Global income inequality

Branko Milanovic

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Email: bmilanovic@worldbank.org

Based on the book *Worlds Apart*, 2005 and updates

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BM note: this is a fully revised leon2.ppt  excludes the stuff
                    on global crisis
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The objectives of the talk

- Review empirical movements in international and global inequality 1950-2010

- Focus on global interpersonal inequality in the last twenty years

- Explain methodological problems and choices we face when using HSs to measure global inequality

- Address the impact of new PPPs

- Give a historical overview

- Review political philosophy stance toward global redistribution and global inequality

1. Global inequalities today: definitions and overview

Three concepts of inequality defined
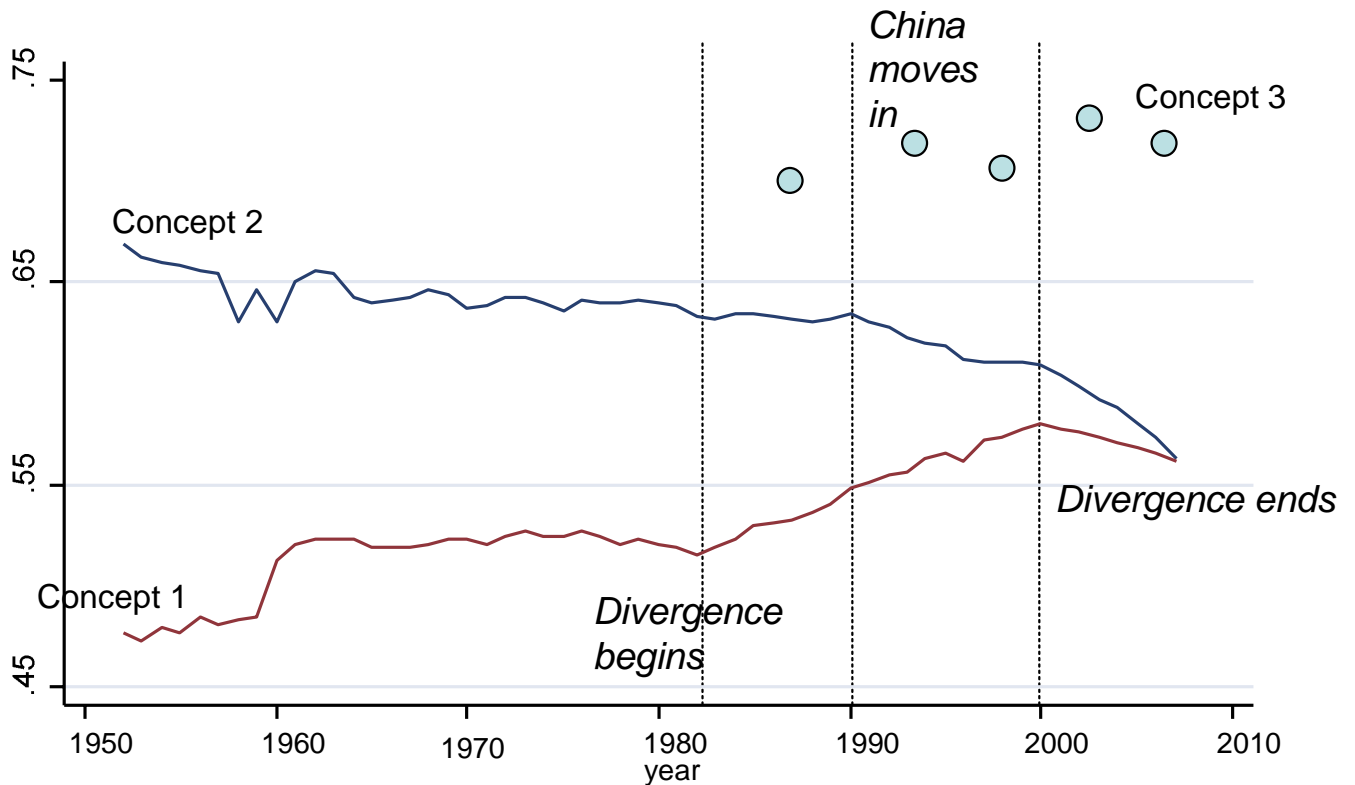
Concept 1 inequality

Concept 2 inequality
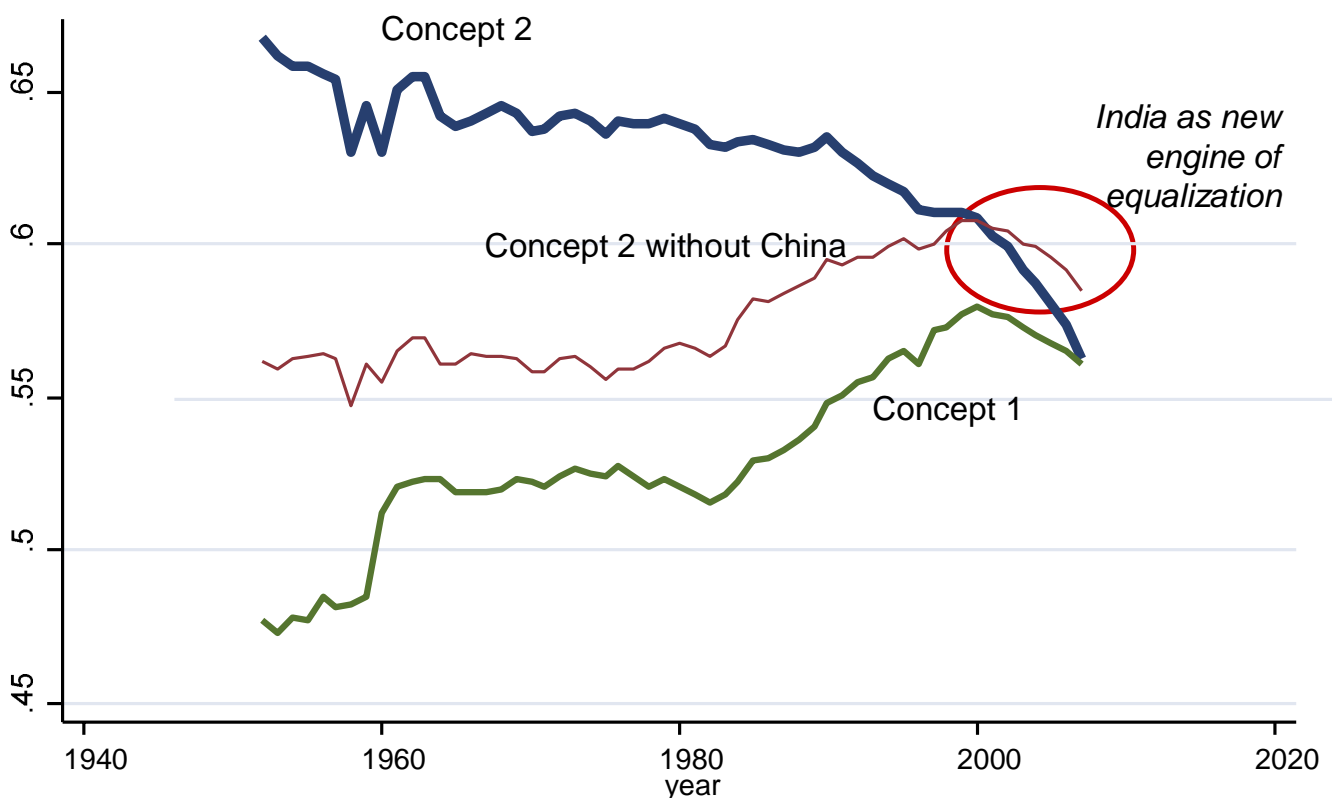
Concept 3 (global) inequality

Inequality 1950-2007
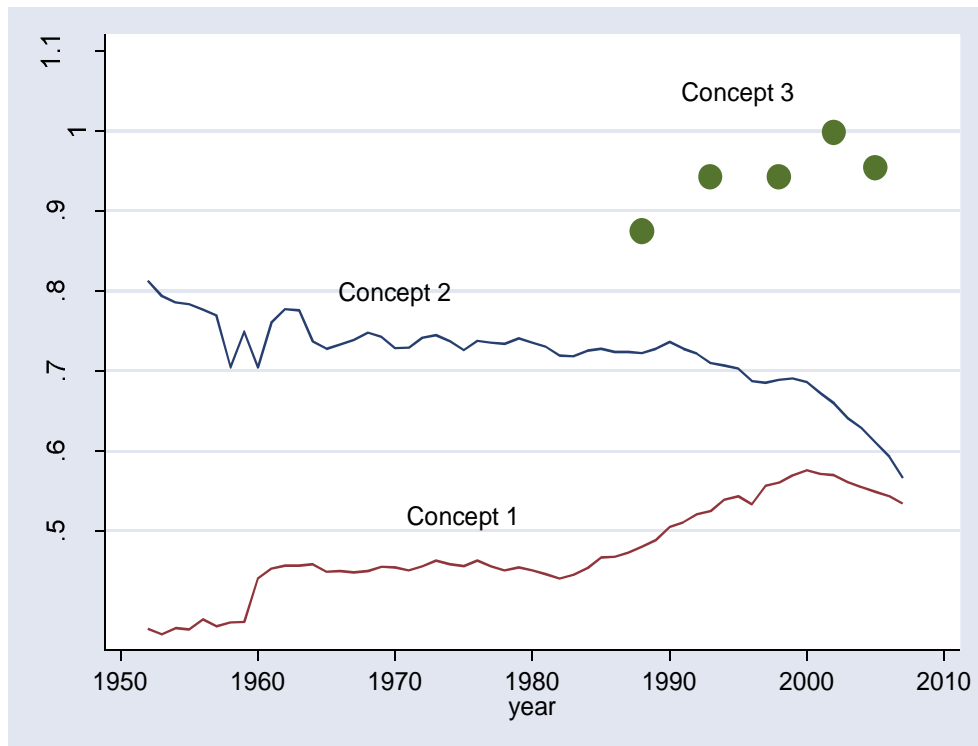# The mother of all inequality disputes

