How about Inequality (Ginis and Lorenz): World and Brazil? * 7.2

Course website: https://cps.fgv.br/en/courses

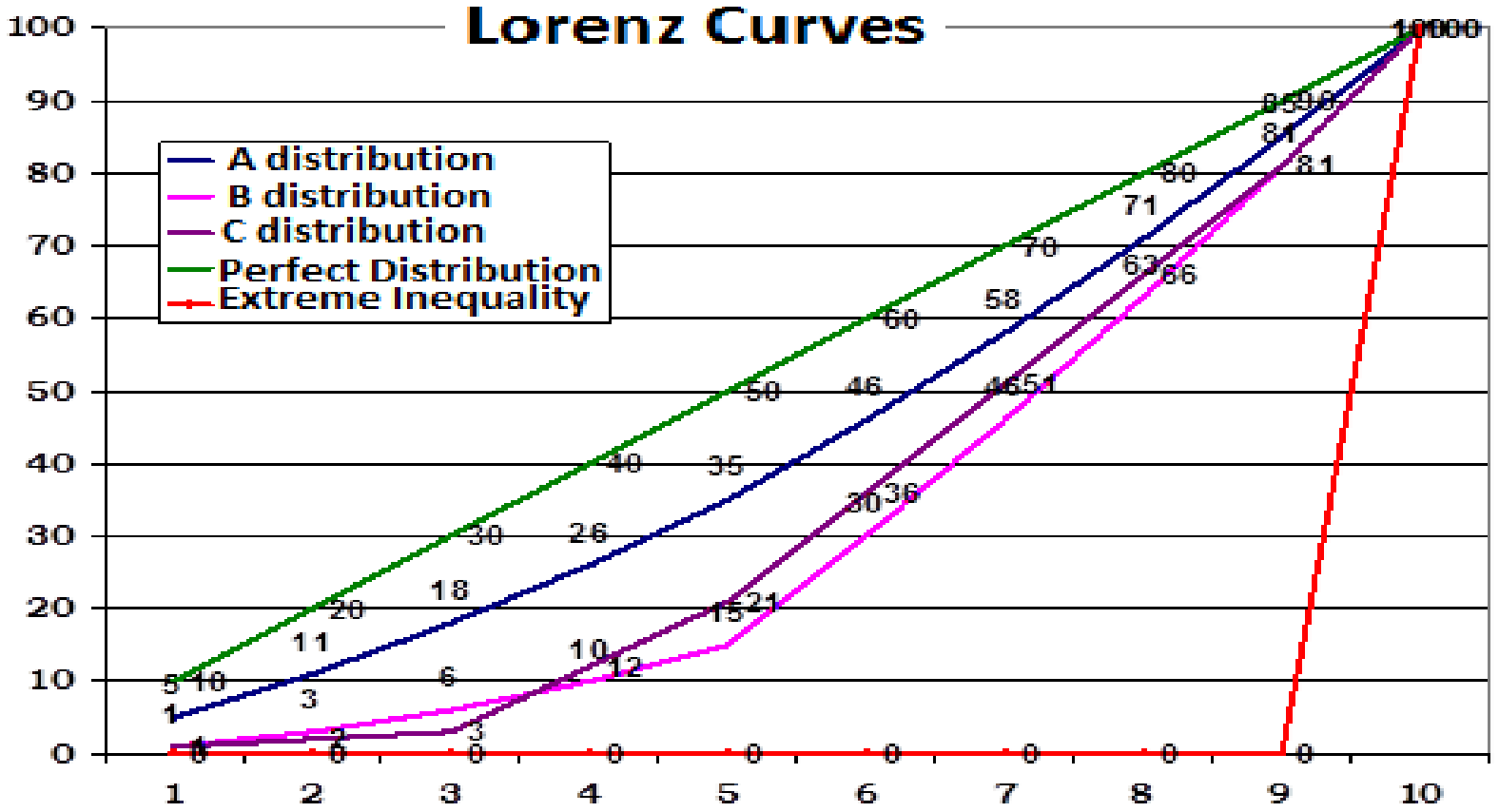
Social Welfare and Inequality section link

http://cps.fgv.br/en/graduacao?subtema=7&titulo=&tipo=All

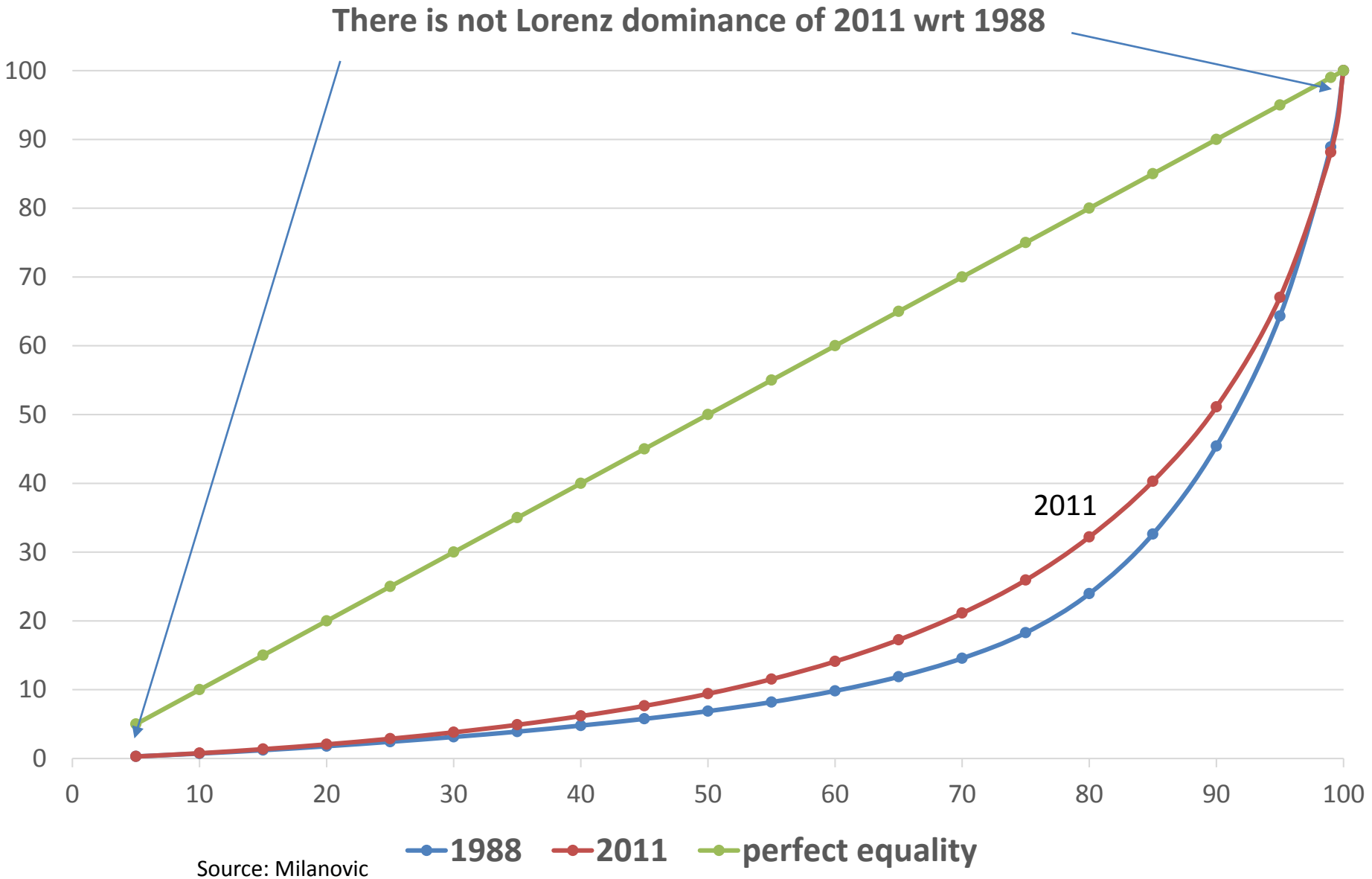
References: Everything in section 01 up to 01.072 (Except 01.071) that is from 01.01 to 01.072

Lorenz Dominance *03

	A Distribution		B Distribution		C Distribution		Lowest Inequality		Highest Inequality	
Individuals		Accumulated		Accumulated		Accumulated		Accumulated		Accumulated
1	5	5	1	1	1	1	10	10	0	0
2	6	11	2	3	1	2	10	20	0	0
3	7	18	3	6	1	3	10	30	0	0
4	8	26	4	10	9	12	10	40	0	0
5	9	35	5	15	9	21	10	50	0	0
6	11	46	15	30	15	36	10	60	0	0
7	12	58	16	46	15	51	10	70	0	0
8	13	71	17	63	15	66	10	80	0	0
9	14	85	18	81	15	81	10	90	0	0
10	15	100	19	100	19	100	10	100	100	100

