Inequality

Plan

- What is inequality
- How to measure inequality
- How does inequality affect development
- How is inequality affected by development

Inequality

- Unequal outcomes vs unequal initial conditions
- Income inequality vs wealth inequality
  - Wealth inequality is what matters
  - Income inequality is easier to measure
- Even in the US, high intergenerational correlation within family
  - Parents' wealth (and human capital) affects children's opportunities
- Developing countries:
  - Imperfect financial markets
  - Low initial wealth $\Rightarrow$ low income $\Rightarrow$ low wealth
 - Wealth inequality and income inequality are correlated

How to measure inequality

- Calculate income distribution
  - How many people earn <$1/day, <$2/day, <$3/day etc
- Kuznets ratios:
  - Income of top 10% to income of bottom 10% …
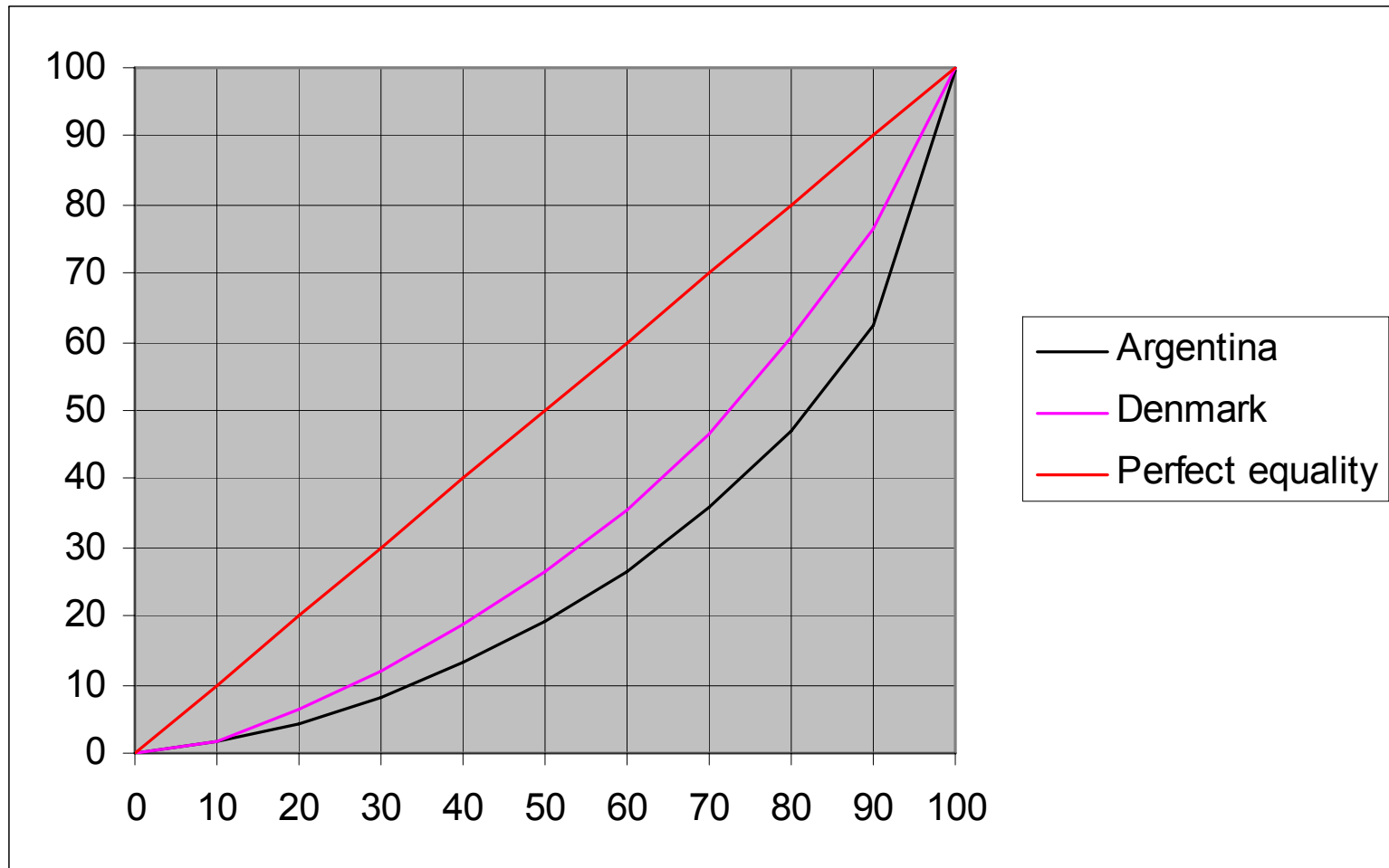 - .. Or top 20% to bottom 40% etc.
- Lorentz curve and Gini Index

Income distribution (Argentina, 1995)