With new PPPs

Concept 1 and Concept 2 inequality

All three concepts using Theil (1) coefficient

twoway (line global_theil2 year if contcod=="USA") (line global_theil1 year if contcod=="USA") /*/ (scatter global_theil3 year if contcod=="USA", msize(vlarge)), ylabel (0.5(0.1) 1.1) xlabel(1950(10)2010) text(0.80 1970 "Concept 2") text(0.52 1975 "Concept 1") text(1.05 1995 "Concept 3") ytitle (Theil(1) coefficient) legend(off)
Use defines.do with gdppppreg.dta

All three concepts using market exchange rates
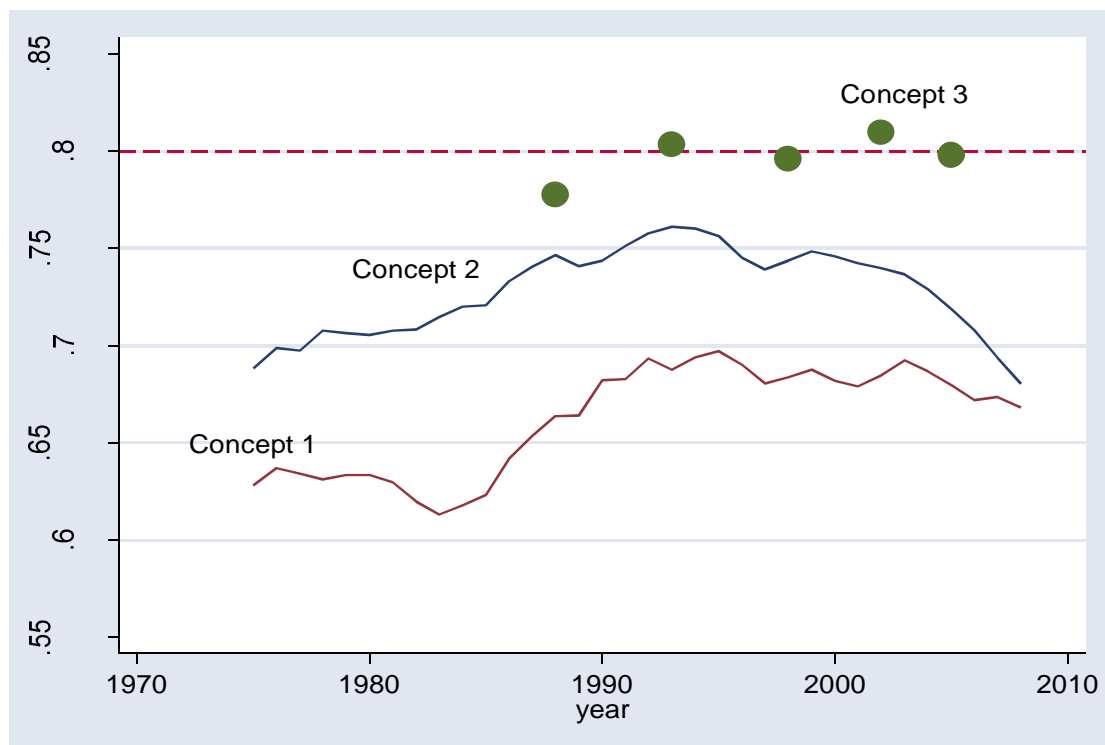
Using two_concepts_exrate.do and global_new2.dta

2. Methodological issues: PPPs, National accounts vs. Household surveys

The impact of new PPPs

- Concept 2 inequality increased by almost 10 Gini points (a level shift)

- Somewhat steeper decline of Concept 2 inequality in the last decade (because India and China now appear poorer)

- About 5 Gini points increase in Concept 1 inequality (shift effect; no trend effect)

- About 5 Gini points increase in global inequality (Concept 2 increases more than Concept 3 ⟹ smaller overlap as mean incomes "move" further apart)

(cont.)

- World poorer than we thought, Asia in particular

- Inequality (in all formulations) greater

- Growth rates not affected in WDI but will be affected in PWT; so "the past will now change" (like in Orwell)

- Two engines of "global equalization": China and India

Pattern of change in estimated price levels: increases in poorer and more populous countries (both highly sign. in a regression)
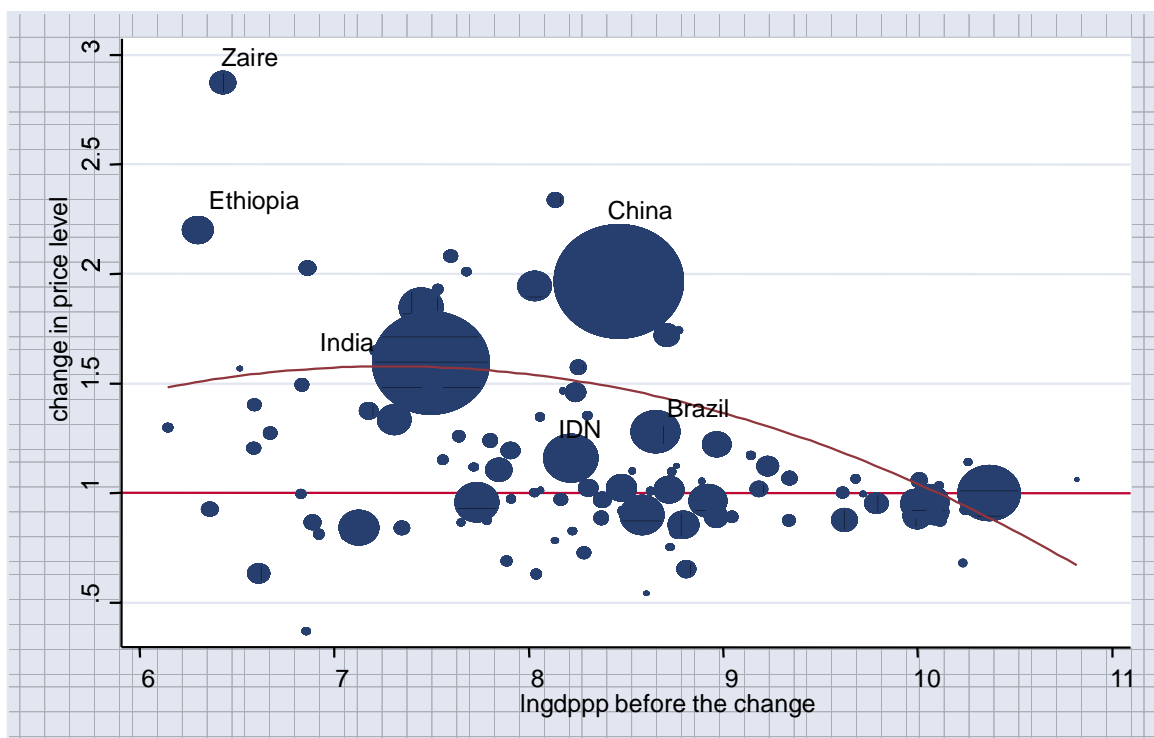
twoway (scatter price_level_change lngdpppp_old [w=totpop], yline(1)) (qfit price_level_change lngdpppp_old [w=totpop]), text(2.3 8.5 "China") text(1.7 7 "India") text(1.4 8.8 "Brazil") text(1.3 8.2 "IDN") text(3 6.5 "Zaire") text(2.35 6.5 "Ethiopia") ytitle(change in price level) xtitle(lngdppp before the change) legend(off)
From graph2.do