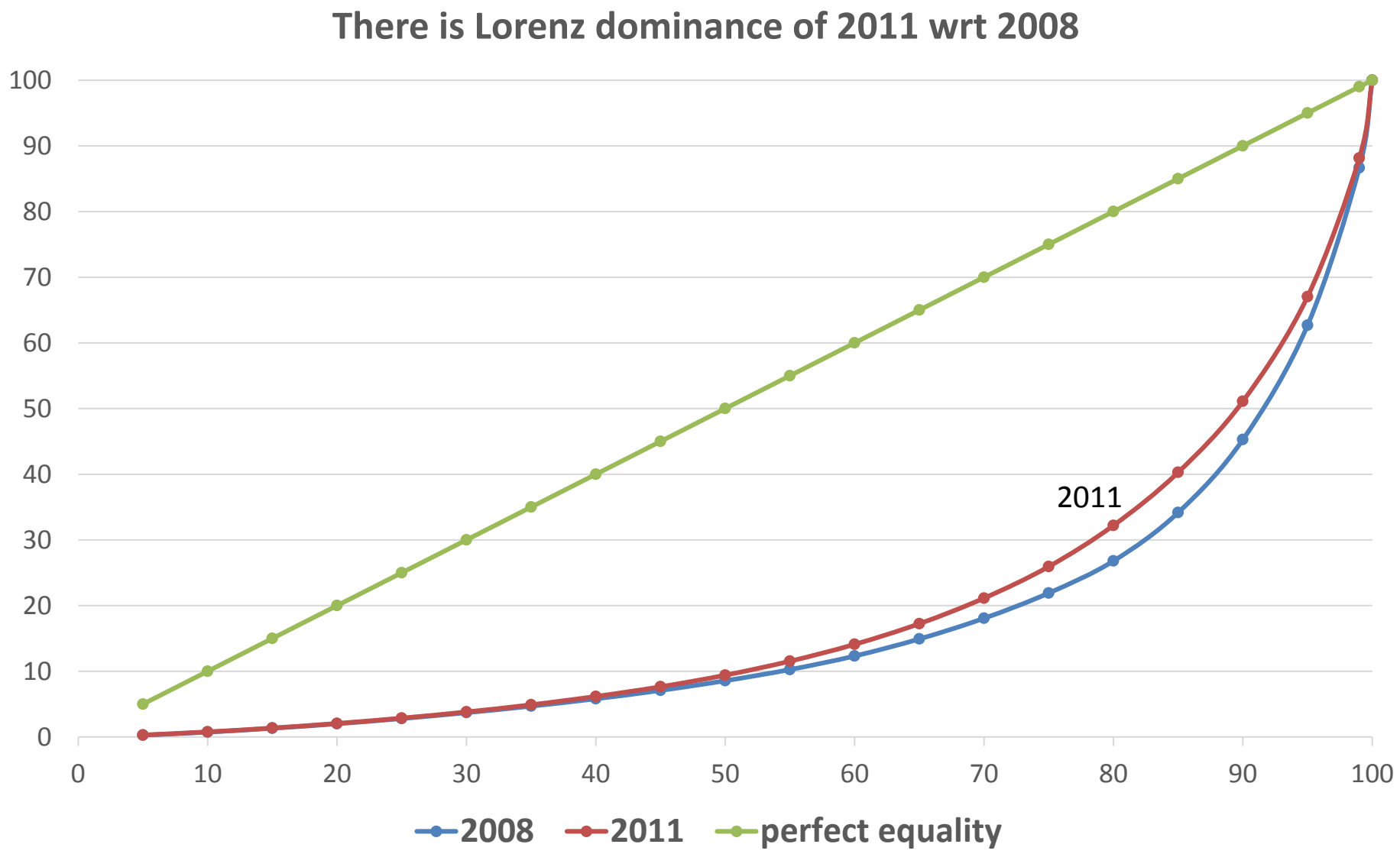


Lorenz curves 1988 and 2011 - Global



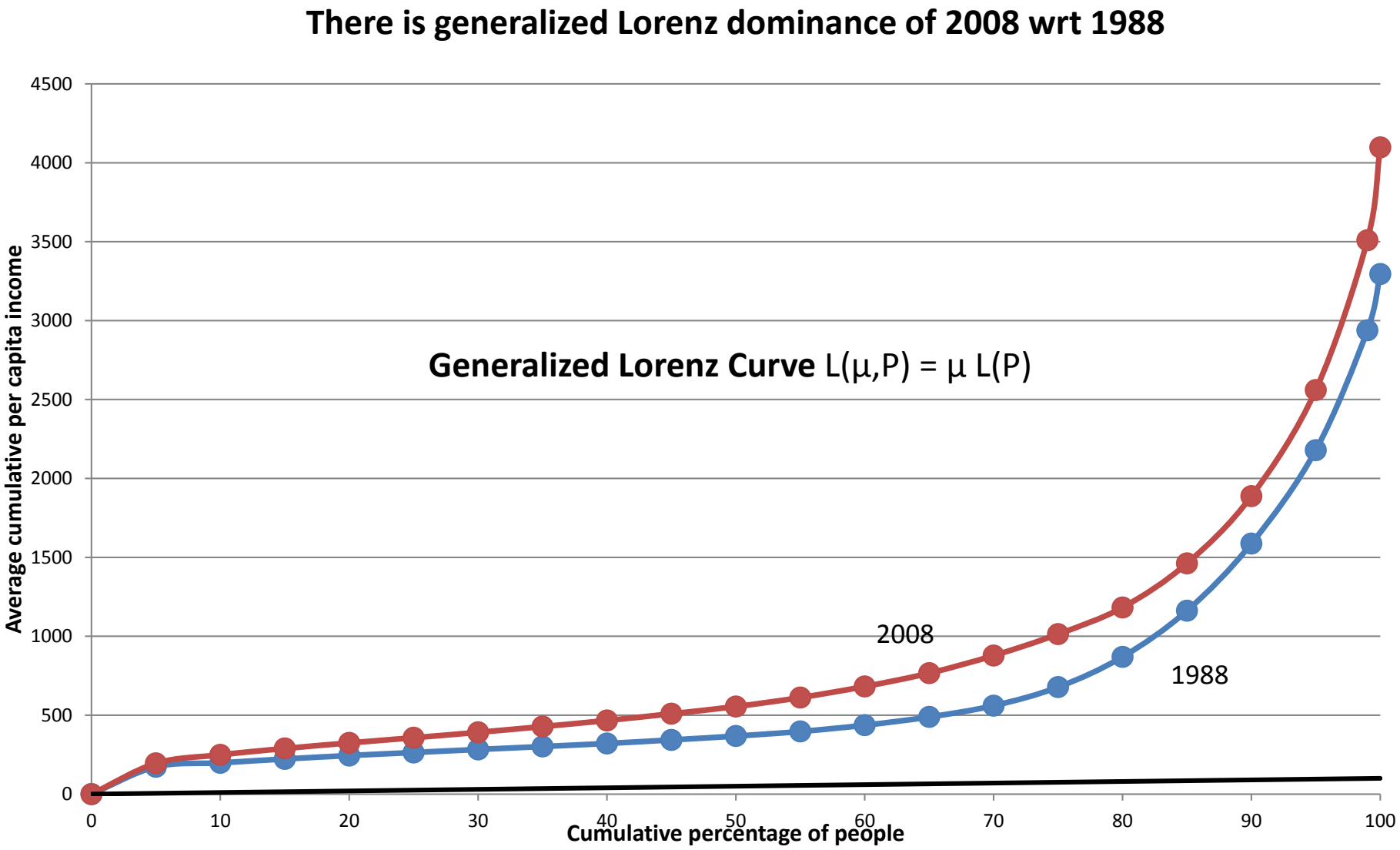
Source: Milanovic

Lorenz curves 2008 and 2011 - Global



Source: Milanovic

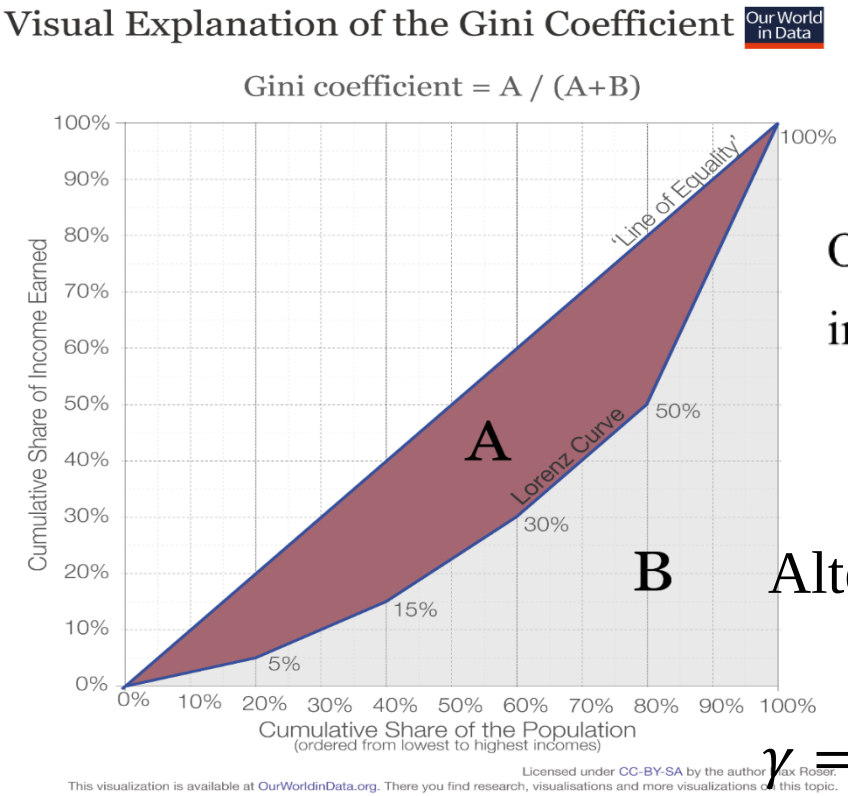
Generalized Lorenz curves 1988 and 2008 - Global



Source: Milanovic

Gini Index and Lorenz Curve *02

Graph from the Lorenz Curve L(P)



Analytical Interpretation

Once there are $\frac{N\,(N-1)}{2}$ distinct pairs of people in the sample, Gini's formula is:

$$\gamma = \frac{1}{\mu N(N-1)} \sum_{i>j}^{N} \sum_{j}^{N} |x_i - x_j|$$

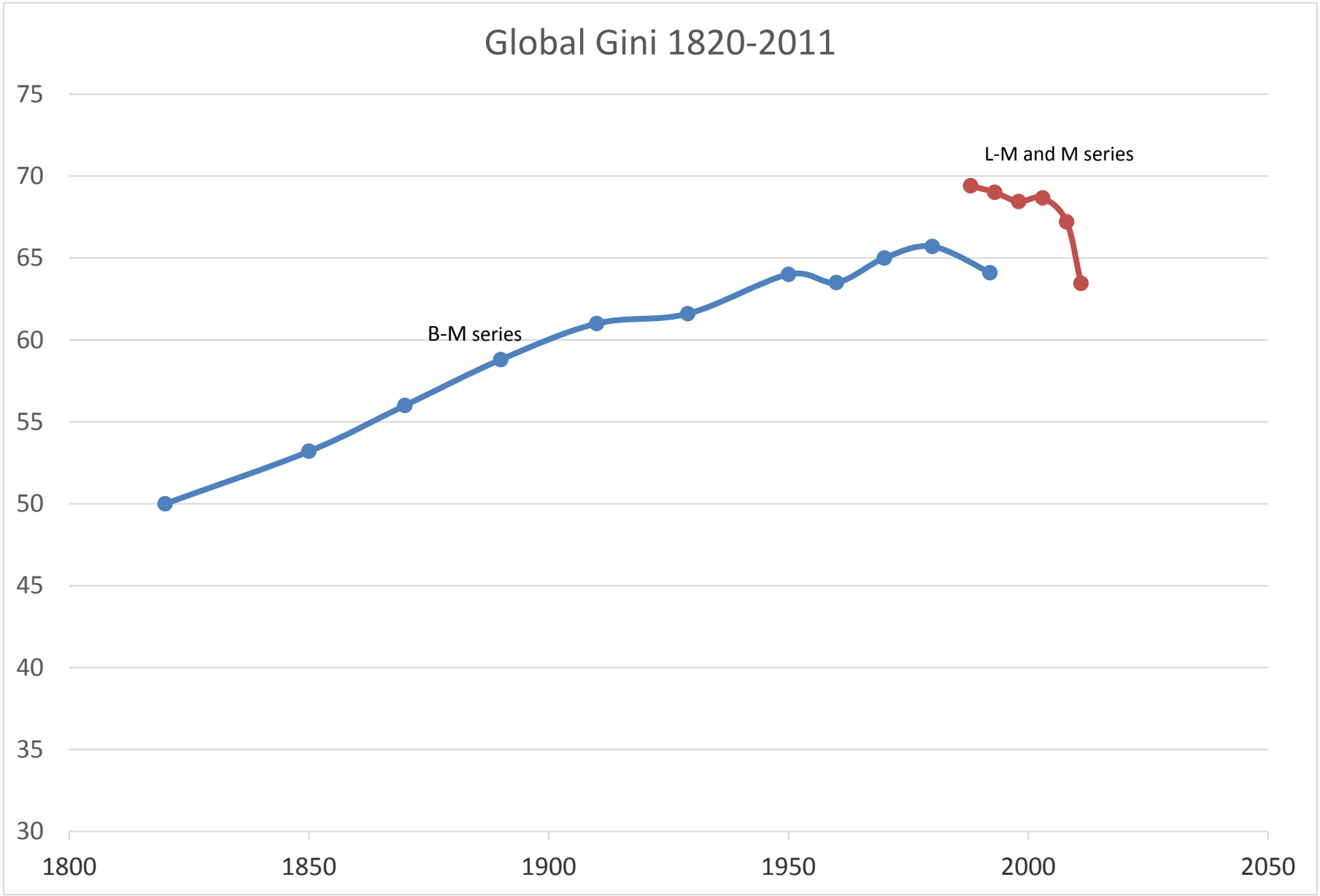
Alternative Formula

$$\gamma = \frac{N+1}{N-1} - \frac{2}{N\,(N-1)\mu} \sum_{i=1}^{N} \rho_i\, x_i$$

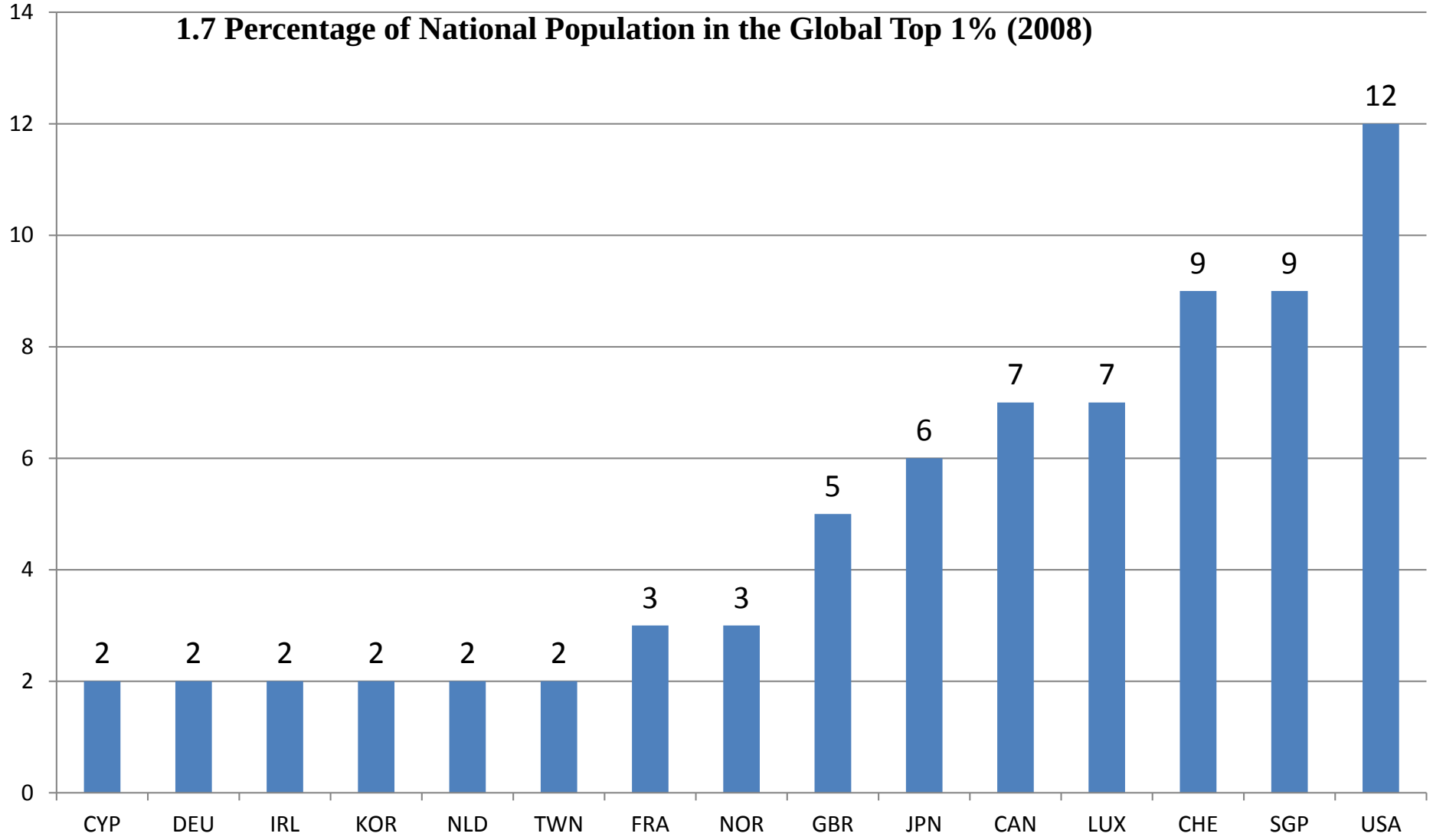
Aggregated Level Analysis of Welfare Function (BES) based on the Gini (δ)

