%	1	60,72%	3	68,29%	1
Amapá	Amapa exceto Macapá e Santana	72,49%	2	56,04%	7	56,55%	13
Amazonas	Vale do Rio Purus	71,98%	3	67,70%	2	63,68%	4

Menor Pobreza em 2021

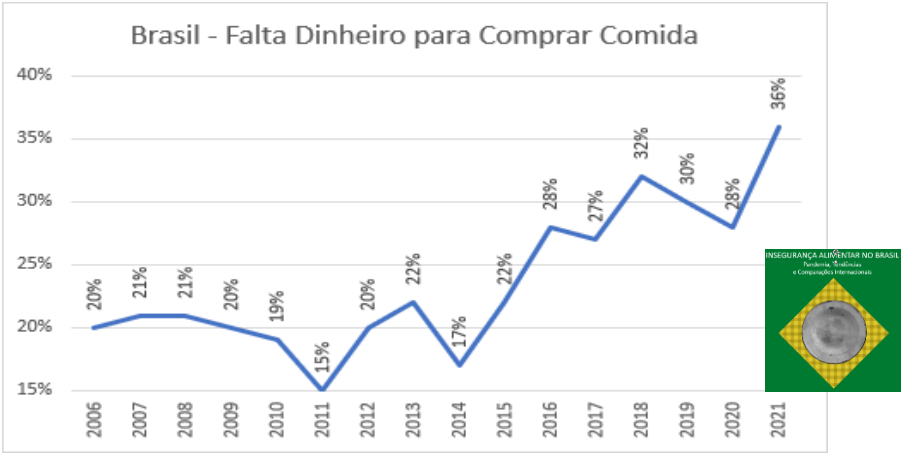
FGV SOCIAL		2021		2020		2019	
UF	Estrato	%	Class	%	Class	%	Class
Santa Catarina	Colar metropolitano de Florianópolis	3,80%	146	9,99%	139	11,83%	128
Santa Catarina	Florianópolis	5,27%	145	8,16%	144	5,36%	145
Santa Catarina	Vale do Itajaí	7,55%	144	9,15%	142	7,34%	143

Fonte: FGV Social, elaboração própria a partir da PNADC/IBGE



Proporção de Pobres em 2021 (%)
Linha R$ 497 mens

Insegurança Alimentar em Algum Grau – Extrema Pobreza Subjetiva
"Em algum momento, nos últimos 12 meses, faltou dinheiro em algum momento para comprar alimentos para você ou para a sua família ?"



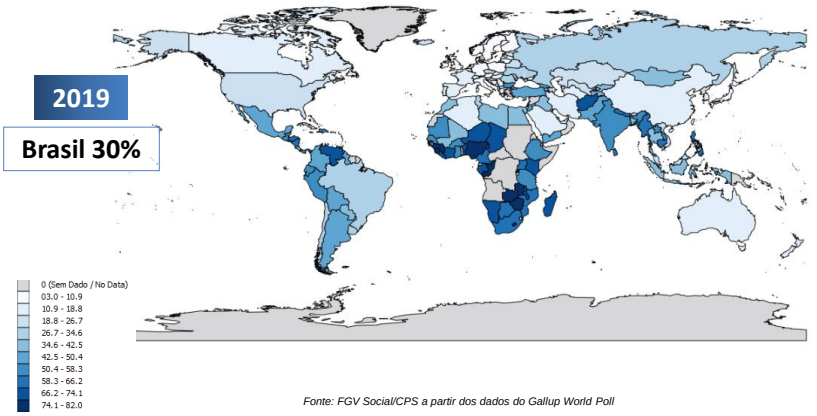
Fonte: FGV Social a partir do Gallup World Poll

https://cps.fgv.br/en/HungerInThePandemic

(%) Faltou dinheiro para alimentação - 2021 / 2019

FGV SOCIAL

"Em algum momento, nos últimos 12 meses, faltou dinheiro em algum momento para comprar alimentos para você ou para a sua família ?"



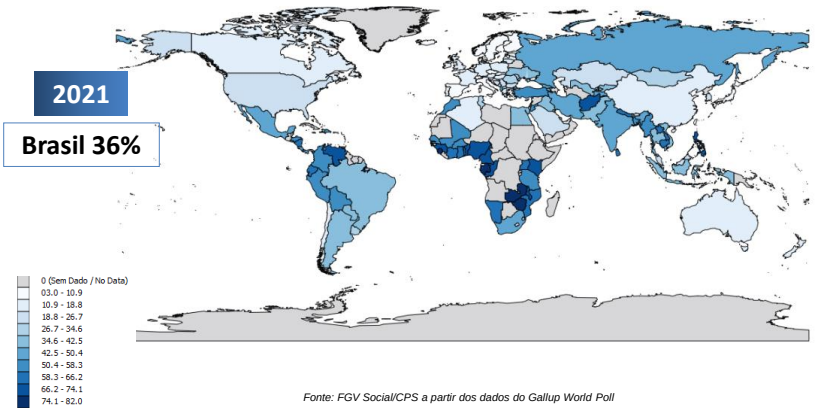
Fonte: FGV Social/CPS a partir dos dados do Gallup World Poll