Ratio of the new country price levels to the old
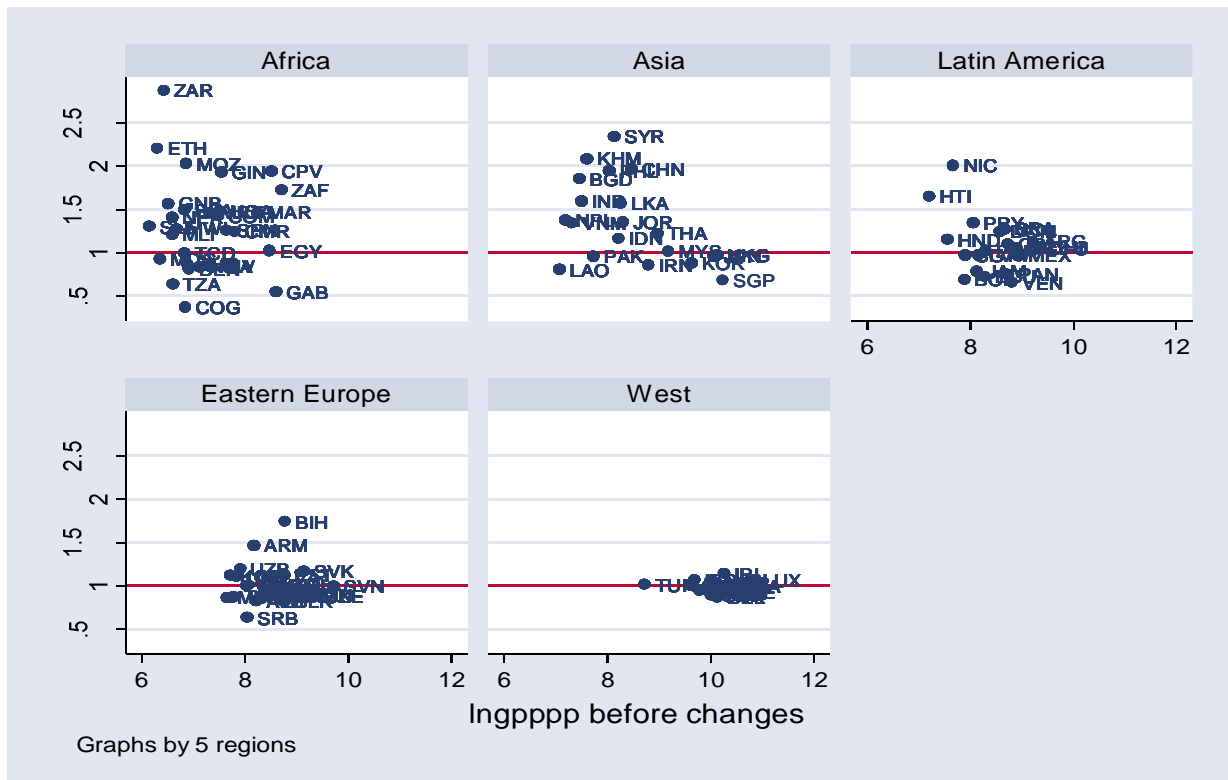
twoway scatter price_level_change lngdpppp_old, ylabel(0.5(0.5)2.5) yline(1) mlabel(contcod) /*
*/ by(region) ytitle(new price level over old price level) xtitle(lngpppp before changes)
From graph2.do

Methodological issues *internal* to the surveys

- Household surveys: *income* or *expenditures* (consumption)?
- The problem: countries and regions "specialize" in either Y or X surveys; impossible to do global poverty or inequality work if one wanted to stick to only Y or X welfare aggregate
- Even if one HS welfare indicator is chosen, definitions of X,Y vary in time & between countries
- Issues: self-employed Y; home consumption; imputation of housing; treatment of publicly provided H&E; under-estimation of property incomes
- What PPP to use (Geary-Khamis, EKS, Afriat)?
- Equivalence scales & intra-HH inequality

External methodological issue: can NA means be used instead of HS means?

Use GDP?

- GDP is not a counterpart of HS net income (even less of HS consumption)
- There is no NA counterpart to HS income
- *Definitional difference*: undistributed π, VA from financial intermediation, build-up of stocks. state-funded health & education; gov't services

Use personal consumption?

- Similar aggregates
- *Definitional difference*: imputed housing (but not always), NGO consumption

Measurement difference btw NA and HS: non-compliance of the rich; underestimation of property incomes; top coding

The gap between GDP and measured HS mean is thus composed of ..

- The definitional gap between GDP per capita and "true" HS mean: (*) undistributed π; (*) FISIM; health and education
- Measurement gap: (*) under-surveying of the rich; (*) under-reporting of property income; (*) top coding
- The gap is **not distribution-neutral**
- All (*) are pro-rich
- So simple allocation of the gap to everybody according to their HS income share cannot be right

- Deaton: "Using survey shares to allocate NAS [National account consumption or GDP] to the poor and non-poor assumes that these items are distributed between the poor and non-poor in the same way as are the goods measured in the survey, an assumption that cannot possibly be true" ("Measuring poverty in a growing world...")
- US inequality may be underestimated by as much as 4 Gini points or 10% on account of lower participation of the rich (Korinek, Mistiaen, Ravallion, 2006)
- Property incomes (compared to NA) generally underestimated by ½ and these incomes are received by the rich
- Top coding reduces the share of the top ventile between 2 and 6%, or up to 1 Gini point (EU data)

Thus…

- Scaling up with GDP per capita biases both poverty and inequality down
- It is a paper redistribution—"there will not be any poor if we assume all the poor to be rich"
- Meanwhile, the gap between GDP and HS means has been rising
- India: *cause célèbre*; growth rate from NSS several percentage points lower than GDP per capita growth rate (Banerji and Piketty find that 40% of the gap is due to unrecorded income of the top percentile)
- The cause of the increasing gap not well understood; both definitional and measurement issues are probably driving it

Concept 2 inequality differently measured:
it is the gap between NA and HS that matters
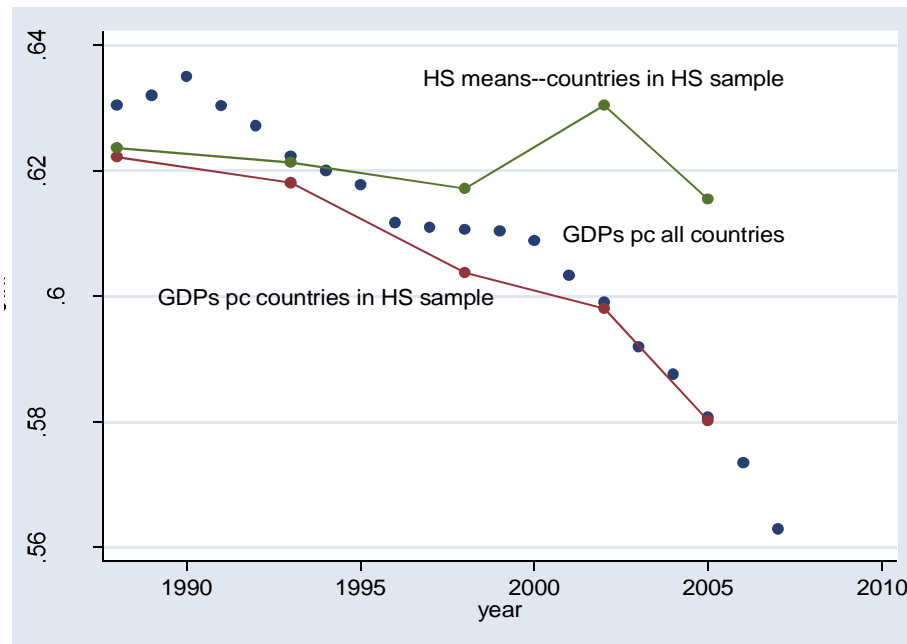
twoway (scatter global_gini2 year if contcod=="USA" & year>1987) (scatter global_gini2_mod year if contcod=="USA" & year>1987, c(longdash))
(scatter concept2_HS_whole year if contcod=="USA" & year>1987, c(dash)), legend(off) text(0.61 2004 "GDPs pc all countries") text(0.60 1994
GDPs pc countries in HS sample") text(0.65 2002 "HS means--countries in HS sample") ytitle(Gini)
From gdppppreg.dta

3. International and global inequality today

Summary Gini graph: a reminder
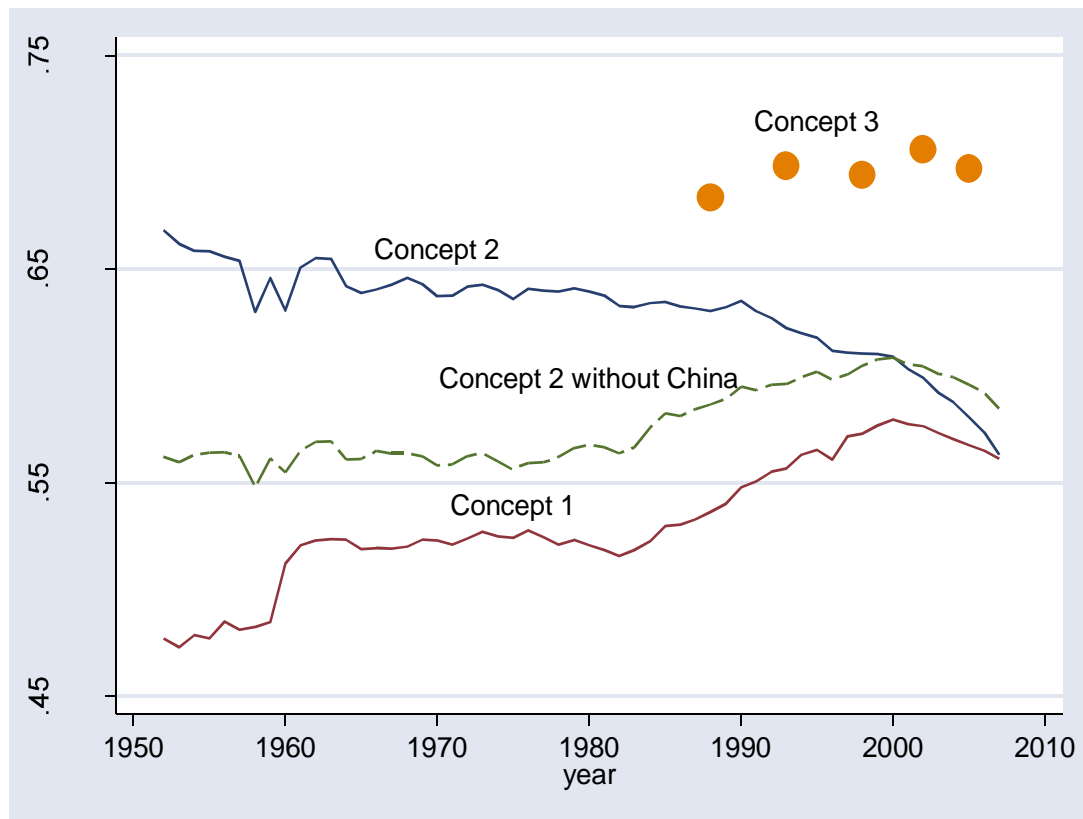
From define.do using gdpppreg.dta