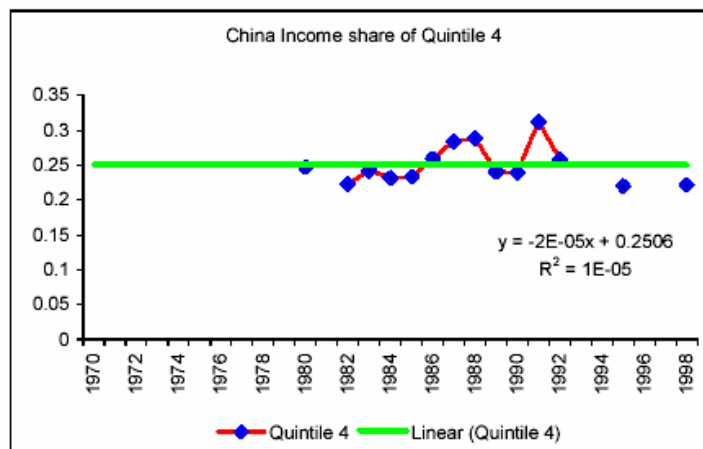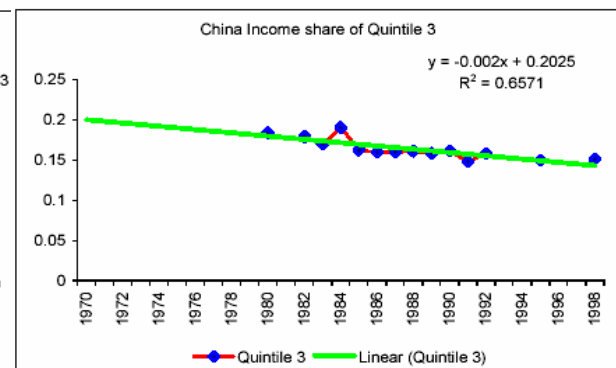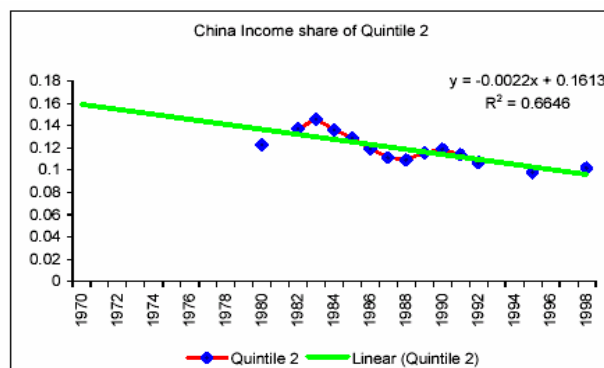| Distribution decile	Share in income	Cumulative
0-10%	1,7	1,7
10-20%	2,7	4,4
20-30%	3,9	8,3
30-40%	4,9	13,2
40-50%	6,1	19,3
50-60%	7,4	26,7
60-70%	9,0	35,7
70-80%	11,3	47,0
80-90%	15,4	62,4
90-100%	37,3	99,7

Lorenz curve, Argentina 1995
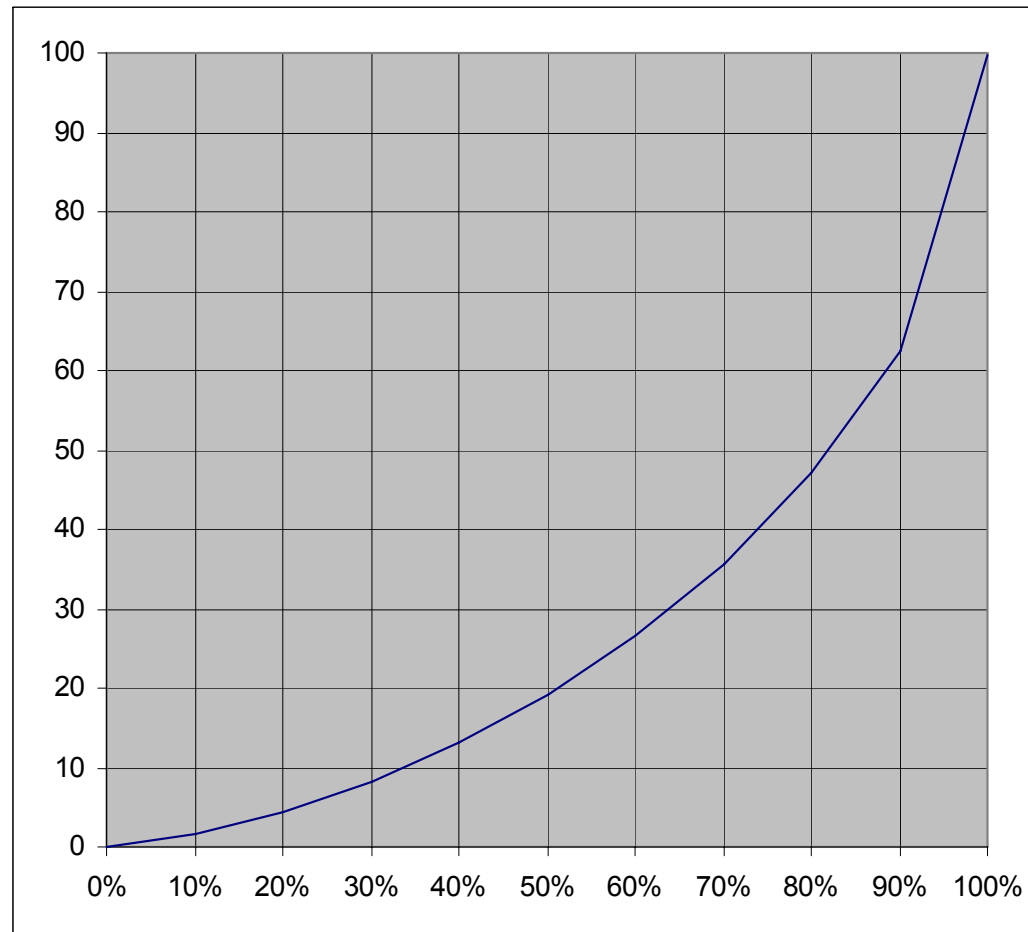
Comparing Lorenz curves