www.fgv.br/fgvsocial

FGV SOCIAL

(%) Faltou dinheiro para alimentação - 2021 / 2019

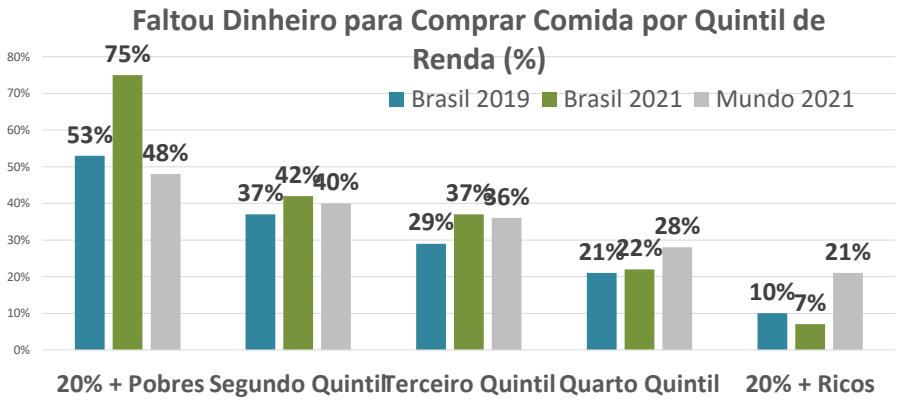
"Em algum momento, nos últimos 12 meses, faltou dinheiro em algum momento para comprar alimentos para você ou para a sua família ?"



Fonte: FGV Social/CPS a partir dos dados do Gallup World Poll

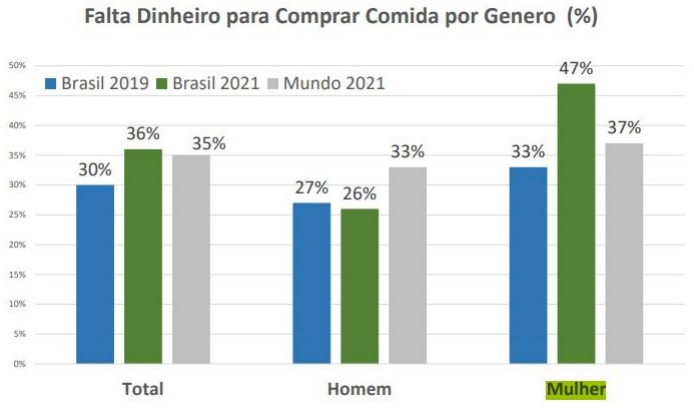
www.fgv.br/fgvsocial

Mudanças da Insegurança Alimentar: Brasil e o Mundo



Fonte: FGV Social a partir do Gallup World Poll

Mudanças da Insegurança Alimentar: Brasil e o Mundo



Fonte: FGV Social a partir do Gallup World Poll

Difference in difference estimator In economics, vast research is done analyzing the so-called experiments or quasi-experiments. To analyze a natural experiment it is necessary to have a control group, that is, a group that was not affected by the change, and a treatment group that was directly affected by the event of interest, both with similar characteristics. In order to study the differences between the two groups, pre and post-event data are needed for both groups. Thus, the sample is divided into four groups: the pre-change control group, the post-change control group, the pre-change treatment group, and the post-change treatment group.

The difference between the differences between the two periods for each of the groups is the difference in difference estimator, represented by the following equation:

g3 = (y2,t – y1,t) – (y2,c – y1,c)

Where each *y* represents the mean of the studied variable for each year and group, with the subscript number representing the sample period (*1* for before the change and *2* for after the change) and the letter representing the group to which the data belongs (*c* for the control group and *t* for the treatment group). *g3* is the so-called difference in difference estiator. Once the *g3* is obtained, the impact of the natural experiment on the variable to be explained is determined.

In order to study the impacts of local policies between two groups, we need data at least two moments in time for both of them. Our sample is thus fourfold. The interactive effect between the treatment group dummy (dT=1; dT=0 (control group omitted category)) and the time dummy (d2 =1; d2=0 (initial instant omitted category), which gives us the difference-in-difference estimator.

Mathematically, we can represent this difference-in-difference estimator (D-D) used from equations in discrete or continuous variables (for example, logistic regressions or mincerian-type income equations): **Y = g0 + g1*d2 + g2*dT+ (D-D)*d2*dT + other controls**