Why is increased Concept 1 inequality important?

- During globalization, convergence was supposed to happen particularly since there was also convergence in policies and institutions

- Income divergence (σ divergence) led to the reassessment of neoclassical growth theory and formulation of endogenous growth

- Putting "endogenously-created", non-rival but excludable technology and increasing returns to scale at the center-stage, "explains" divergence but sends a bleak picture about the ultimate likelihood of poor countries' catch-up

- (a) No unconditional convergence in income across countries
- (b) Inability of the neoclassical model to generate growth within itself
- (a) led to the introduction of increasing returns to scale
- (b) led to endogenous technology

How are Concepts 2 and 3 related?

- In Gini terms:

$$\sum_{i=1}^{n} G_i\, p_i \pi_i + \frac{1}{\mu} \sum_{i}^{n} \underbrace{\sum_{j>i}^{n} (y_j - y_i)\, p_i p_j}_{\text{Concept 2}} + L$$

- where G_i=individual country Gini, π=income share, y_i = country income, pi = population share, μ=overall mean income, n = number of countries, L=overlap term
- Concept 2 inequality accounts for more than 80% of global inequality

The difficulty of intuition re. evolution of Concept 3 inequality stems from contradictory movements

(1) Greater inequality within nations

(2) Greater differences between countries' mean incomes (unconditional divergence between 1980 and 2000)

(3) But catching up of large and poor countries (China and India)

All of these forces determine what happens to GLOBAL INEQUALITY (but they affect it differently)

3a. First calculations of global inequality from household survey data alone

Population coverage

	1988	1993	1998	2002	2005
Africa	48	76	67	77	78
Asia	93	95	94	96	94
E.Europe	99	95	100	97	91
LAC	87	92	93	96	96
WENAO	92	95	97	99	99
World	87	92	92	94	93

Non-triviality of the omitted countries (Maddison vs. WDI)

GDI (US dollar) coverage

	1988	1993	1998	2002	2005
Africa	49	85	71	71	68
Asia	94	93	96	95	90
E. Europe	99	96	100	99	93
LAC	90	93	95	95	98
WENAO	99	96	96	100	100
World	96	95	96	98	96

Number of surveys (C-based)

	1988	1993	1998	2002	2005
Africa	14(11)	30(27)	24(24)	29(29)	31(29)
Asia	19(10)	26(18)	28(20)	26(18)	22(15)
EEurope	27(0)	22(0)	27(14)	25(16)	26(25)
LAC	19(1)	20(4)	22(2)	21(1)	18(0)
WENAO	23(0)	23(0)	21(3)	21(2)	22(0)
World	102(22)	121(52)	122(63)	122(66)	119(69)

Global inequality (with 2005 PPPs)
(distribution of persons by $PPP or US$ income per capita)

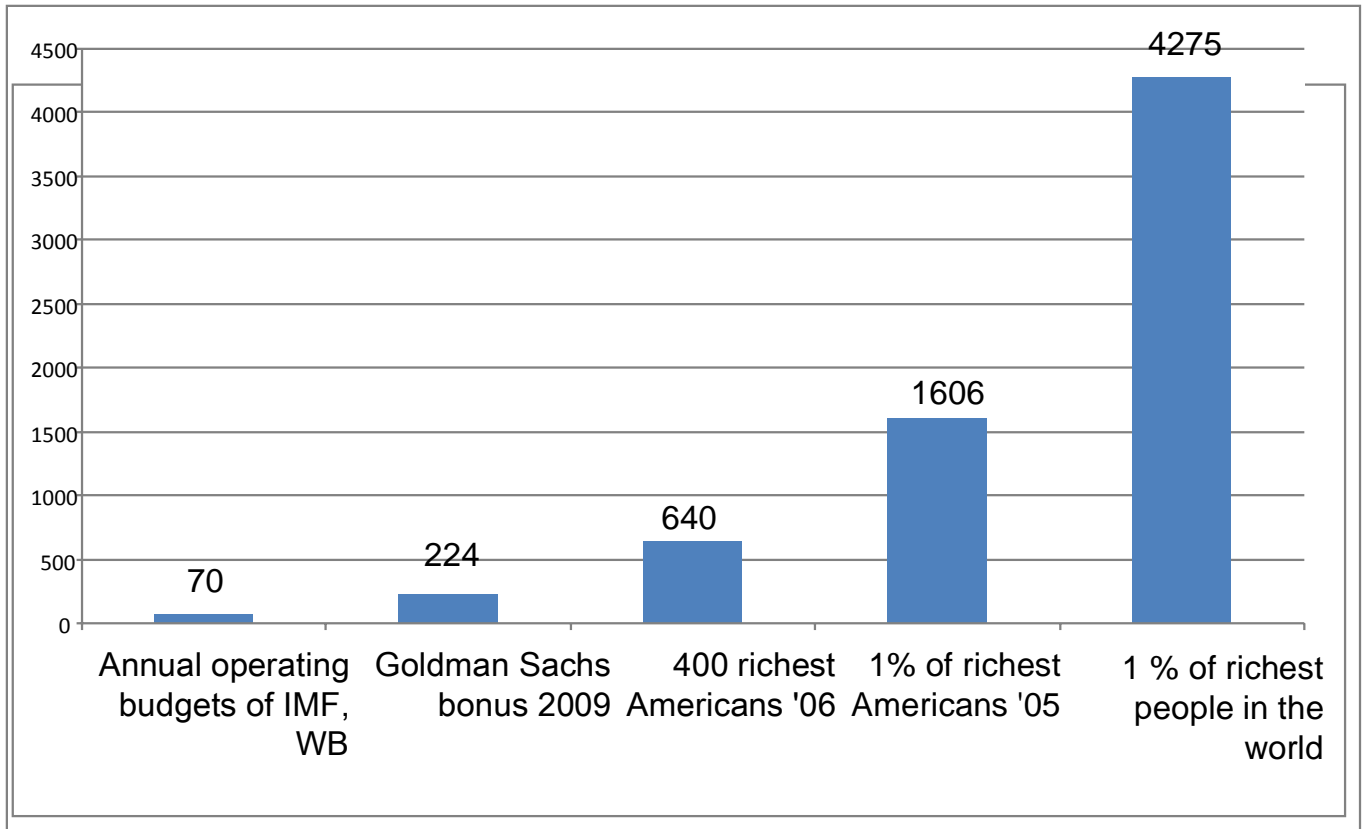|	1988	1993	1998	2002	2005
International dollars					
Gini index	**68.3** (2.0)	**69.9** (1.4)	**69.4** (1.8)	**70.6** (1.3)	**69.9** (1.6)
Between component	61.6	62.3	61.7	63.0	61.6
US dollars					
Gini index	**77.8** (1.5)	**80.4** (1.4)	**79.6** (1.3)	**81.0** (1.1)	**79.8** (1.1)

More than fifty-fifty world (2005; new PPPs)

Cumulative % of world population	Cumulative % of PPP world income/consumption	In a single country (Germany 05)
5	0.14	1.3
10	0.44	3.3
25	1.9	11.1
50	6.6	28.9
80	25.0	60.1
90	**45**	**75**
Top 10	**55**	**25**
Top 5	36.5	18.4
Top 1	13.4	5.8

How big is a Gini of 70? (Year 2005, 2005PPPs)

	Top	Bottom	Ratio
In PPP dollars			
5 percent	38%	0.24%	165-1
10 percent	58%	0.6%	95-1
In current $			
5 percent	45%	0.15%	300-1
10 percent	67.5%	0.45%	150-1
10 top countries	39,115	570	68-1

Some incendiary statistics: income of the richest expressed in income of the millions of poorest

Chart values:
- Annual operating budgets of IMF, WB: 70
- Goldman Sachs bonus 2009: 224
- 400 richest Americans '06: 640
- 1% of richest Americans '05: 1606
- 1 % of richest people in the world: 4275