Dynamics of income distribution in China:
Lorenz curve is moving farther from perfect equality line
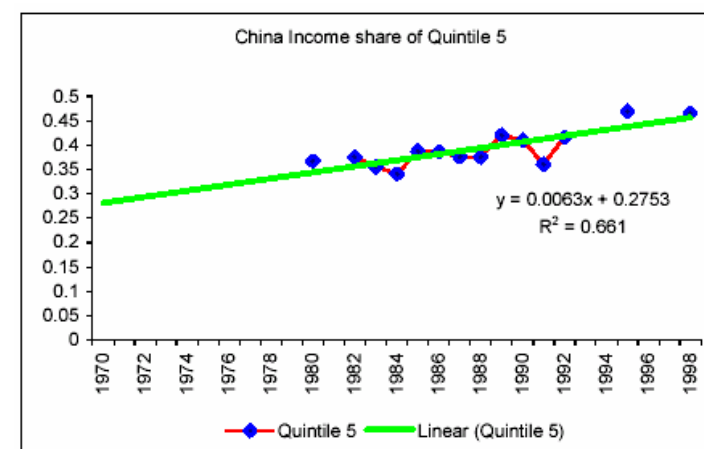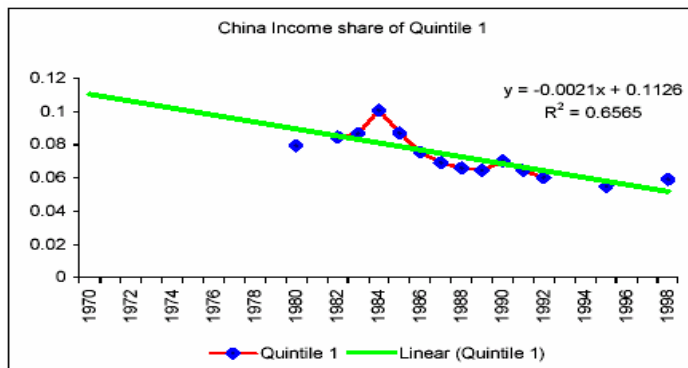
Source: Sala-i-Martin, 2002

Properties of Lorenz curve

- Lorenz-curve-based comparisons satisfy
  - Anonimity
  - Population principle
  - Relative income principle
  - Dalton principle
    - Redistributing from rich to poor decreases inequality
- But what if Lorenz curves cross?
  - Gini index: the 'average distance' to perfect equality line

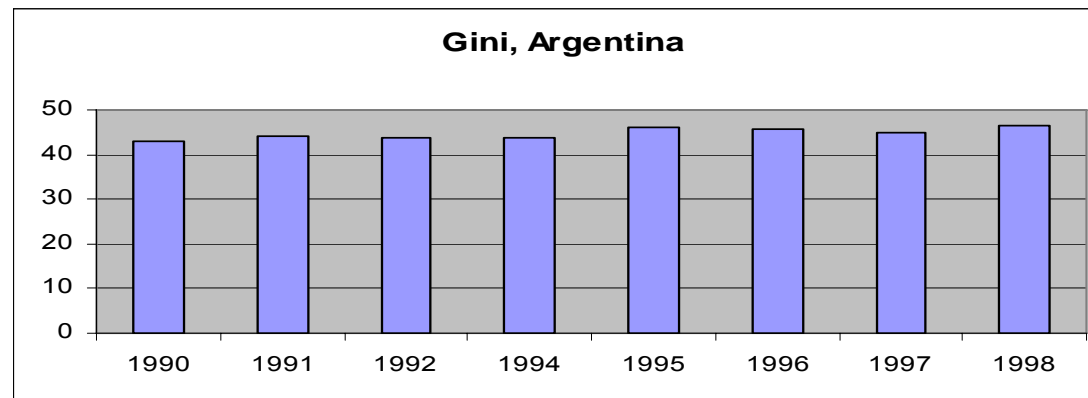# Gini in selected countries, 1996

Argentina	0.46	Indonesia	0.37
Belgium	0.30	Korea	0.31
Brazil	0.59	Nigeria	0.51
Chile	0.56	Russia	0.42
China	0.28	Sweden	0.27
Czech Rep	0.27	UK	0.39
Germany	0.30	USA	0.45
India	0.36	Zambia	0.50

Gini stable over time?