Sen (1976): $\mu\,(1 - \delta)$

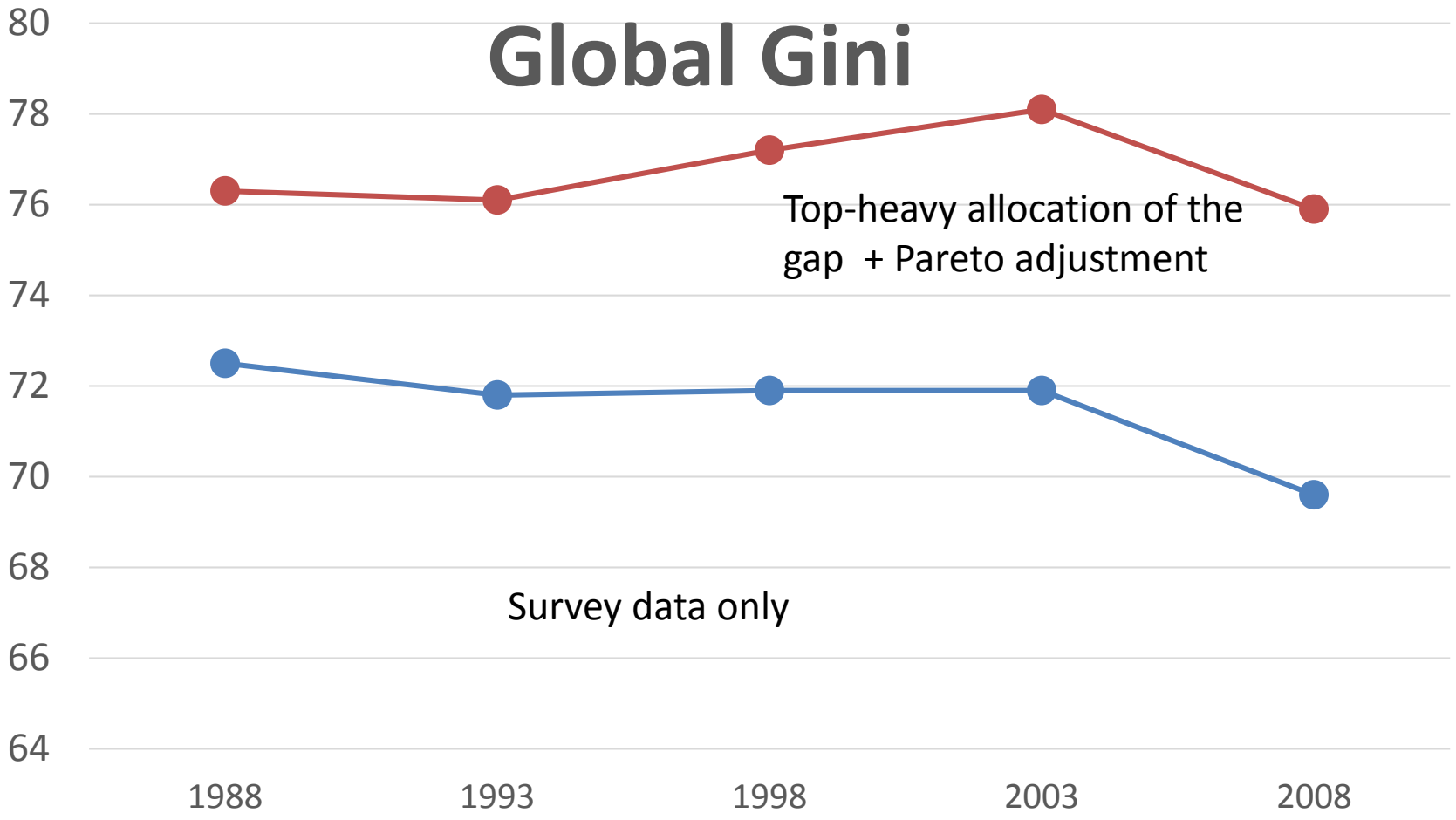
Graff (1981): $\mu\,(1 - \delta)^{\rho}$, where $\rho \in [0, 1]$.


Global Gini 1820-2011
75
70
65
60
55
50
45
40
35
30
1800
1850
1900
1950
2000
2050
L-M and M series
B-M series
Branko Milanovic (2016)

Countries with more than 1% of their population in top global percentile (above $PPP 72,000 per capita in 2008 prices)



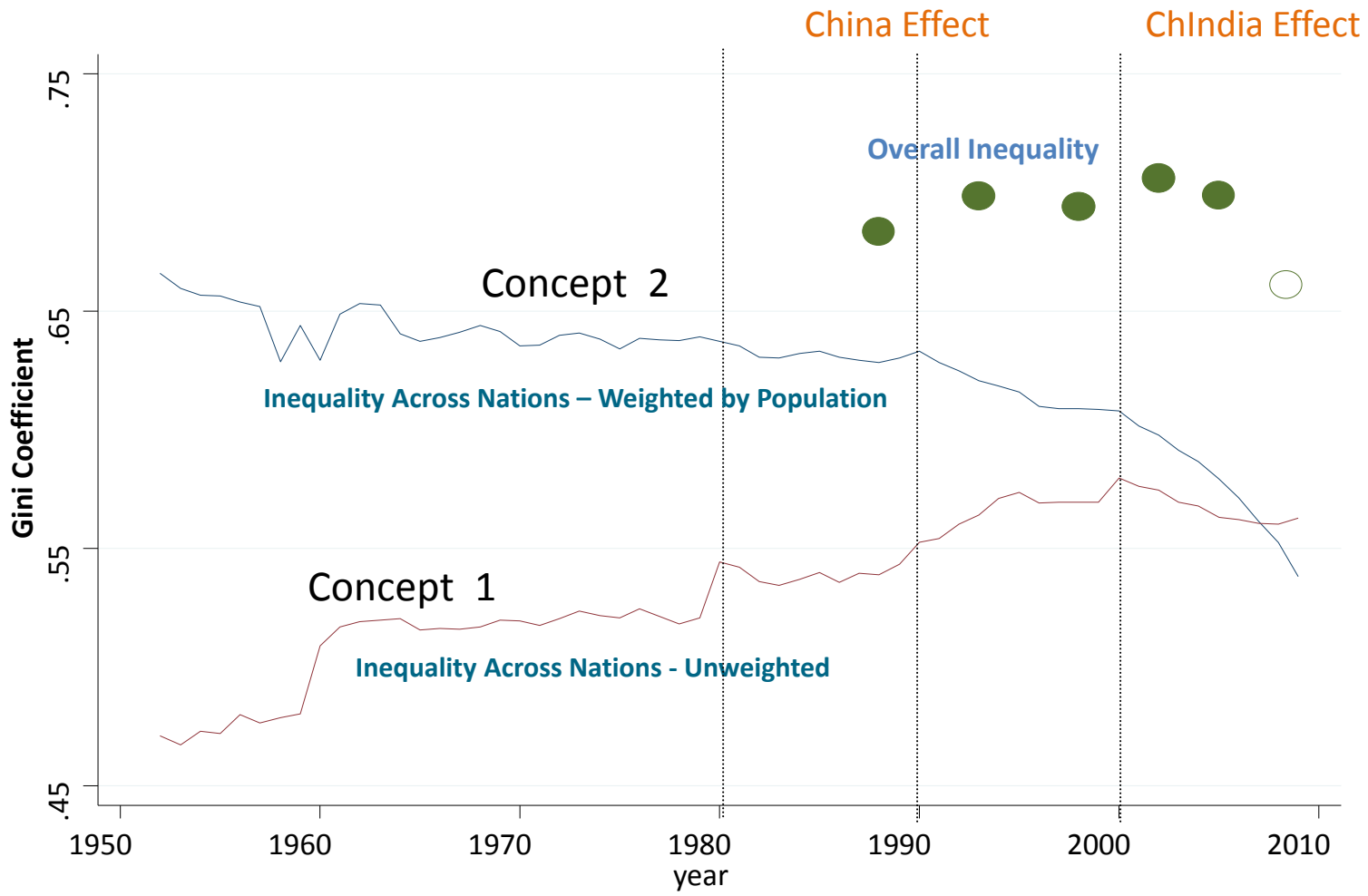
Source: Milanovic (2016), Chapter 1



With full adjustment (allocation to the top 10% + Pareto) Gini decline **almost vanishes**

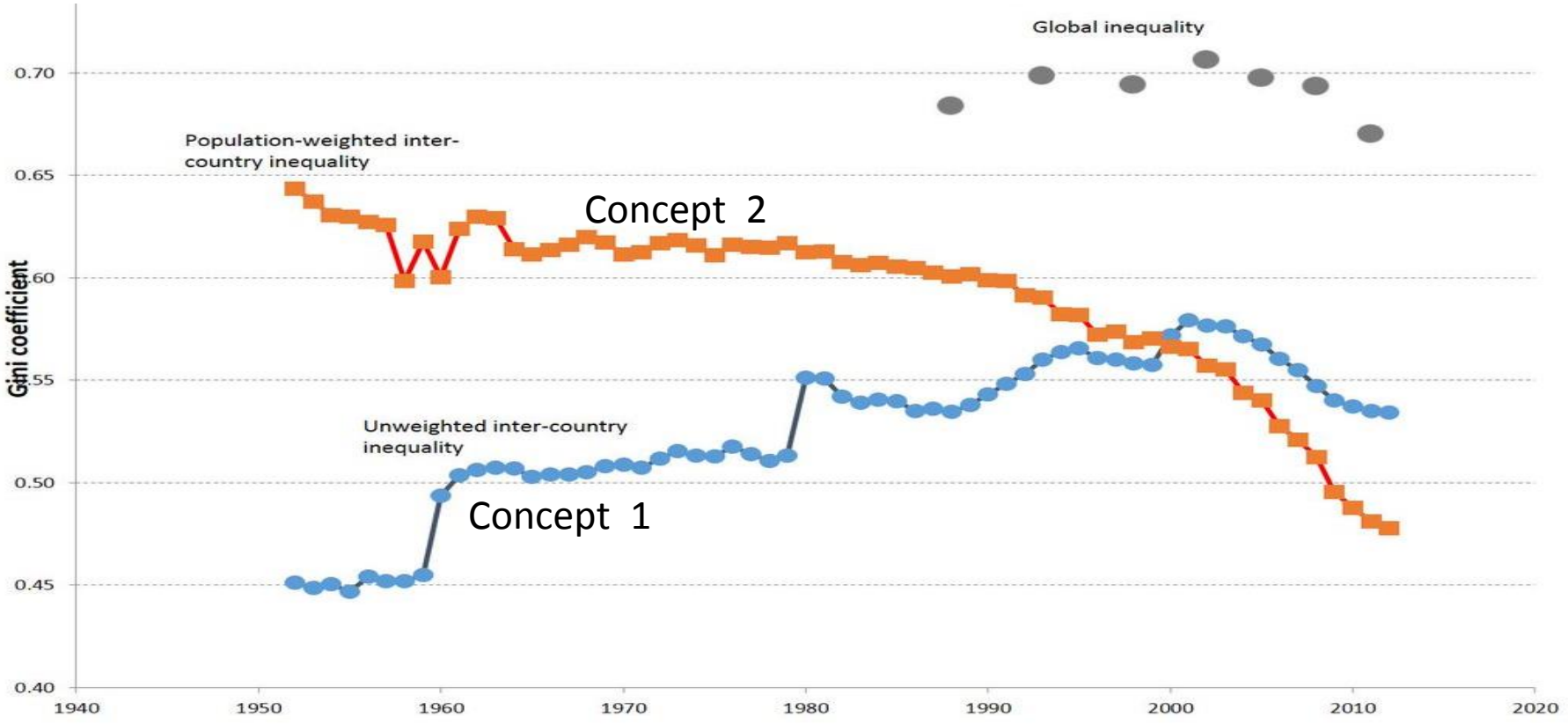
Summary_data.xls

Evolution of World Income Inequality Different Concepts



Source: Milanovic (2011)