From 2005_percentiles.xls

# 4. International and global inequality in the long-run: 1850-2010

Historical overview of Concepts 1 and 2 (based on Maddison)

Concept 1

Increase in the
number of included
countries

Concept 2

Effect of war

Increase in the
number of included
countries
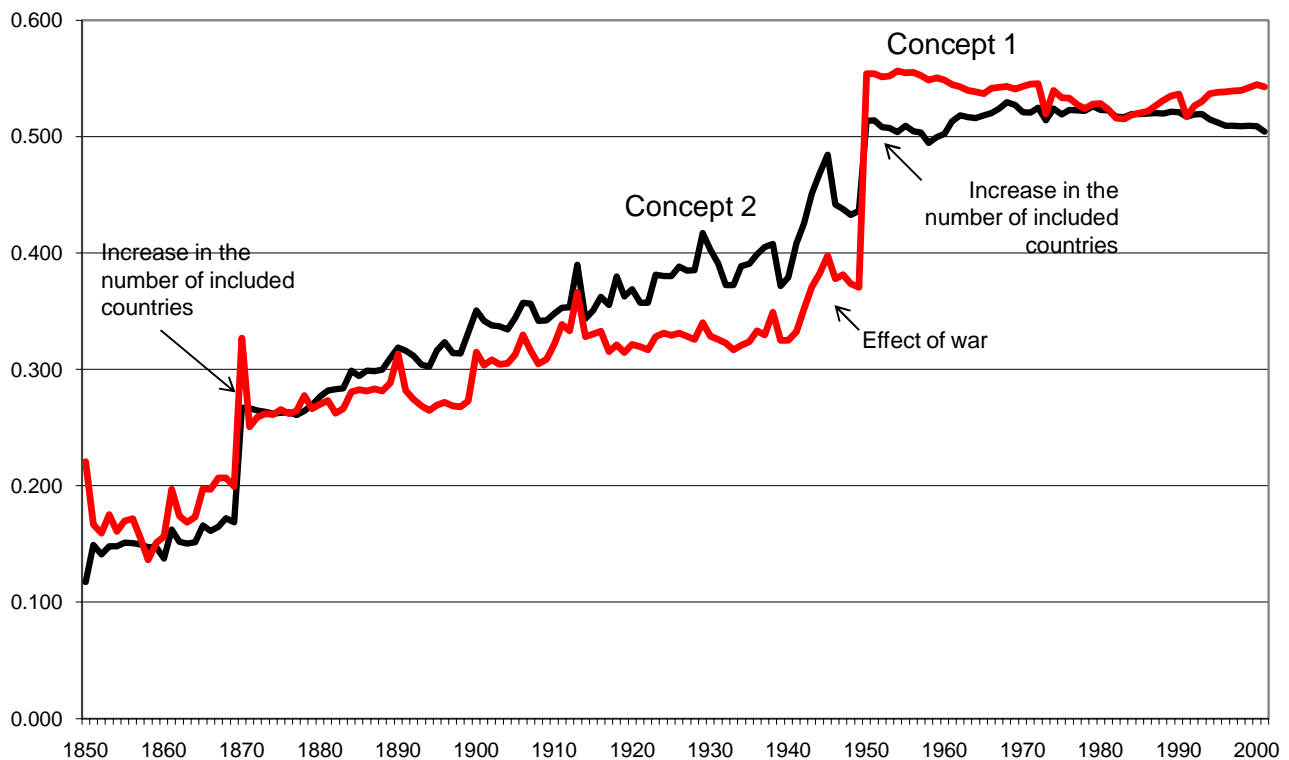
From data_central/…gini_mean1850_2002.xls

Concept 1 inequality in historical perspective: Convergence/divergence during different economic regimes (based on Maddison)

FIRST GLOBALIZATION   DEGLOBALIZATION   WAR   DEVELOPMENTAL STATE   NEOLIBERAL

Gini

Theil
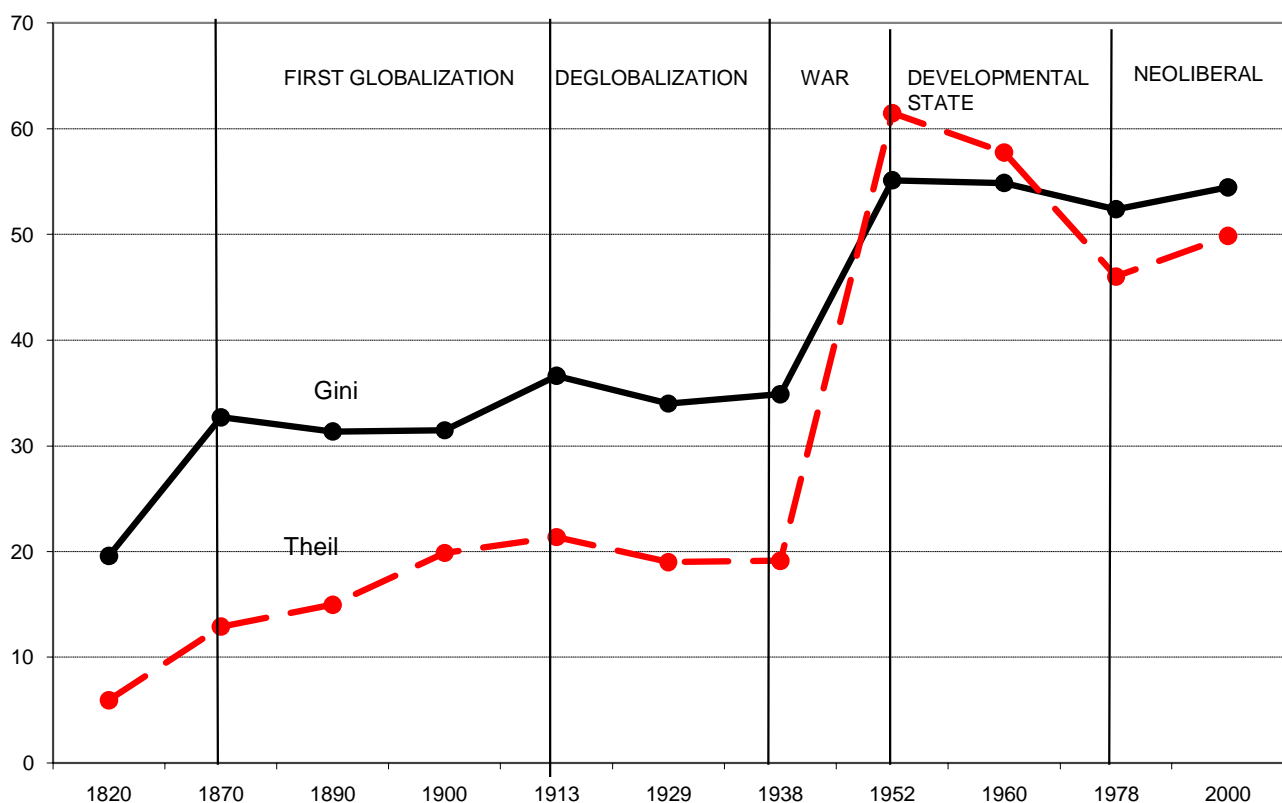
From thepast.xls

A non-Marxist world

- Over the long run, decreasing importance of within-country inequalities despite some reversal in the last quarter century

- Increasing importance of between-country inequalities (but with some hopeful signs in the last five years, before the current crisis),

- Global division between countries more than between classes

Composition of global inequality changed: from being mostly due to "class" (within-national), today it is mostly due to "location" (where people live; between-national)
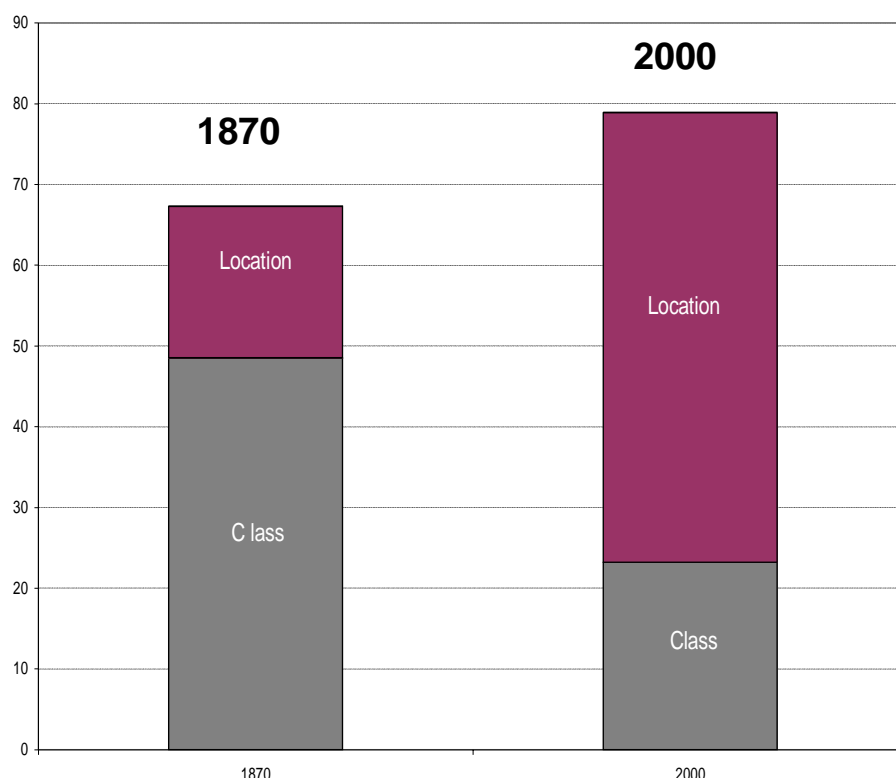
Based on Bourguignon-Morrisson (2002) and Milanovic (2005)