US Gini over time

Gini, Argentina
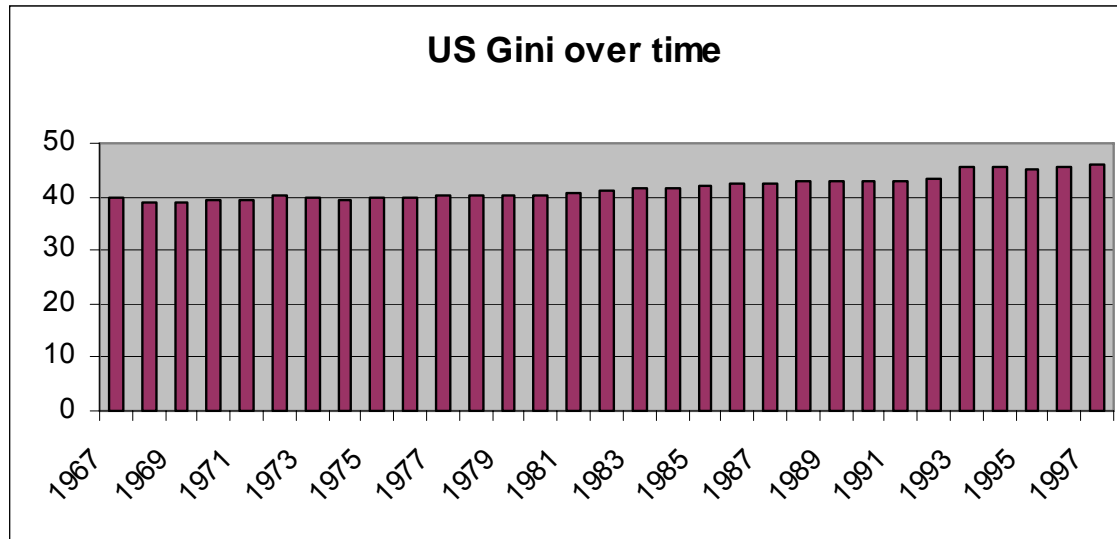
… or (very) slowly decreasing?
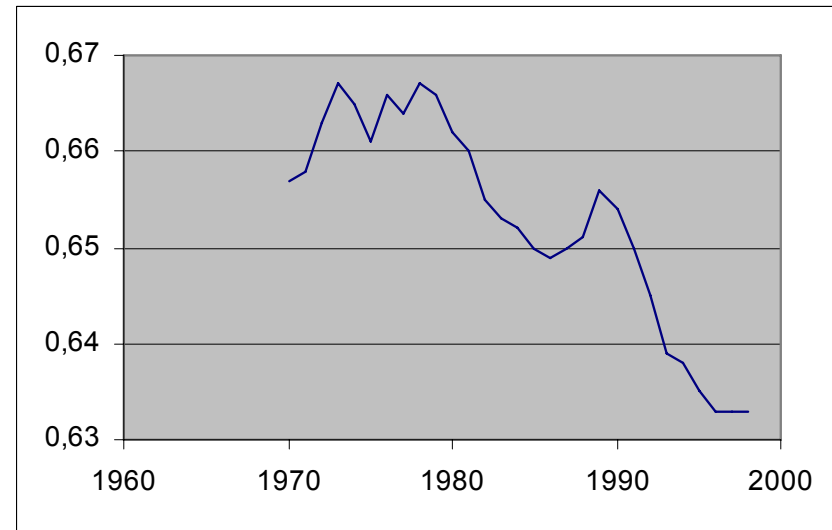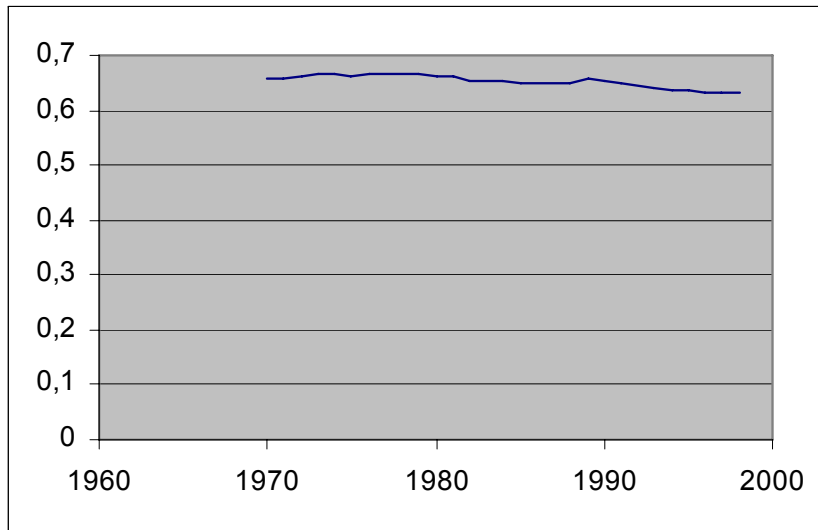
Global Gini index. Source: Sala-i-Martin, 2002

… or Kuznets' curve?

- ## Kuznets (1955):
  - Based on cross-country data: Inequality increases with development but then falls

- ## Worldbank (Deininger and Squire, 1996):
  - Kuznets' curve is consistent with cross-section data (fig. 7.1 in Ray)
  - But much of it due to 'Latin American effect'?
    - Regressions reject Kuznets' curve

- ## What happens over time in a single country?