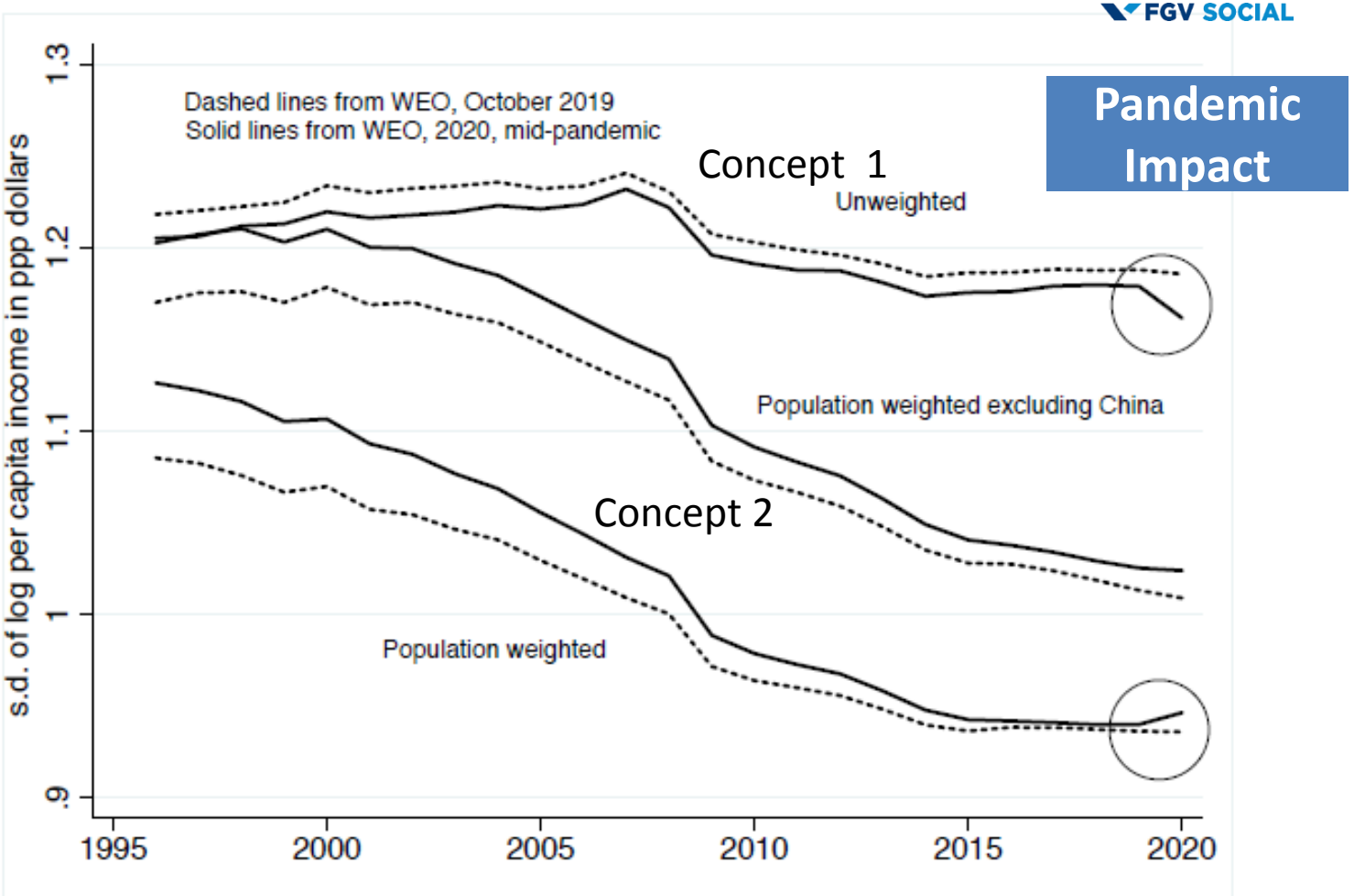
Three concepts of inter-national income inequality, 1952-2013



Source: Milanovic (2016), Chapter 1

Other Inequality Measure

Pandemic Impact



Source: Deaton 2021

[Deaton's (2021)Paper and Video debate with Deaton and Milanovic on pandemic impact on World Inequality (between countries) :](#)

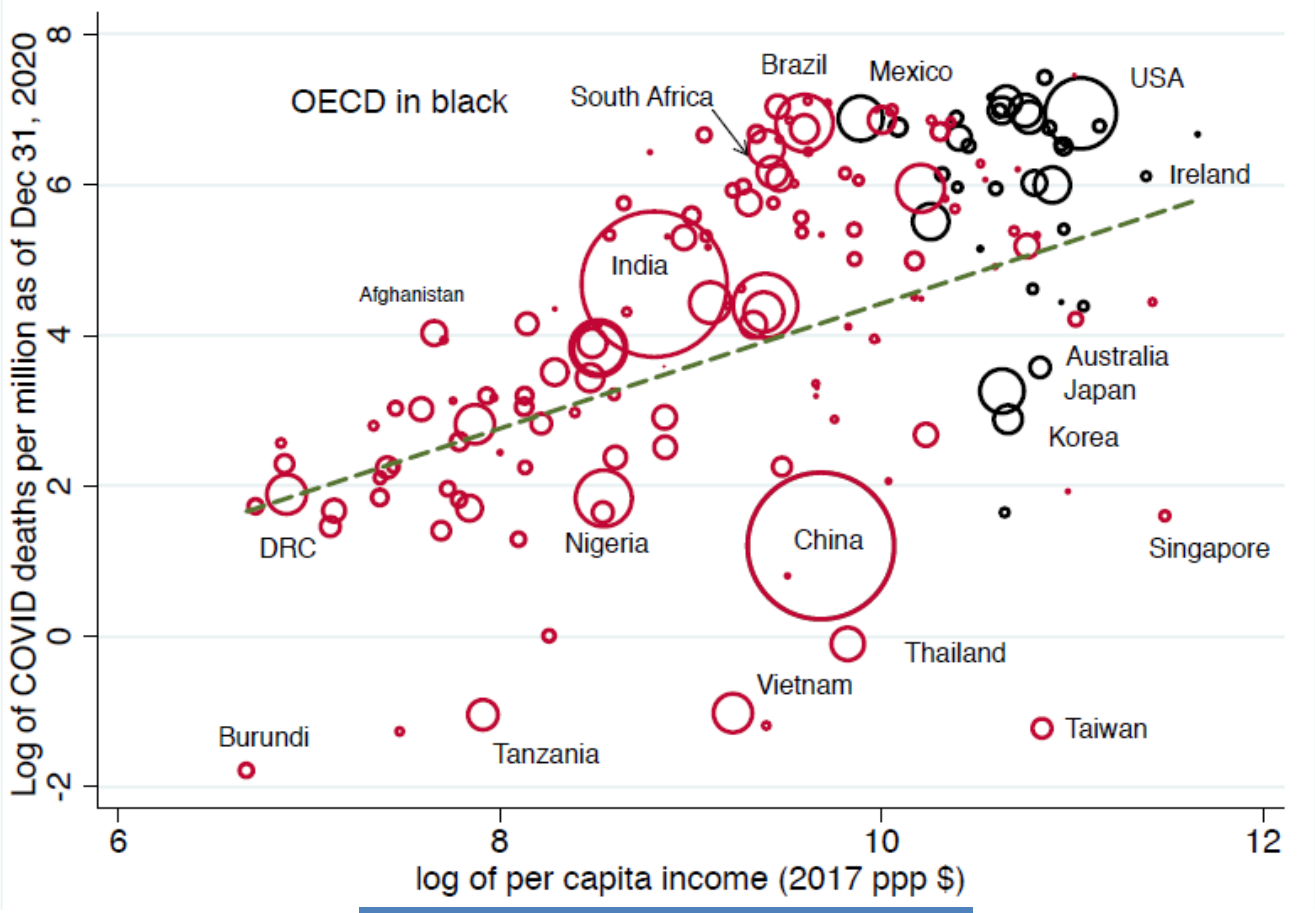
** https://www.nber.org/papers/w28392

** https://www.facebook.com/ebrdhq/videos/238841154356288

Why? Covid-19 Impact

FGV SOCIAL

Deaths

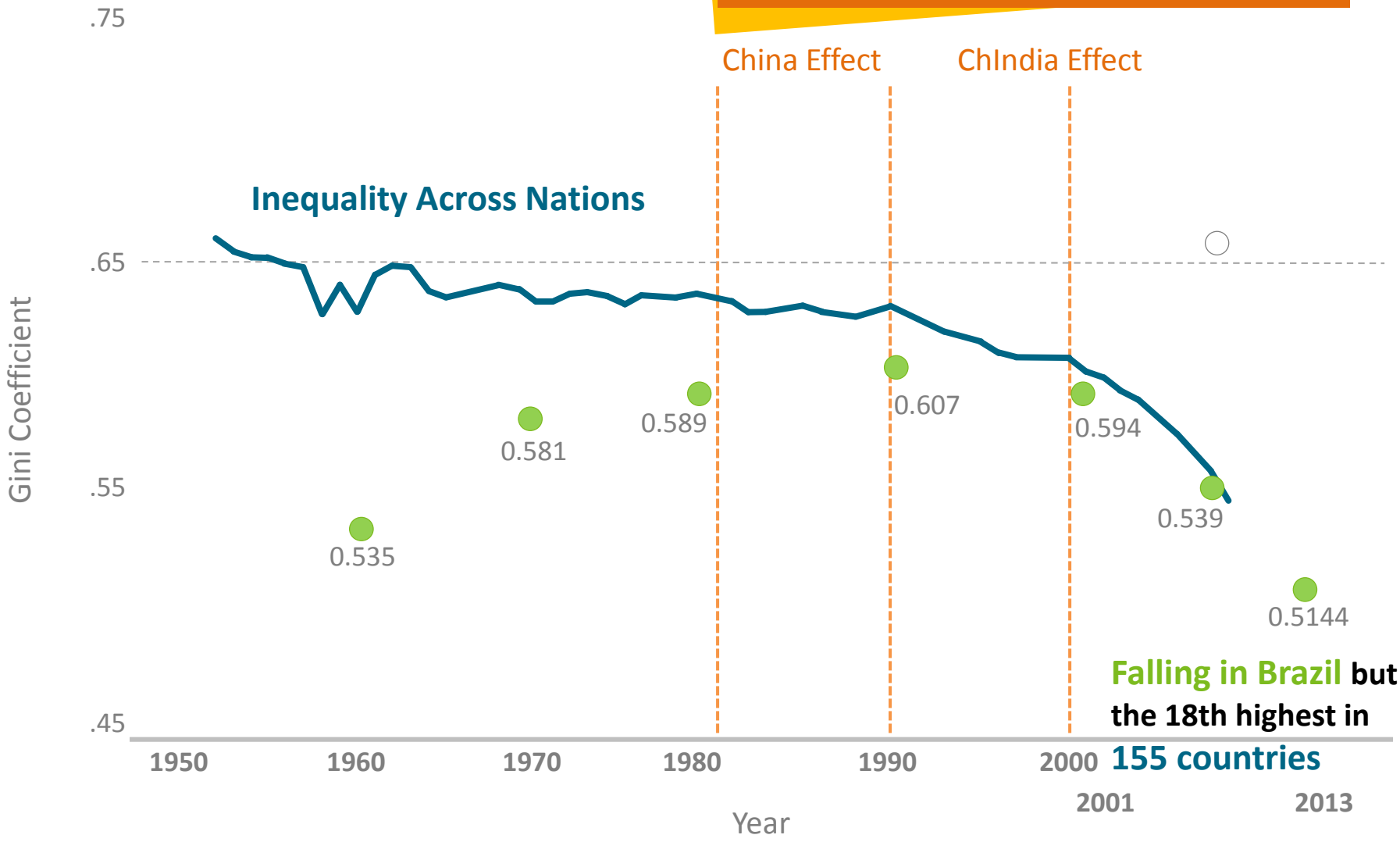


Per Capita GDP

Source: Deaton 2021

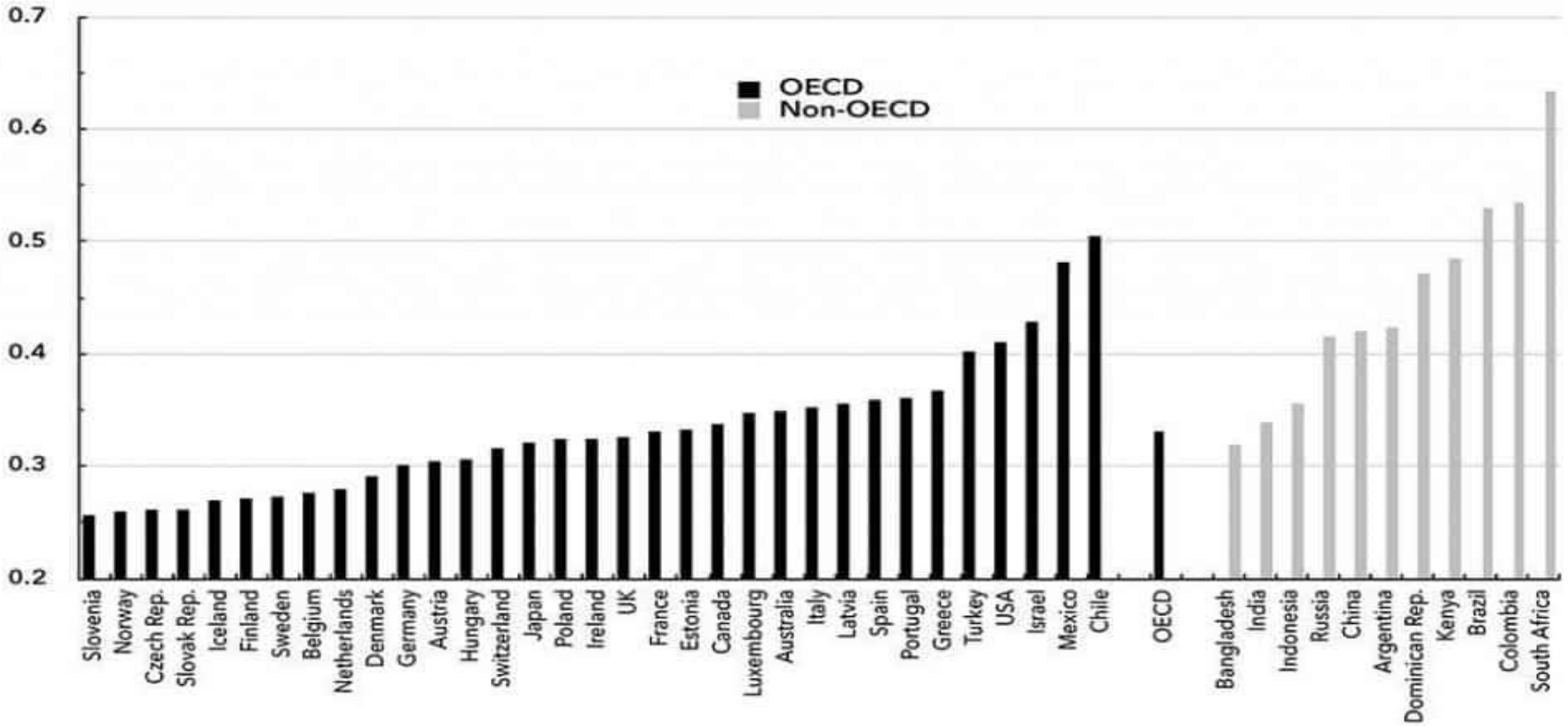
Brazil is a small World

Brazilian Per capita GDP PPP has grown 3.5% agains 3.6% of the world between 2002 e 2012