From thepast.xls

Global proletariat and bourgeoisie (then)

- "We are for Free Trade, because by Free Trade all economical laws, with their most astounding contradictions will act upon a larger scale, upon a greater extent of territory, upon the territory of the whole earth; and because from the uniting of all these contradictions into a single group where they stand face to face, will result the struggle which will itself eventuate in the emancipation of the proletariat. " (Engels in 1847)

A literary illustration: Elizabeth's dilemma (from *Pride and Prejudice*)

	Income in 1810 (£ pa)	Approx. position in 1810 income distribution	Income around Y2K (£ pc pa)
Mr. Darcy	10,000	Top 0.1%	270,000
Elizabeth's family	3000/7~430	Top 1%	57,000
Elizabeth alone	50	Median	6,500
Gain	100 to 1		20 to 1

1810 position estimates based on Colquhoun 1801-3 data. Y2K data from LIS (UK1999), and for 0.1% from Piketty (*Data-central*).

5. Three implications of high international and global inequality

a. no-catch up of poor countries
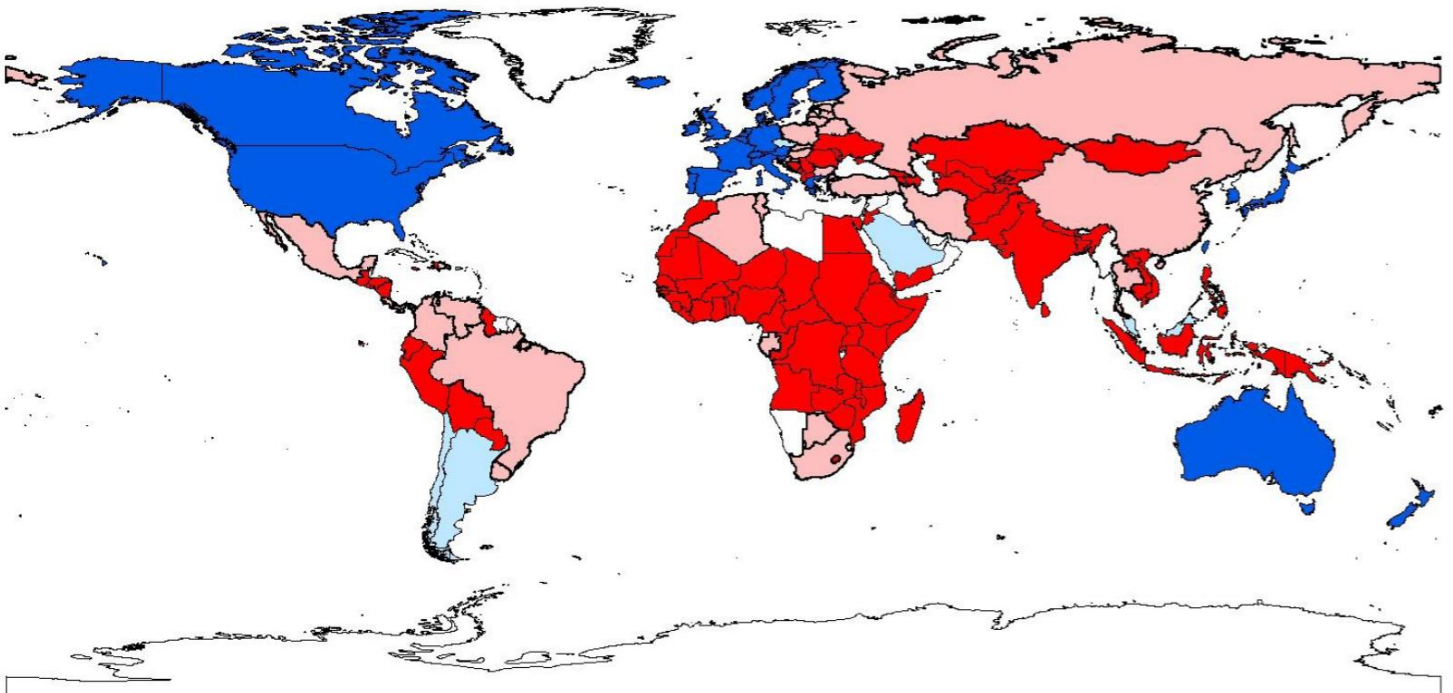b. need for impediments to migration
c. no global equality of opportunity

Define four worlds:

- First World: The West and its offshoots
- Take the poorest country of the First World (e.g. Portugal)
- Second world (the contenders): all those less than 1/3 poorer than Portugal.
- Third world: all those 1/3 and 2/3 of the poorest rich country.
- Fourth world: more than 2/3 below Portugal.

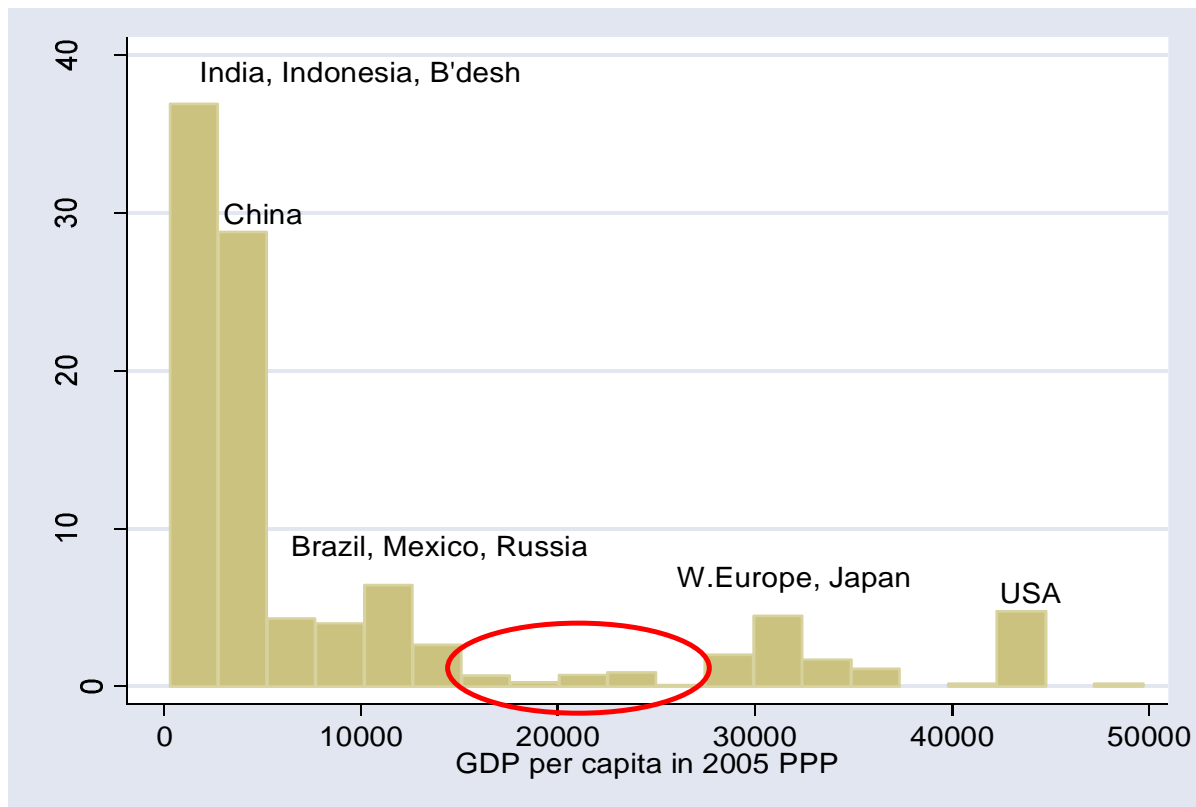# Four Worlds in 1960
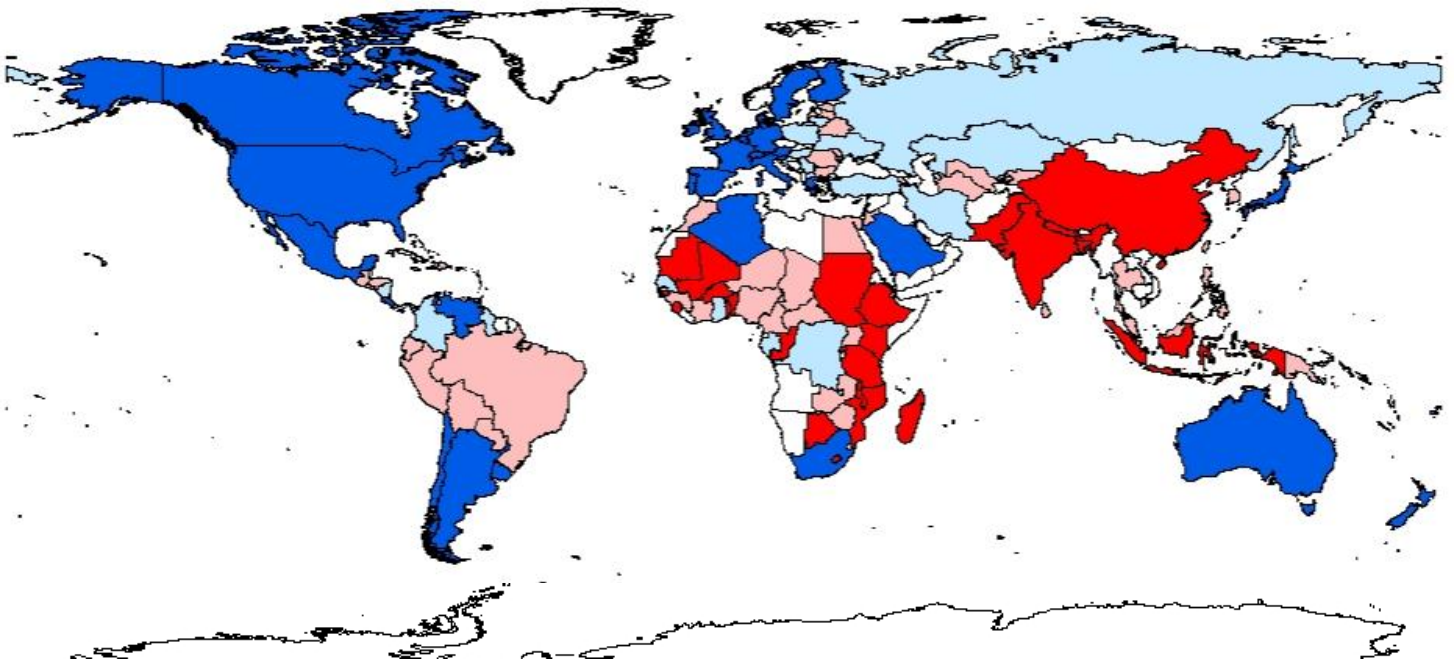
Four Worlds in 2003