Brazil vs Korea

Brazil vs Korea, 1960-1989

Brazil vs Korea, 1960-1989

Brazil vs. Korea: Kuznets' curve over time
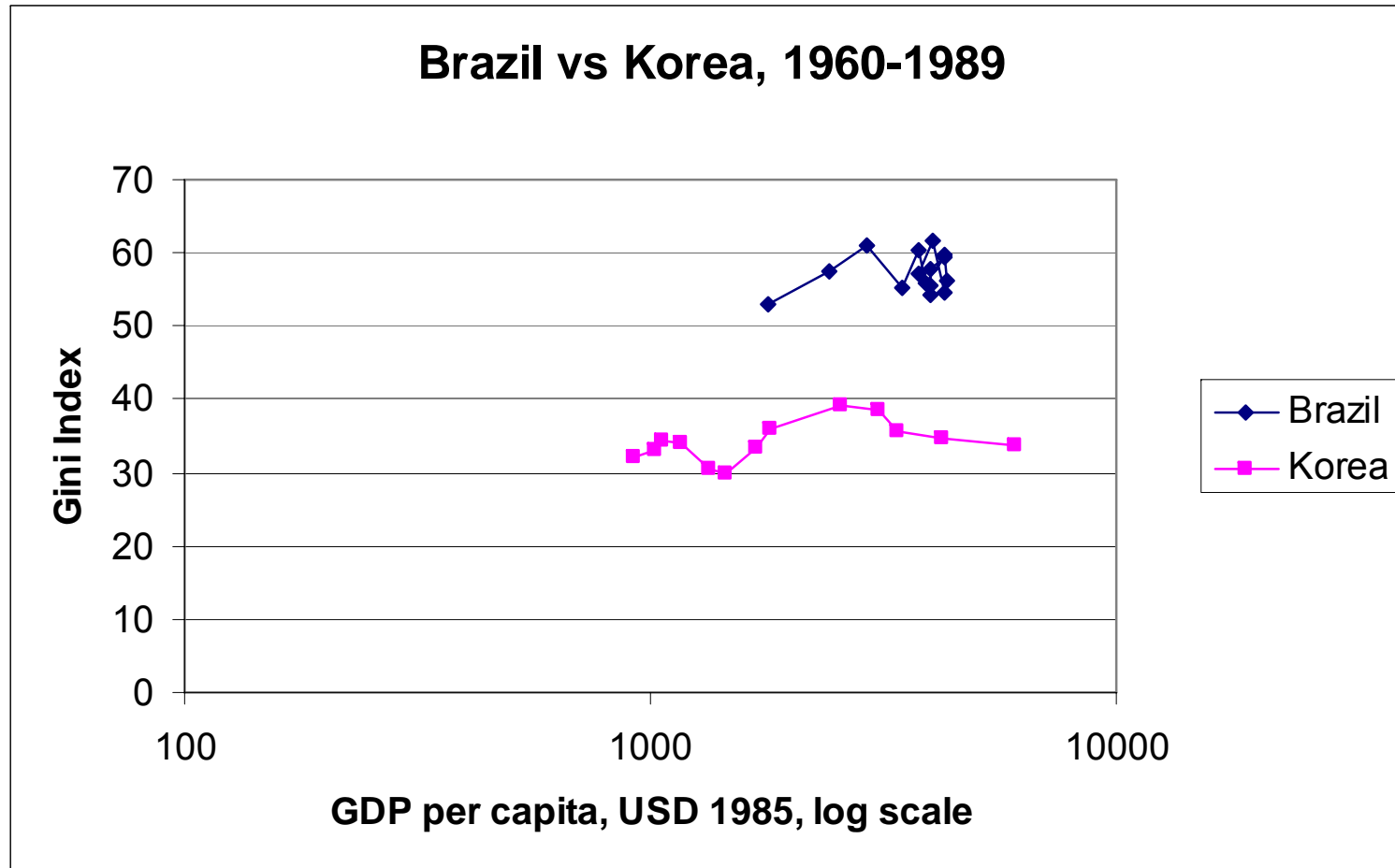
The effect of inequality

- Inequality is bad per se, but it may also (adversely) affect growth through
    - Social conflict and resulting redistribution
    - Distortions in occupational choice
    - Subversion of political and economic institutions

Inequality and growth: empirical evidence

- Cross-country regressions:
  - Negative correlation
- Panel regressions (based on 'high-quality sample'):
  - Positive
  - OECD countries overrepresented in the sample, even for them, cross-country comparisons are more reliable than across-time within-country
- Three-stage least squares
  - No effect on average
  - Negative in poor countries, positive in rich countries
- Instrumental variables:
  - Negative
- Non-parametric methods:
  - Non-linear

Inequality, social conflict, redistribution and development

Alesina-Rodrik

- In democracies or dictatorships, majority matters

- Inequality: median (pivotal) voter is usually poorer than average voter

- Hence, in equilibrium, capital is taxed too much in favor of labor
  - Lower incentives to invest $\Rightarrow$ Lower growth

Subversion of institutions

- Since redistribution in favor of majority is more likely in democracy, the rich respond with coups
  - If coups succeed, rich redistribute in their favor by subverting political and economic institutions (Glaeser, Scheinkman, Shleifer, 2003)
  - If there are political economies of scale in redistribution, rich may be able to redistribute from the poor (Sonin, 2003)

Latin America
(Acemoglu and Robinson, 2001)

"In Argentina, for example, universal male suffrage became effective in 1912. But it was soon overthrown by a coup in 1930. Democracy was reinstated in 1946, but fell to a coup in 1955, re-created again in 1973, subverted again in 1976, and finally reinstalled in 1983."

"For example, in Brazil, a central aim of the coup in 1964 was to prevent the attempt by the left-wing President Goulart to bypass the veto of the Congress and use other means to push through agrarian reform …. Similarly, most scholars argue that the agrarian reform after 1952 in Guatemala was the main motivation for the coup of 1954 …"

"For example, in Venezuela in 1948, Guatemala in 1954, and Chile in 1973, landowners were rewarded for supporting the coup by having their land returned to them."