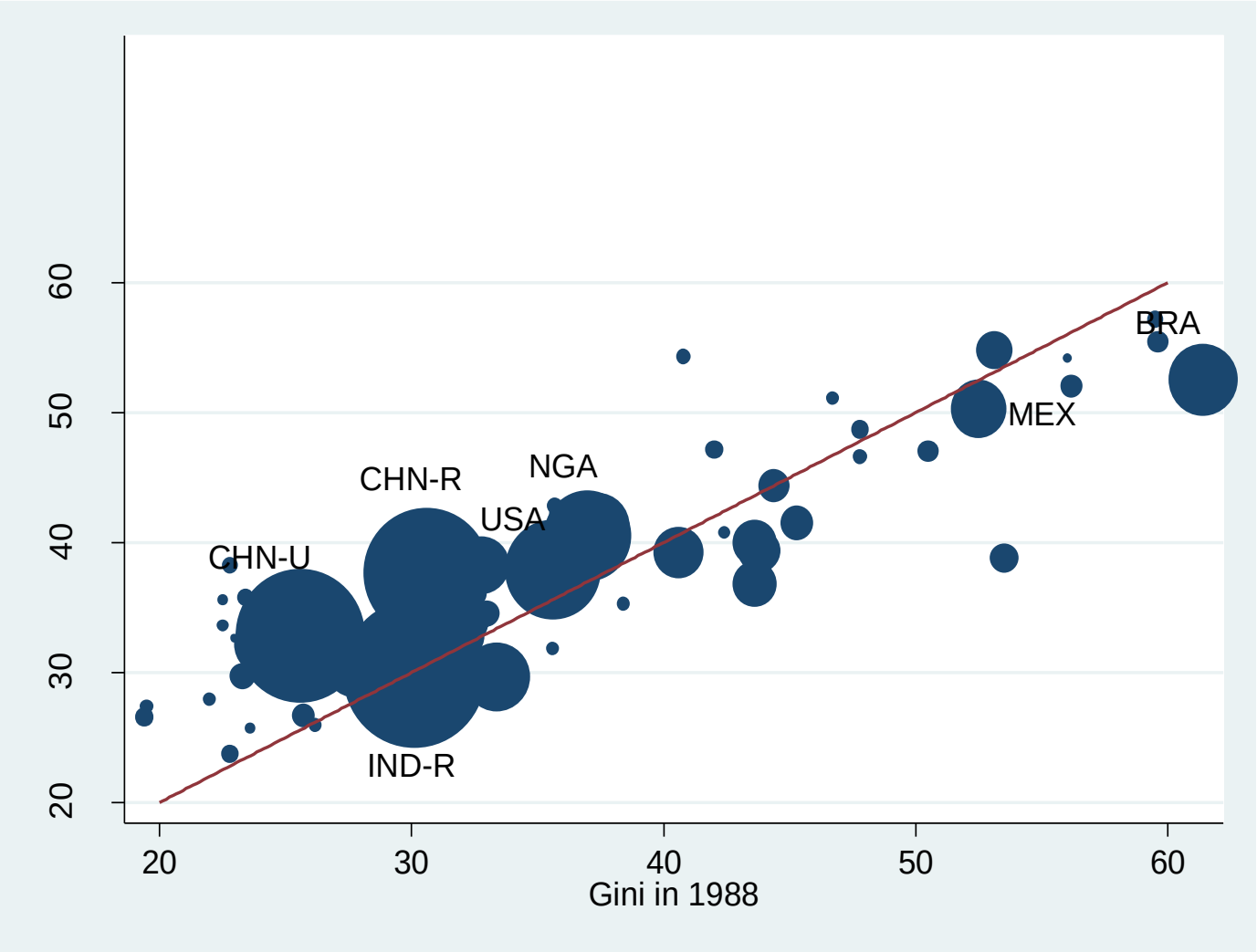
Source: Milanovic (2011) and Neri (2011)

Gini Coefficients for Selected Countries



Source: Organization for Economic Cooperation and Development (OECD), Income Distribution Database.

Ginis in 1988 and 2011 (population-weighted countries)

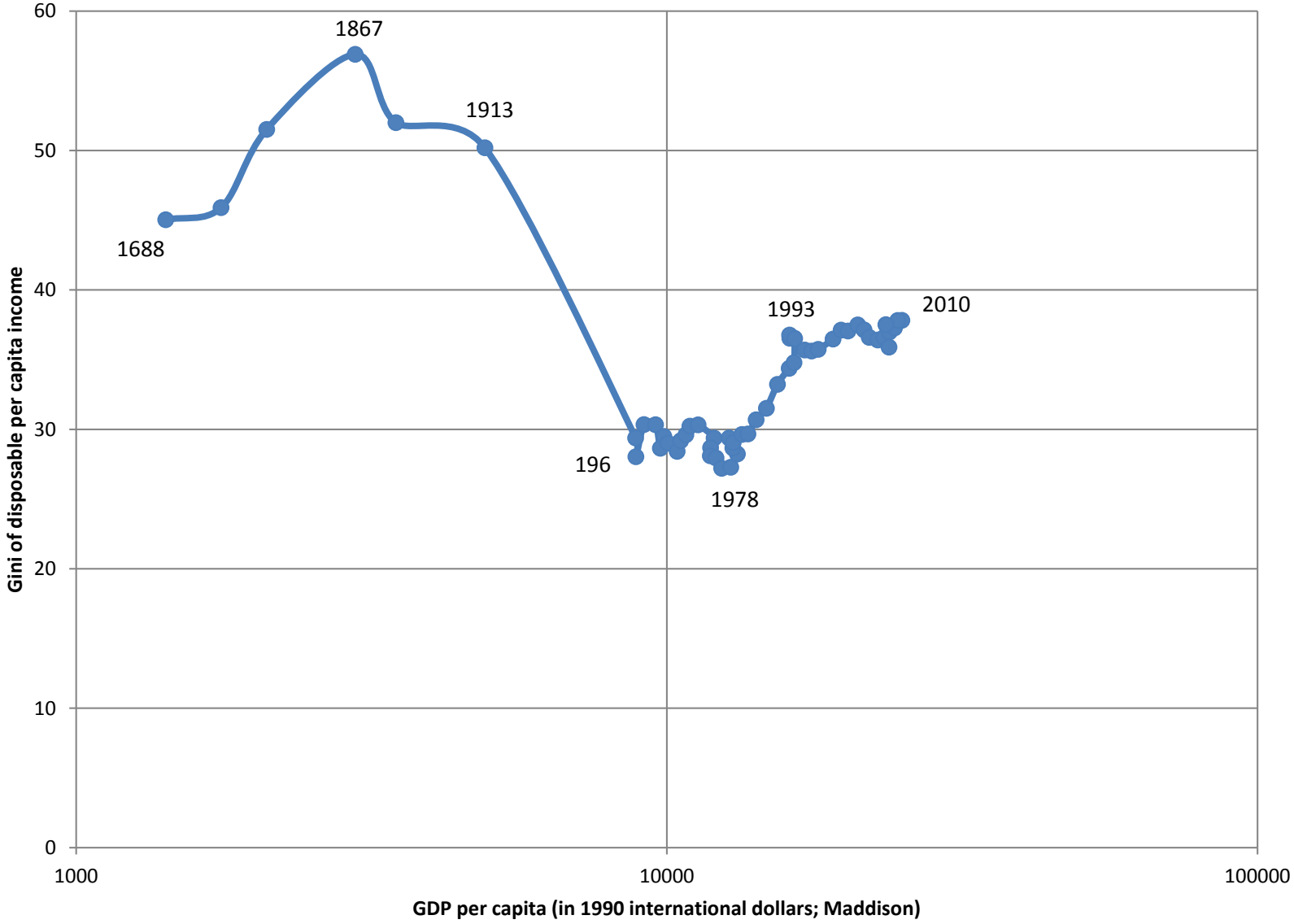


twoway (scatter gini gini_88 if bin_year==2011 & keep==1 & mysample==1 & group==1 [w=totpop], text(50 55 "MEX") text(57 60 "BRA") text(42 34 "USA") text(23 30 "IND-R") text(46 36 "NGA") text(39 24 "CHN-U") text(45 30 "CHN-R") ylabel(20(10)60)) (function y=x, range(20 60) legend(off) ytitle(Gini in 2011) xtitle(Gini in 1988))
Using final11\combine88_11.dta

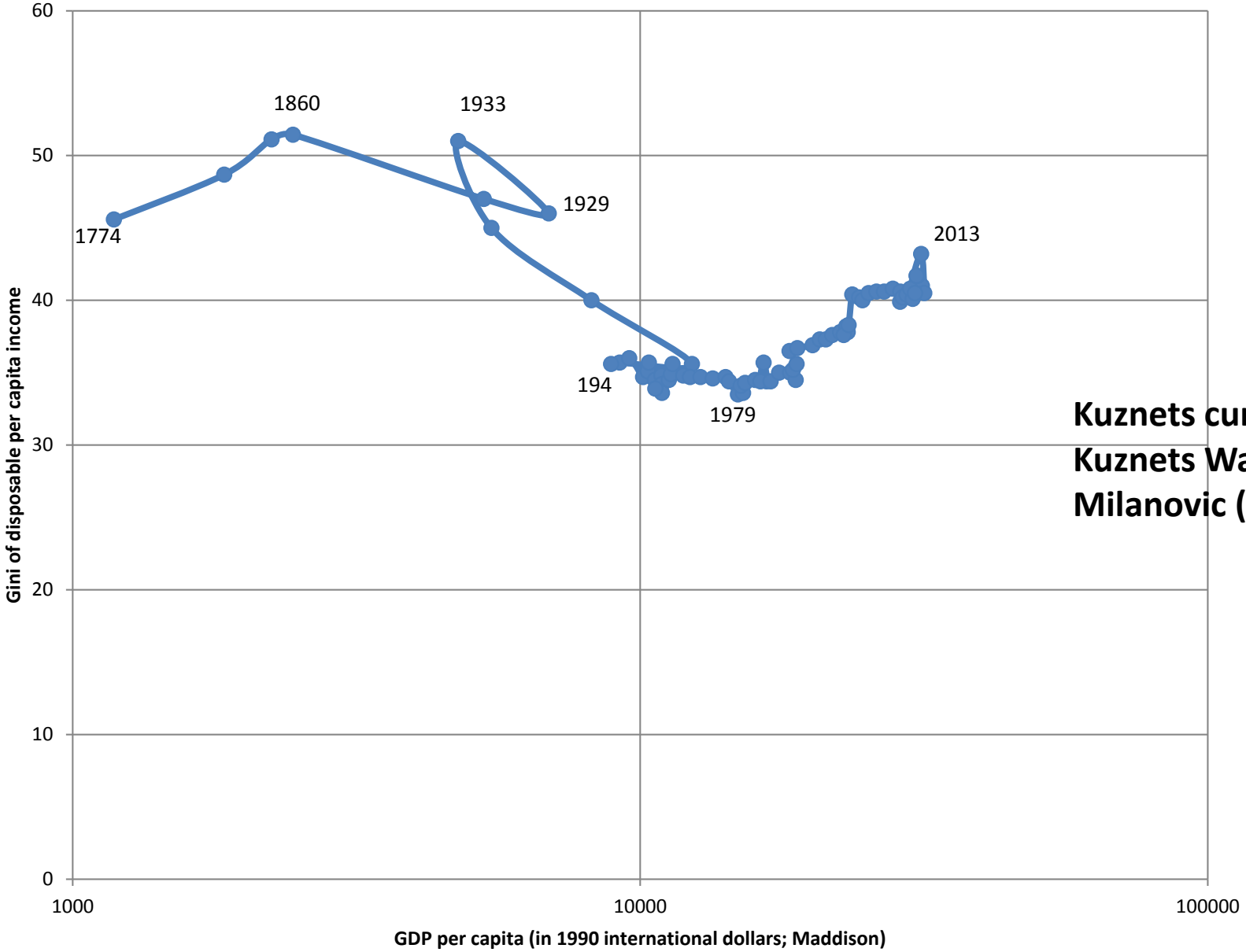
Kuznets perceived an inverted U-shaped relationship between inequality and income