Population according to income of country where they live (2008): an empty middle

India, Indonesia, B'desh

China

Brazil, Mexico, Russia

W.Europe, Japan

USA

GDP per capita in 2005 PPP

See defines.do ifor use with gdppppreg.dta

Migration: The trilema

A. Globalization of ideas, knowledge, Communication, awareness of others' living standards

B. Increasing differences in mean incomes among countries

C. No movement of people

If A and B, then no C. Migration is the outcome of current unequal globalization.
If B and C, then no A. Unequal globe can exist if people do not know much about each other's living conditions or costs of transport are too high.
If A and C, then no B. Under globalization, people will not move if income differentials are small.

The key borders today

- **First to fourth world**: Greece vs. Macedonia and Albania; Spain vs. Morocco (25km), Malaysia vs. Indonesia (3km)

- **First to third world**: US vs. Mexico

- The remaining three key borders walled-in or mined: N. Korea—S. Korea; Yemen—Saudi Arabia; Israel---Palestine

In 1960, the only key borders were Argentina and Uruguay (first) vs. Brazil, Paraguay and Bolivia (third world), and Australia (first) vs. Indonesia (fourth)

| | Approximate % of foreign workers in labor force | Year 2007 | Year 1980 |
		Ratio of real GDI per capita	
Greece (Macedonian/ Albanians)	7.5	4 to 1	2.1 to 1
Spain (Moroccans)	14.4	7.4 to 1	6.5 to 1
United States (Mexicans)	15.6*	3.6 to 1	2.6 to 1
Malaysia (Indonesians)	18.0	3.7 to 1	3.6 to 1

* BLS, News Release March 2009; data for 2008 inclusive of undocumented aliens.
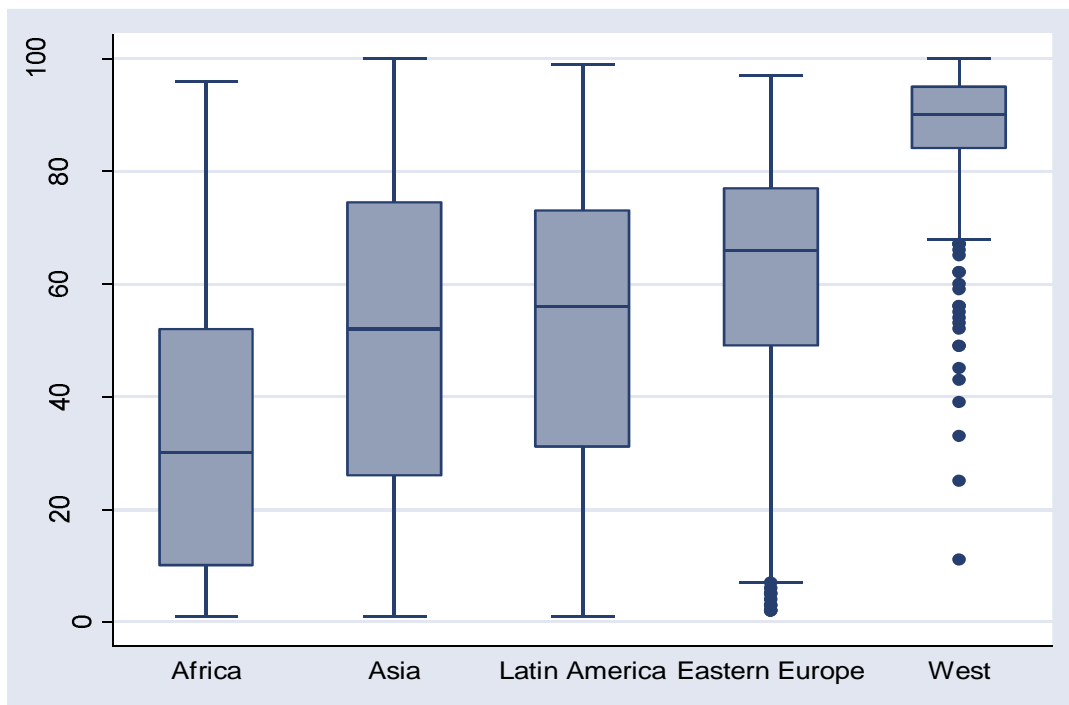
Is citizenship a rent?

- If most of our income is determined by citizenship, then there is little equality of opportunity *globally* and citizenship is a rent (unrelated to individual desert, effort)

- How much is citizenship worth? Black-market UK passports sold for about £5,000; legally purchase citizenship for about $1m in investment.

- See also A. Shachar, *The Birthright Lottery*

Different countries and income classes in global income distribution (year 2002; new PPPS)
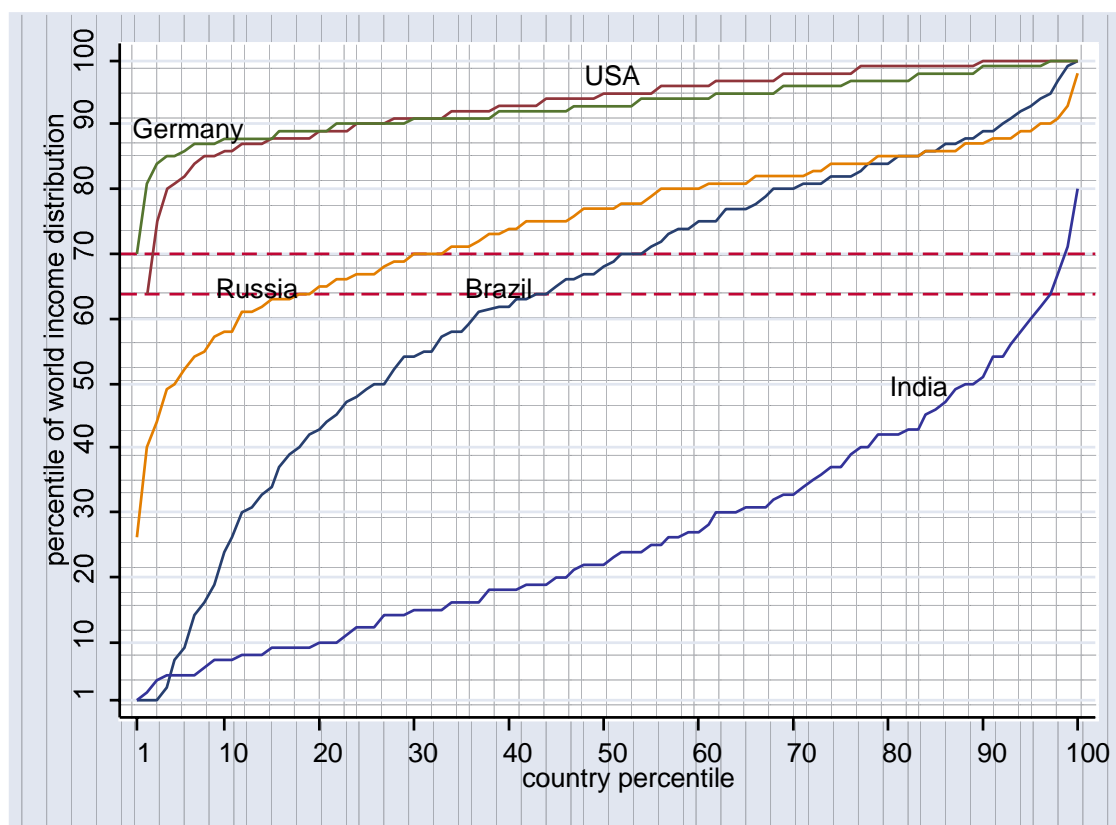
- Richest people in India barely intersect with poorest people in Germany
- But this is not true for Brazil and Russia: about half of the population of Brazil better off than the very poorest percentile in Germany; for Russia, it is 4/5
- Only 5% of people in India richer than the poorest ventile in the US
- Bottom 20% of Americans worse off than equivalent people in Germany
- Brazil within itself spans the entire global distribution
- Russian better-off than Brazilians except at the top (note convexity at the top in Brazil)