Inequality and resistance to reforms (Fernandez and Rodrik, 1994)

Inequality prevents many efficiency-enhancing reforms

- Simple model: two classes, winners W (40%) and losers L (60%)
- Reform:
  - Will bring each W +300
  - Will bring each L
    - -300 with probability 2/3
    - +300 with probability 1/3
    - On average: -100
- Total welfare: 300*0.4+300*0.2-300*0.4=60>0
- Voting on reform ex ante:
  - The majority (60%) is against
- Voting on reform ex post:
  - The majority (40%+20%) would be in favor

Dynamic model of resistance to reform (Alesina Drazen)

- Two parts of the society
- Need a consensus on whom to allocate the burden
- War of attrition
  - In the case of symmetric information, reform would take place right away
  - Under asymmetric information, the reform is delayed

Inequality and occupational choice (back to Banerjee-Newman)

Imperfect financial markets:

Low income and low wealth $\Rightarrow$ Limited ability to borrow

Inequality $\Rightarrow$ higher share of population cannot
start small/large business $\Rightarrow$
are bound to work for hire $\Rightarrow$
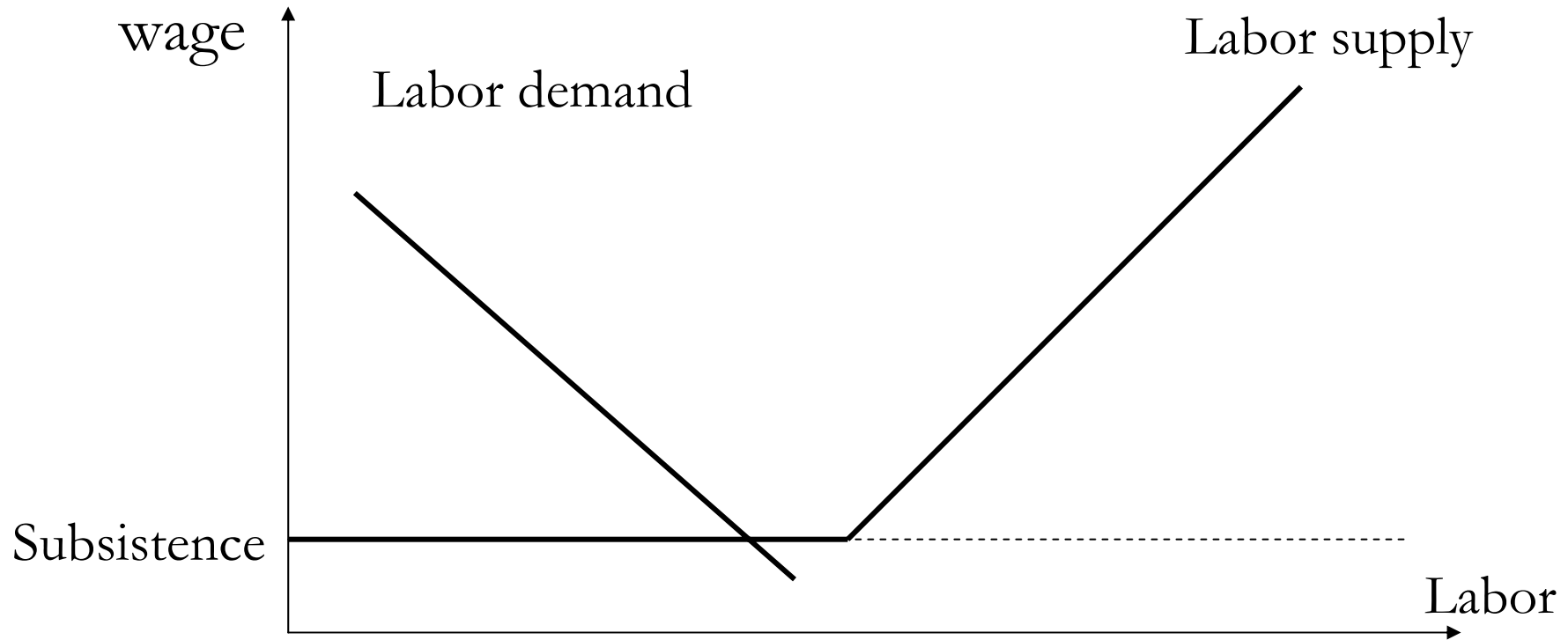labor is cheaper $\Rightarrow$
those who do start business benefit $\Rightarrow$
returns to entrepreneurship $\uparrow \Rightarrow$
benefits *may or may not* trickle down to the poor

Depends on initial conditions whether the economy
breaks the vicious circle

Equilibrium: high initial inequality begets inequality

Equilibrium wage does not allow saving $\Rightarrow$
in the future, workers will have no outside option $\Rightarrow$
wage will remain low $\Rightarrow$ inequality will rise (rich will grow richer)