Within-Country Inequality – migration in the past and technology today are main drivers

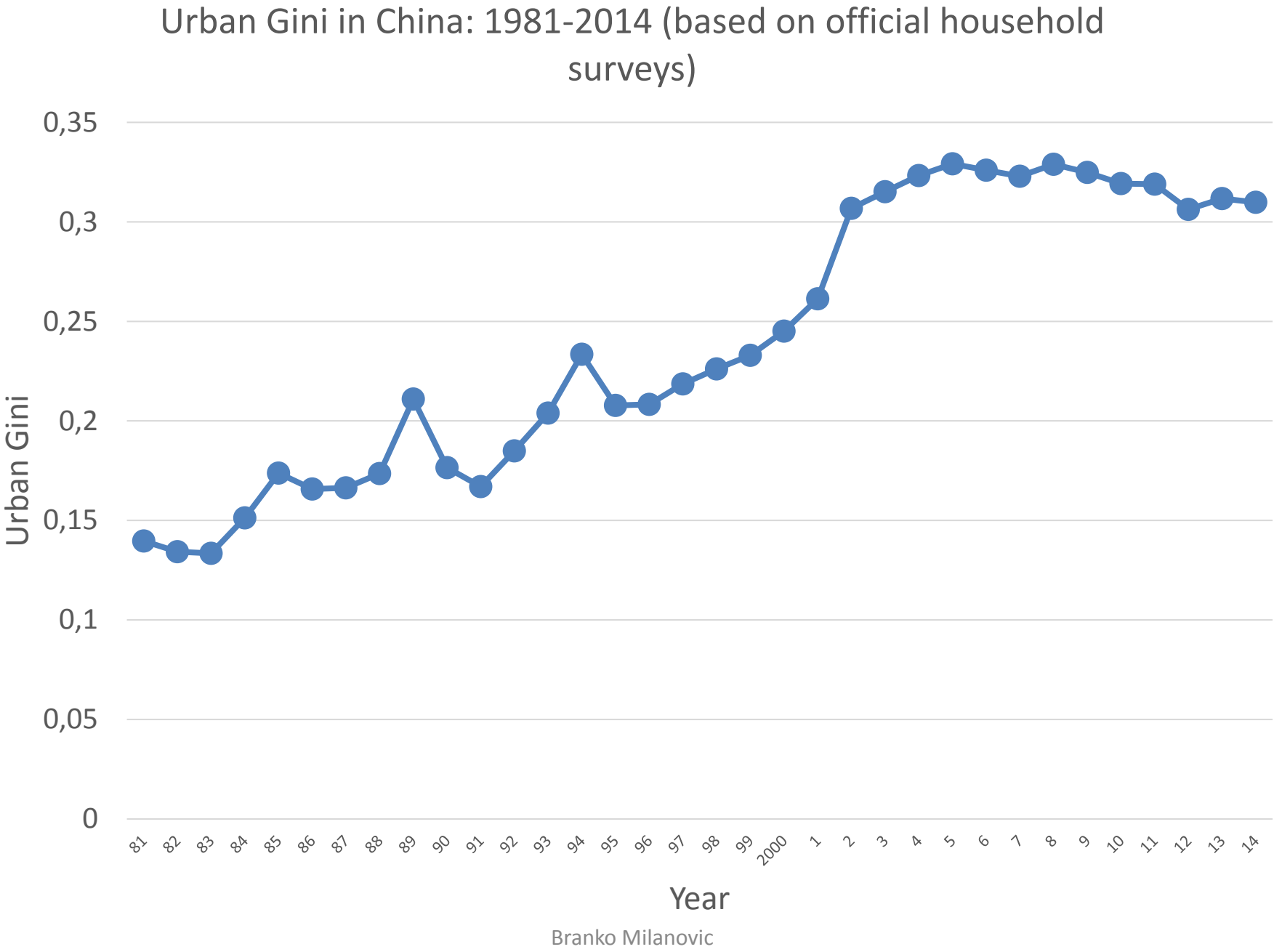
Kuznets relationship for the UK, 1688-2010



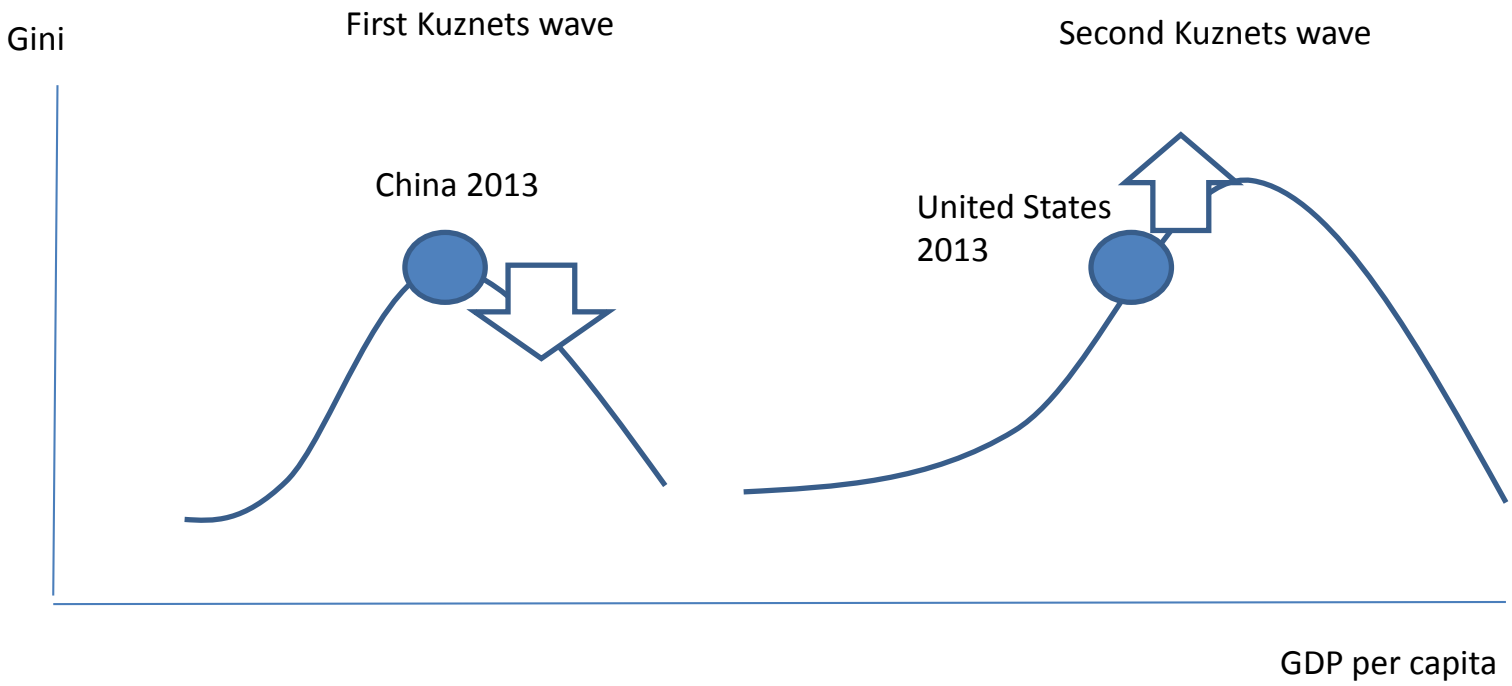
Kuznets relationship for the United States, 1774-2013

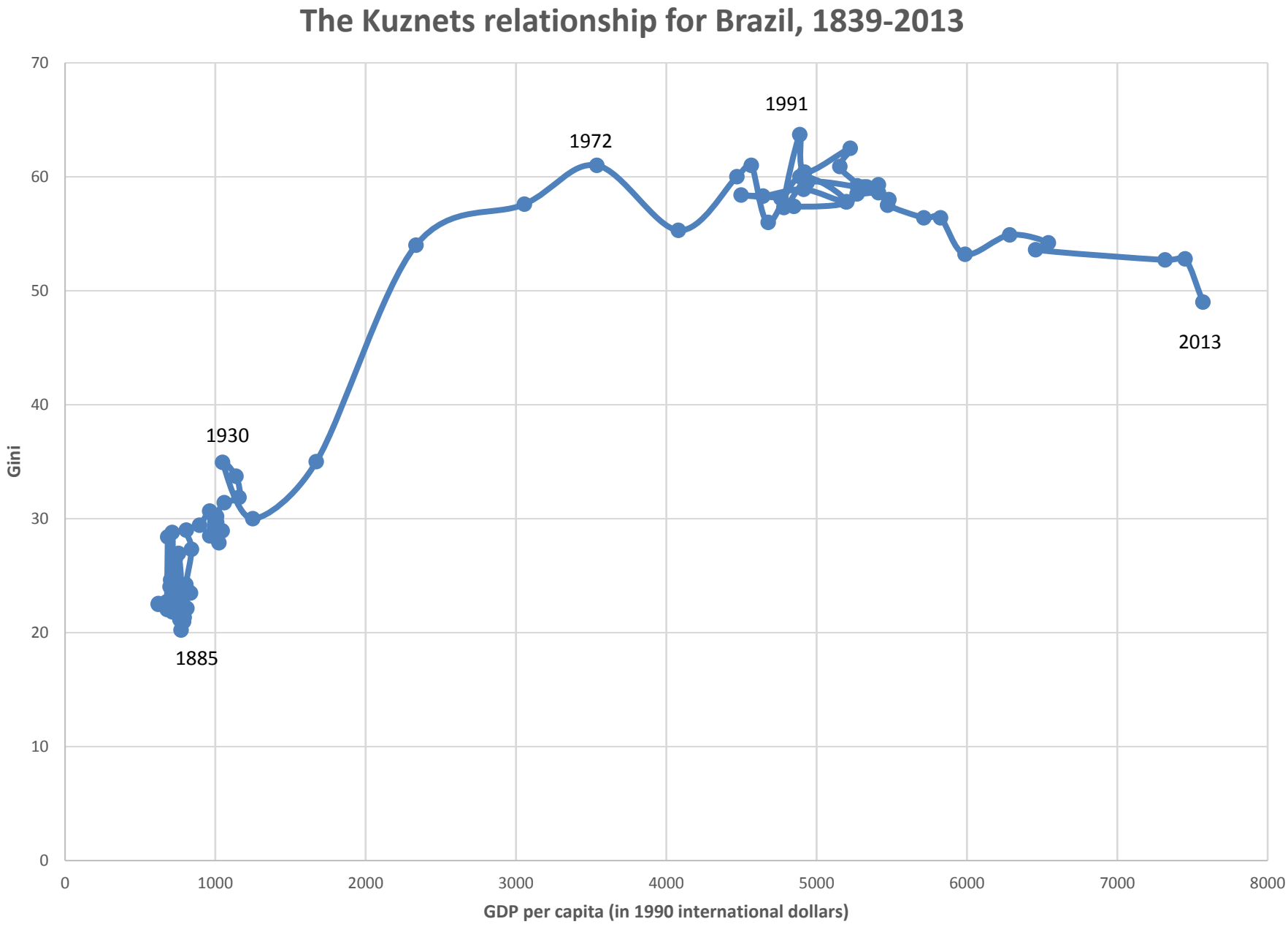


Kuznets curves or Kuznets Waves? Milanovic (2016)