At what percentile of world income distribution are people from different regions?

. graph box inc_c if maxgroup==20, over(region); use world2002.dta

Global inequality of opportunity

- How much of variability of income globally can we explain with two circumstances (Roemer) only: person's country of citizenship and income class of his/her parents?

- Both circumstances basically given at birth

- With citizenship person receives several public goods: income of country, its inequality level, and its intergenerational income mobility

- Use HS data to investigate that

$$y_{ij} = f(\alpha_{j....}^1 \alpha_j^m ; \gamma_{ij}^1 ... \gamma_{ij}^n ; E_{ij} ; u_{ij})$$

α = country circumstances 1 to m (mean income, Gini, mobility)

γ = individual circumstances 1 to n (parental income class, gender, race)

E_i = individual effort

u_i = luck (random term)

Estimation

$$y_{ij} = b_0 + b_1 m_j + b_2 G_j + b_3 C_{ij} + \varepsilon_{ij}$$

mj = mean country income

Gj = Gini coefficient

Cij = income class of i-th individual in j-th country

The issue: How to substitute parental income class (C_{ij}*) for own income class (C_{ij}), and thus have the entire regression account for the effect of circumstances only?

Run over income ventiles for 116 countries and 2320 (20 x 116) income levels (y_{ij})

How one's income depends on circumstances : (dependent variable: own household per capita income, in $PPP, logs)

Eq.	4 (Base)	5 (Optimistic)	6 (Pessimistic)
Mean per capita country income (in ln)	0.986 (0.00)	0.987 (0)	0.991 (0)
Gini index (in %)	-0.019 (0.00)	-0.019 (0.00)	-0.019 (0.00)
Parents' estimated income class (ventile)	0.105 (0.00)	0.100 (0.00)	0.109 (0.00)
Constant	-0.513 (0.00)	-0.462 (0.00)	-0.582 (0.00)
Number of observations	232,000	232,000	232,000
R² adjusted	0.81	0.80	0.83
Number of countries	116	116	116

- ***Citizenship premium.*** If mean income of country where you live increases by 10%, your income goes up by about 10% too. (Unitary elasticity.)

- ***Parental premium.*** If your parents are one income class higher, your income increases by about 10.5% on average.

- ***Global equality of opportunity?*** Country of citizenship explains 60% of variability in global income. Citizenship and parental income class combined explain more than 80%.

6. Causality: Globalization and income inequality?

Causal effect of globalization on global inequality

- *Channel 1.* Different effect on within-national income distributions (difference between poor and rich countries; HOS and revisions)
- *Channel 2.* Different effect on growth rates of poor and rich countries (the openness premium should be higher for poor countries)
- *Channel 3.* Different effect on populous and small countries
- Depends on history: are populous countries rich or poor at a given point in time?

- Assume globalization is good for for poor, populous countries, no effect on within-national distribution
- In the current constellation, India and China grow faster => global inequality ↓ (mean income convergence, lower global inequality)
- Decouple poor and populous; let China and India be rich
- No change in individual effects of globalization; mean convergence continues but global inequality may now go ↑
- Conclusion. Even if effects are **known** and **unchanged**, the outcome may differ.

Conclusion: "The age of inequality" (1980-today)?

Within-country inequalities have increased in many countries including in the largest (US, UK, China, India, Russia)

Inequalities **between countries** have increased but in 6-7 years before the crisis they went down

Population weighted inequality **between countries** decreased thanks to fast growth in China and India, but HS data do not show that

Inequality among **people in the world** is very high (Gini around 70) but its direction of change is not clear. [A. Sen: It is the level that matters!]

7. Does Global Inequality Matter: Statists, Consequntialists and Cosmopolitans

Rawls' *Law of Peoples*

- Types of peoples (nations)
  - Liberal   }
  - Decent (consultative hierarchy)   }   Well-ordered
  - "Burdened"
  - Outlaw <u>states</u>
  - Benevolent absolutism

  Transfers only from well-ordered to "burdened" peoples

- Transfers (1) limited to type of society ('burdened') and (2) limited in time (until 'burdened' becomes a 'decent society')
- "Peoples have a duty to assist other peoples living under unfavorable conditions that prevent their having a just or decent political and social regime" (*LoP*, p. 37)
- Explicit rejection of a global difference principle (among other reasons because it is unlimited in time)
- No discussion of responsibility toward outlaw or hierarchical societies
- Limits to immigration (duty of hospitality only)

Why no *global* difference principle

- It would lead to open-ended transfers
- Real income per capita (wealth) is not important once societies become 'decent' (general proposition re. unimportance of pursuit of wealth)
- Once a people is 'decent' there is no point in comparing wealth/income of the two peoples: the differences are the outcome of voluntary societal decisions on savings vs. consumption and leisure vs. work

Cosmopolitan position (Pogge, Singer)

- No major difference between Rawlsian original position within a single nation-state (people) and the world
- The same principles should apply globally: an increase in inequality is acceptable only if it leads to a higher absolute income of the poorest
- "Monism": all ethically meaningful relationships are between individuals not mediated by the state (people)
- Pogge: we are required not to harm others (and some decisions by IO may have harmful consequences)

Rejection of cosmopolitanism: political theory of justice (Nagel)

- **Strong statism**: Redistribution (and responsibility for poverty) possible only if there is shared government
- For concerns of justice to kick in, you need "associative relation" (shared sovereignty, common endeavor)
- We redistribute because we have a contractarian relationship with people with whom we share the same institutions
- Could be also based on our expectation to be in need of similar transfers in the future; or affinity that we feel for co-citizens; shared culture or historical memories (J.S. Mill)

Statism (cont.)

- Only under world government can we have a global difference principle
- Accepts humanitarian duties only (matter of morality, **not of justice**)
- Existence of IO does not introduce new obligations because these are govt-to-govt relations
- Pluralism (rather than monism) in our relations with others: different normative principles depending on the position in which we stand with respect to them; but pluralism may introduce a sliding scale & an intermediate position =>

Intermediate position

- We are required to give more than implied by humanitarian considerations alone but less than implied by the global difference principle
- Sliding scale of responsibility
- Critique of statism: why are newer forms of international governance not norm-generative and only state is?
- There are forms of connection that do not involve the state & trigger norms beyond mere humanitarianism
- Direct rule-making relationship (WTO, IMF) between the global bodies and citizens of different states

Intermediate position (cont.)

- Aristotle: within each community there is *philia* (affection; goodwill) but the *philia* spreads (diminishes) as in concentric circles as we move further from a very narrow community
- To each *philia* corresponds adequate reciprocity (that is, redistribution)
- Thus the sliding scale of *philia* and reciprocity

What is a "consequential relationship"?

- Obviously, a **political** relationship is consequential (Nagel)
- But also economic relationships reflected in trade, investment of capital etc (Julian: "**economistic**" definition of consequential relationship)
- Beitz: (1) interrelationship must reach a certain threshold, (2) there are global non-voluntary institutions in which different peoples belong ➡ **institutional** conditions under which considerations of global justice kick in

- Decisions made by international organizations (even if only states are signatories) and by global networks => imply inclusion of all and duty of wider assistance (Cohen & Sobel)
- Institutional explanation applies not only to global institutions but to "institutional clubs" like the Commonwealth, European Union, Communauté Française etc. Sliding scale of responsibility (within institutional explanation)

Among whom does the duty of assistance exist?
A menu for you to choose from!

Political conception of justice		Consequentialist		Cosmopolitan
Political	Rawls	Economistic	Institutional	
Among people who share a government	Political + burdended societies	Among people who have dense economic relations	Among people who share global governance institutions	Among all people in the world

- Book "Worlds Apart: Measuring International and Global Inequality", Princeton UP, 2005; and many additions since

- Email: bmilanovic@worldbank.org

- Website: http://econ.worldbank.org/projects/inequality