Low initial inequality: the vicious circle of inequality can be broken

wage

Labor supply

Labor demand

Equilibrium wage

Subsistence

Labor
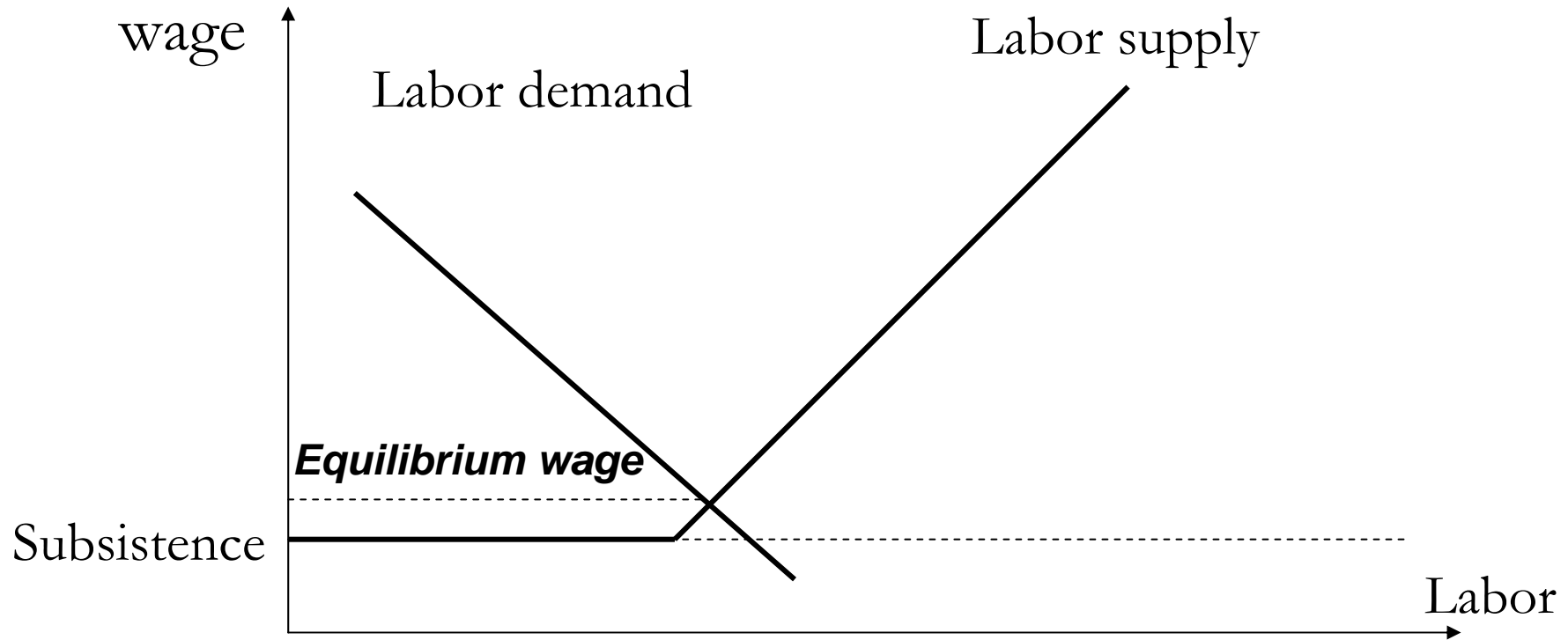
*Equilibrium wage is above subsistence ⇒ even the poorest workers will save ⇒
in the future, many workers will have outside option ⇒
wage will increase even further ⇒ inequality will decrease*

# Why can inequality be *positively* correlated with growth?

- Classical view
  - Adam Smith (and Kaldor):
    - Rich save more $\Rightarrow$ inequality increases savings $\Rightarrow$ investment and growth
    - Galor and Moav (2003):The logic should work in the early stages of growth (based on physical capital)
    - Once human capital becomes important, accumulation by few is constrained
    - Each individual faces diminishing marginal returns to human capital accumulation
    - Inequality is harmful for further growth
  - Indivisibilities
  - Incentives
- Reverse causality: growth occurs in modern sectors $\Rightarrow$ skilled individuals gain even more, inequality may increase

Why inequality?

- Natural resources endowment: natural resource abundance is bad for economic growth (Sachs and Warner, 1995)

  – Dutch disease and increasing returns in manufacturing

 – Rent-seeking, inefficient politics, and inequality

Sach and Warner (1995)