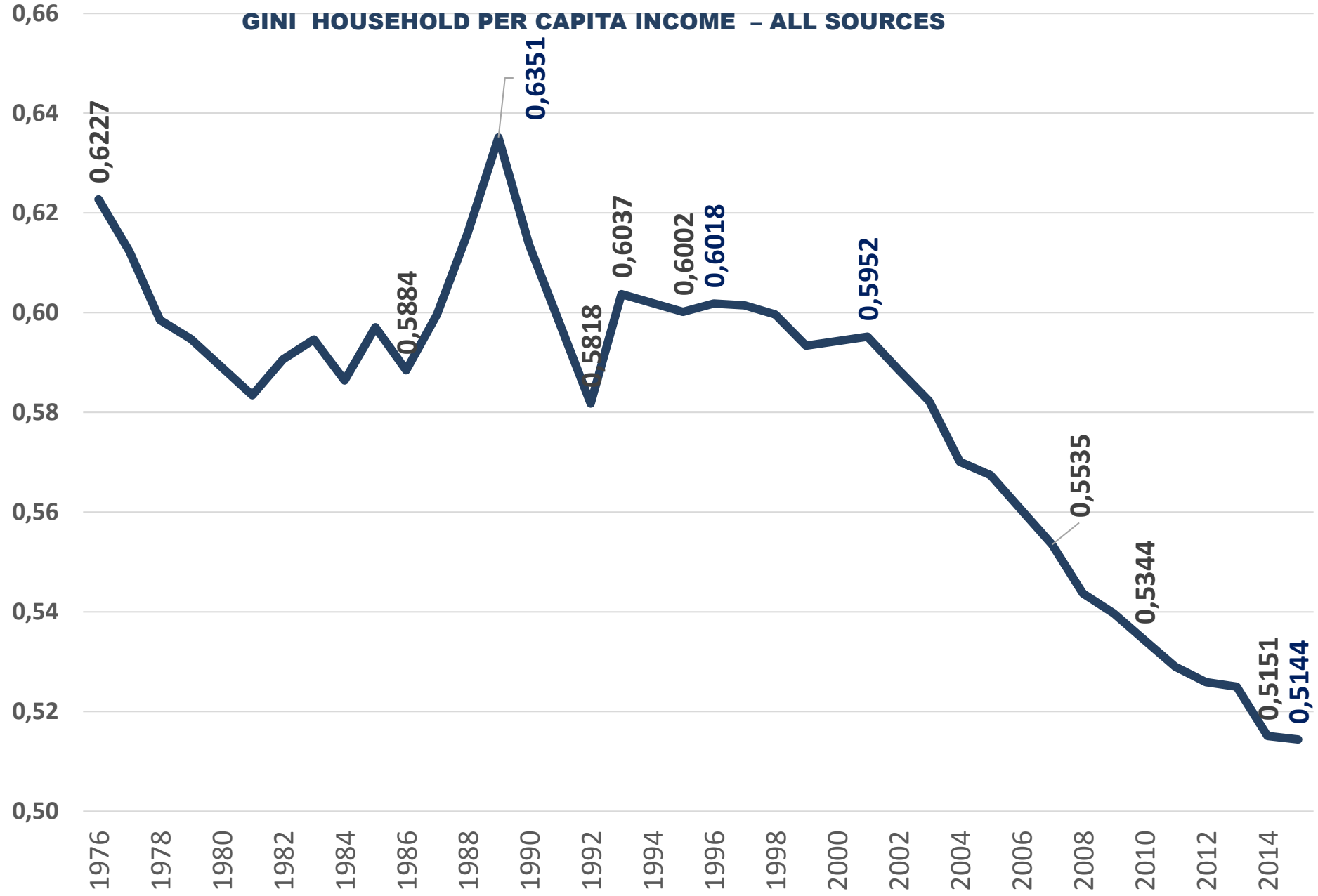

Urban Gini in China: 1981-2014 (based on official household surveys)
Urban Gini
0,35
0,3
0,25
0,2
0,15
0,1
0,05
0
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 2000 1 2 3 4 5 6 7 8 9 10 11 12 13 14
Year
Branko Milanovic

Where are now China and the US?



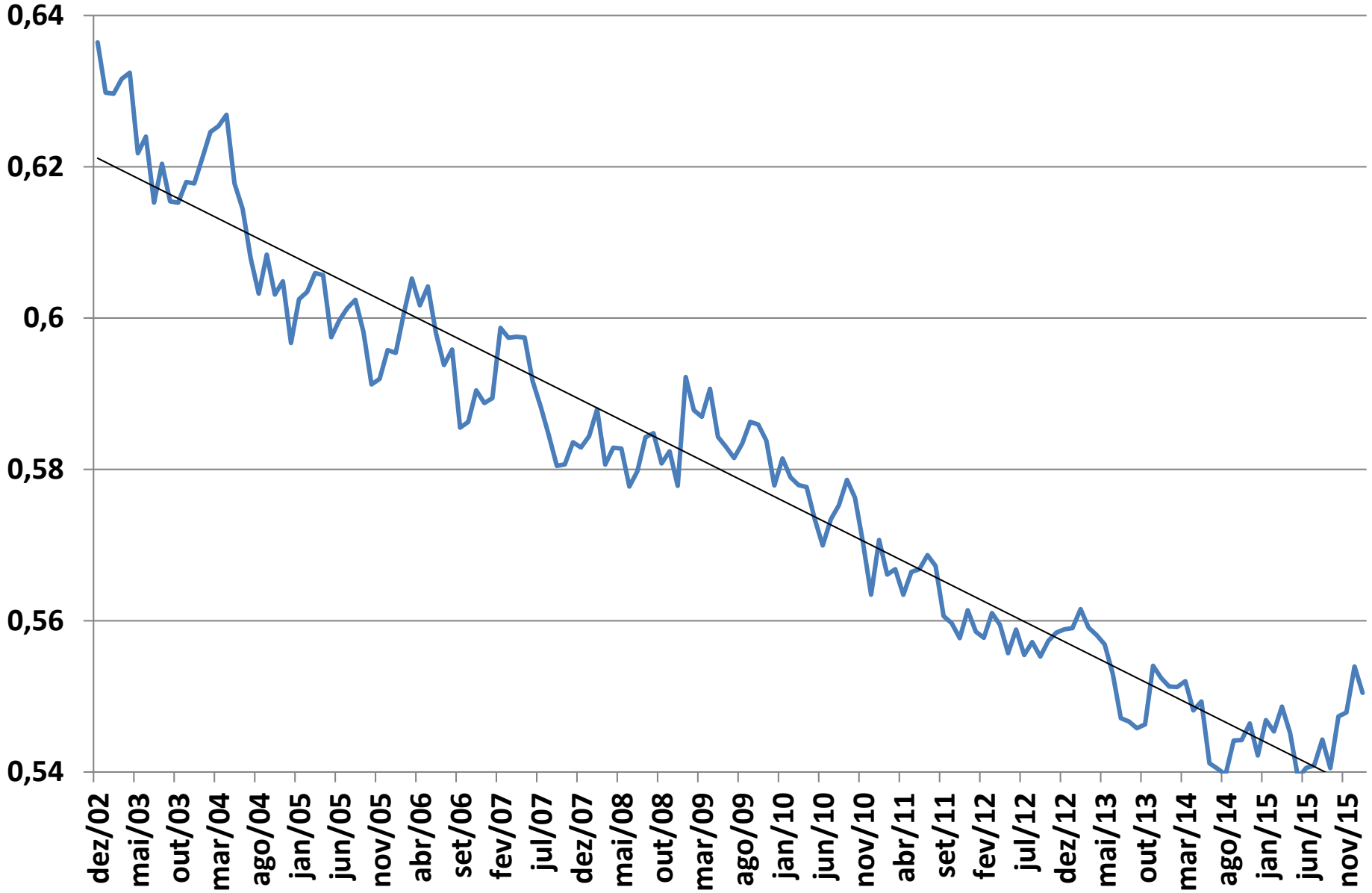

The Kuznets relationship for Brazil, 1839-2013
Gini
GDP per capita (in 1990 international dollars)
0
10
20
30
40
50
60
70
0
1000
2000
3000
4000
5000
6000
7000
8000
1885
1930
1972
1991
2013
Branko Milanovic

Inequality in Brazil



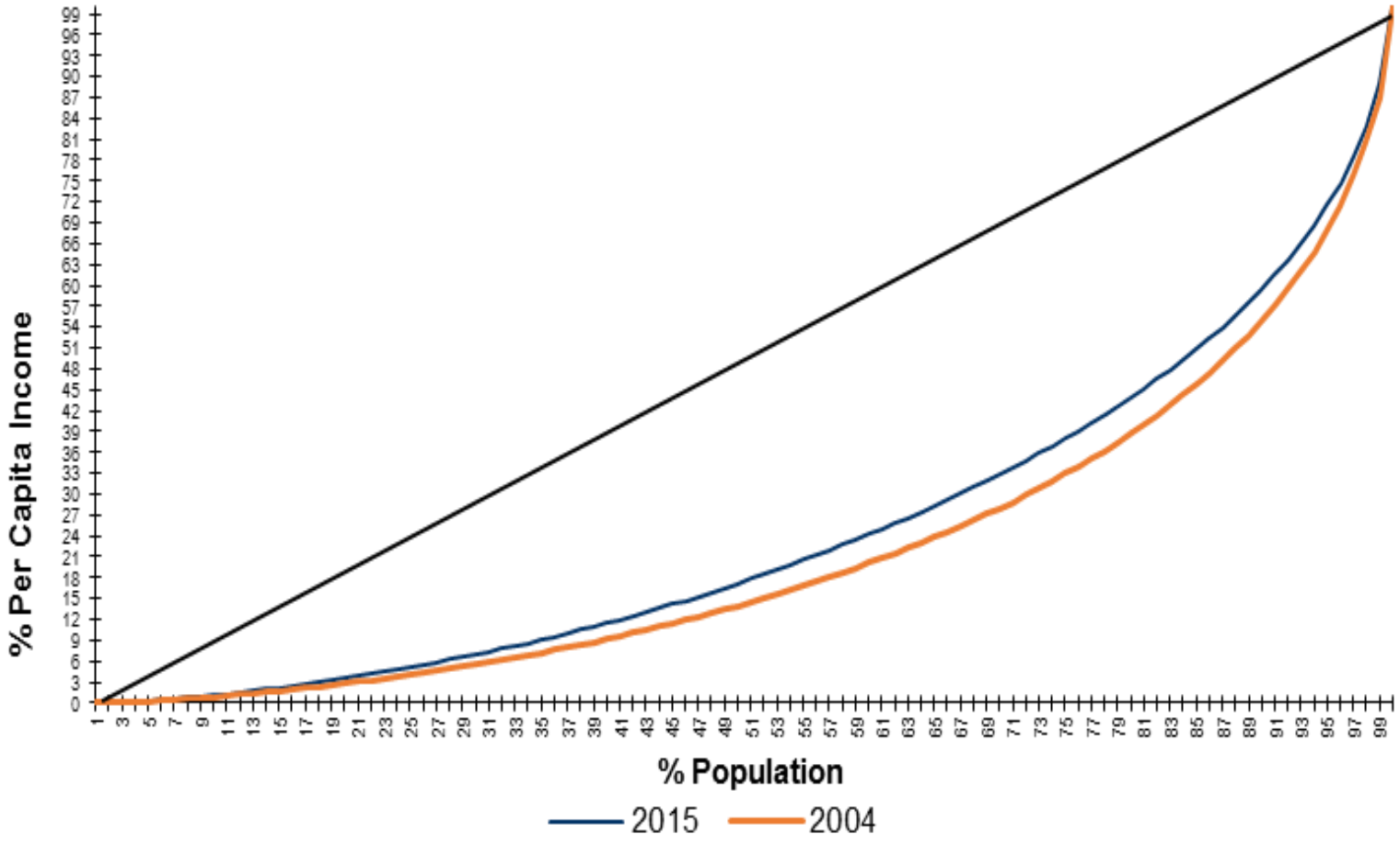
Source FGV Social from PNAD/IBGE microdata

GINI - EARNINGS INEQUALITY



Source FGV Social from PME/IBGE microdata per capita labour 15 to 60 years

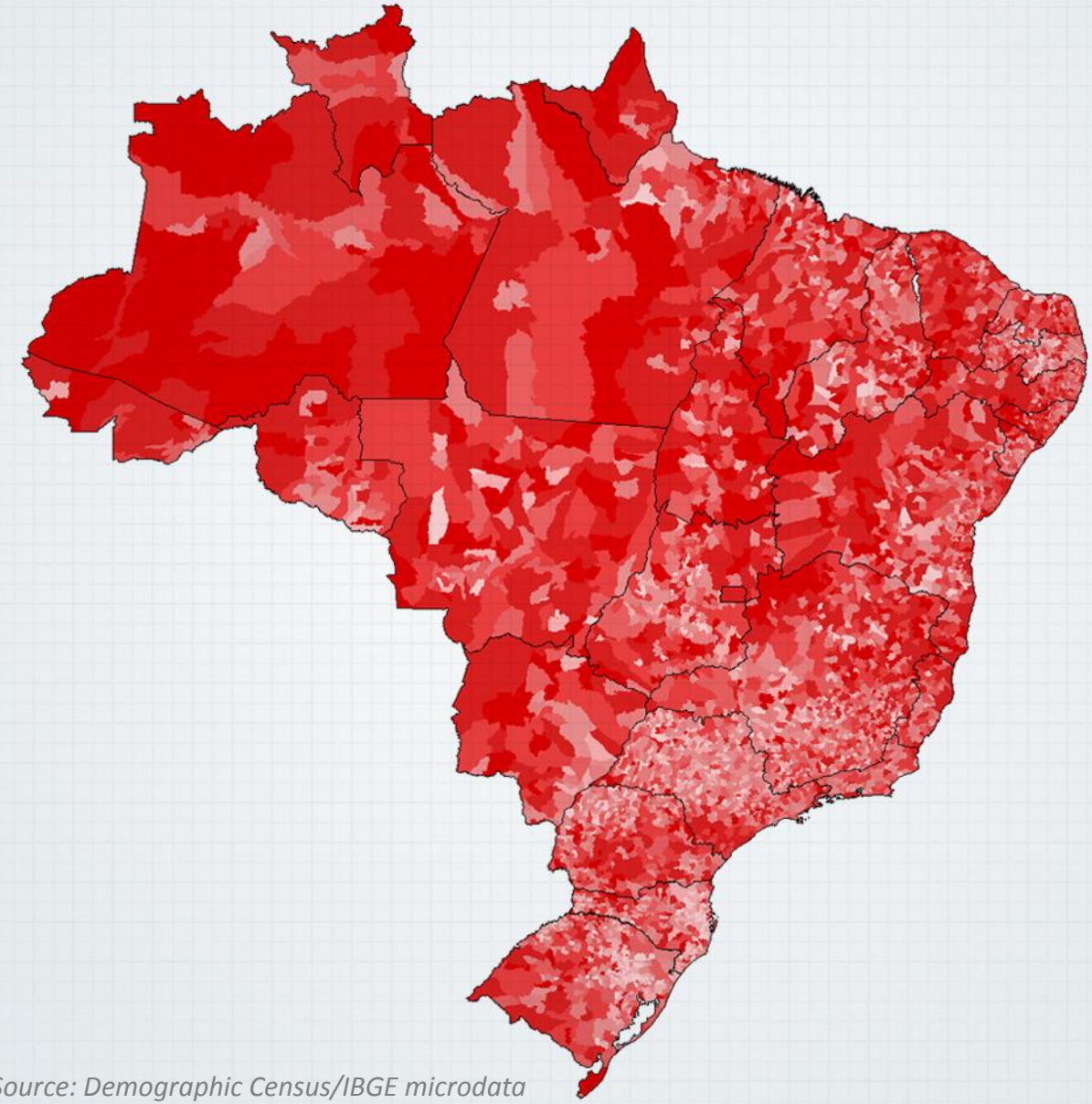
Lorenz Dominance



Source FGV Social from PNAD/IBGE microdata

Inequality by Municipalities

Gini Index of Per Capita Income by Municipality - 2000



Source: Demographic Census/IBGE microdata

Inequality by Municipalities

Gini Index of Per Capita Income by Municipality - 2000

Inequality fell in 83% of Latin America countries and 40% of World Countries

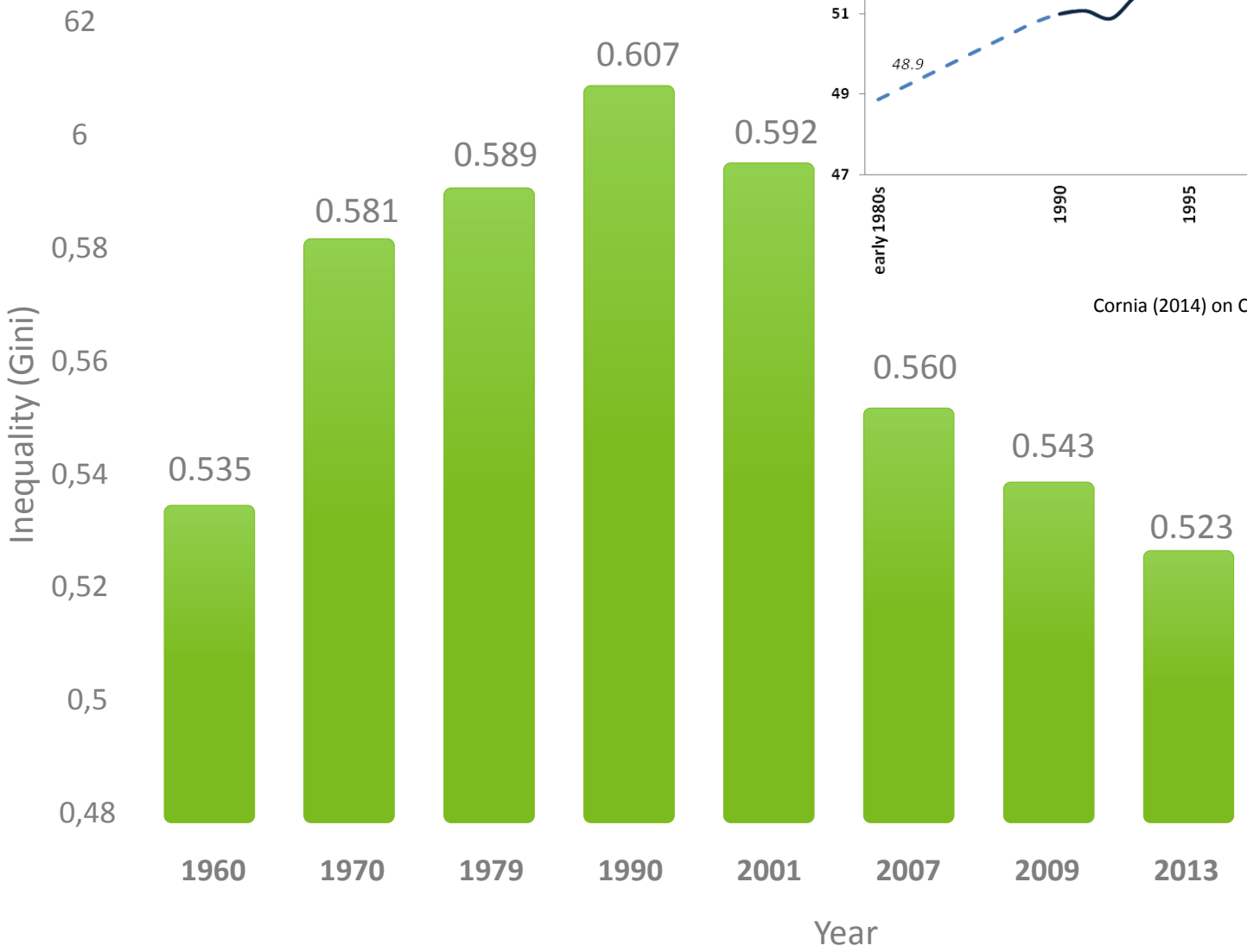
Inequality fell in 80% of the 5500 Brazilian Municipalities

2010

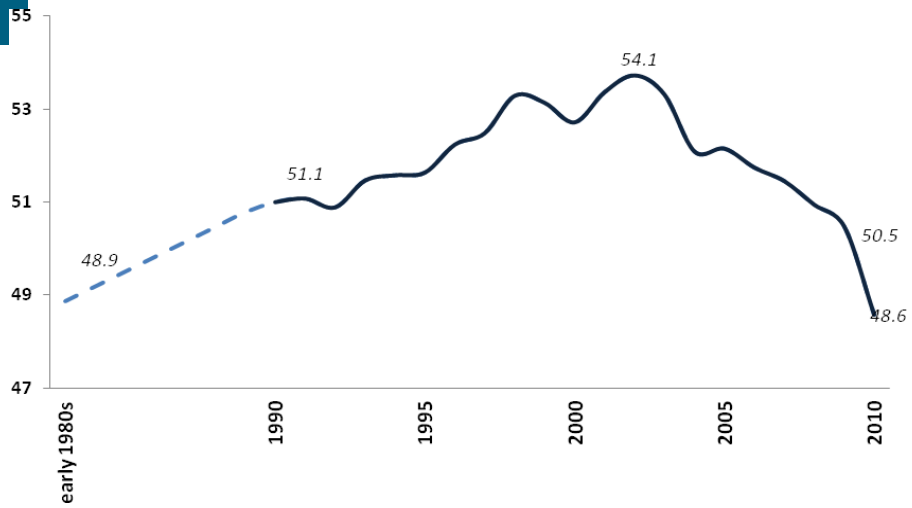
Source: Demographic Census/IBGE microdata

Long Run & Regional Perspective

Inequality of Per Capita Income (Gini)



Latin America Latina last 3 Decades



Cornia (2014) on CEDLAS & CEPAL

Kuznets curves or Kuznets Waves? Milanovic (2016)

Source: CPS/FGV from PNAD, PME and Census / IBGE microdata and Langoni (1973)

A Visão da Nova Década - Desigualdade da Renda Per Capita

Figure 1: Gini coefficient - Latin

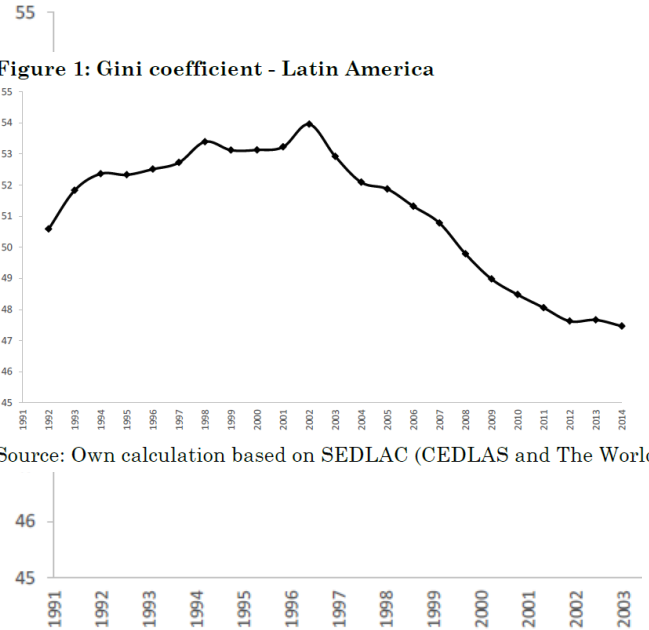


Figure 1: Gini coefficient - Latin America

Source: Own calculation based on SEDLAC (CEDLAS and The World

Source: Own calculation based on SE

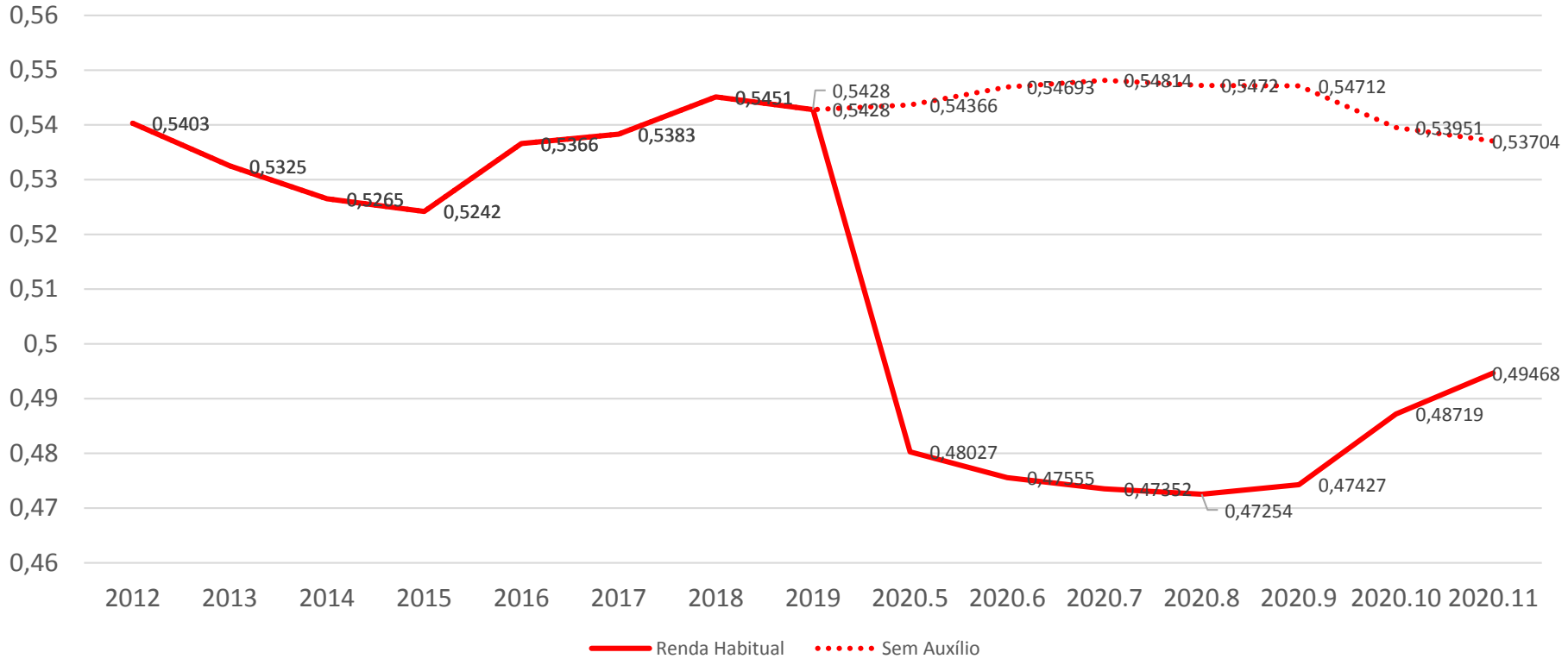
Table 1: Annual changes in Gini coefficient

	1992-2002	2002-2010	2010-2014
Argentina	0.8	-1.1	-0.5
Bolivia	0.6	-1.5	0.1
Brazil	0.1	-0.7	-0.4
Chile	0.0	-0.4	-0.2
Colombia	0.6	-0.3	-0.5
Costa Rica	0.5	0.0	0.1
Ecuador	0.0	-0.8	-0.9
El Salvador	-0.1	-0.9	-0.7
Honduras	0.6	-0.5	0.4
Mexico	-0.3	-0.5	0.4
Panama	0.1	-0.6	-0.1
Paraguay	0.5	-0.7	0.0
Peru	0.4	-1.0	-0.5
Uruguay	0.6	-0.1	-0.9
Venezuela	0.6	-1.1	0.0
Southern South America	0.4	-0.6	-0.4
Andean region	0.4	-1.0	-0.4
Central America	0.2	-0.5	0.0
Latin America	0.3	-0.7	-0.3

Source: Own calculation based on SEDLAC (CEDLA

Pandemic Impact

GINI With and Without Auxílio Emergencial



Fonte: FGV Social a partir dos Microdados da PNAD Contínua e da PNAD Covid /IBGE

Desigualdade baseada em Renda Per Capita Habitual