GDPpc growth rate, 1971-89

Natural resource exports / GDP, 1970
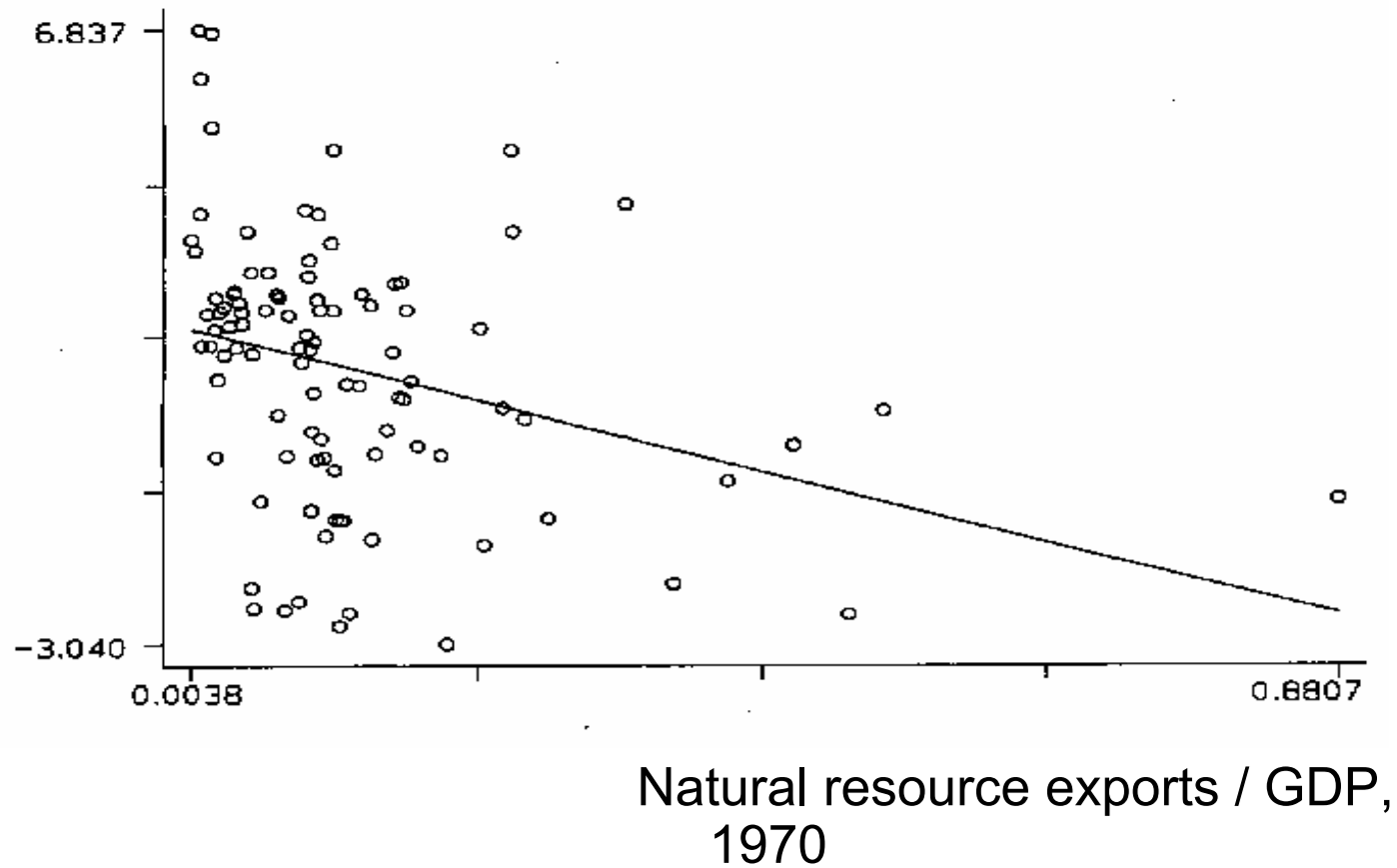
Determinants of inequality:
the case study of South vs North America
(Engermann-Sokoloff, 2000)

- South America was not behind US/Canada in 1800, and certainly not before
- 1600-1800: crucial role of slaves in all colonies
- South America: sugar, coffee, silver
  - Large plantations/mines
- North America: wheat, maize
  - Family farms, indentured servitude of European immigrants, rather than slavery
  - Even large cotton, tobacco, rice plantations in US South small relative to South American ones
- Endogenous immigration policy: open to Europeans in US, tight in Spanish colonies
- Therefore emergence of middle class in the US but not in South America
- Antitrust in the US in 1900s

Natural resources and inequality, 1994
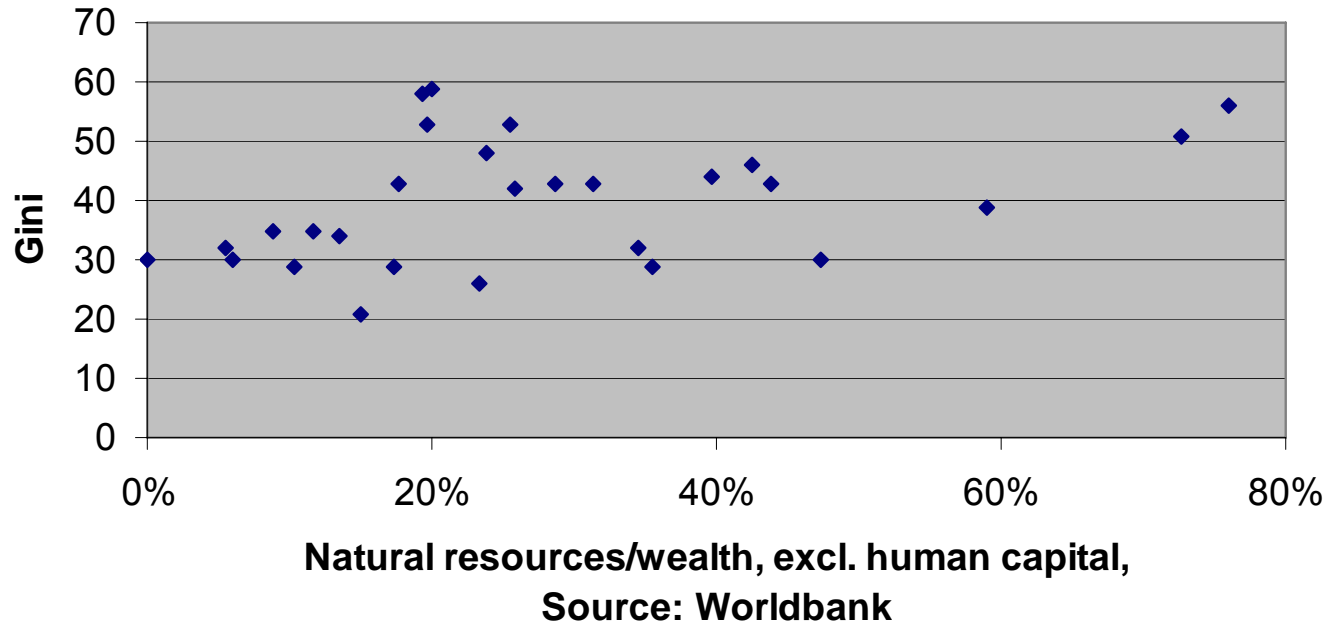
Important exception: Botswana (Acemoglu-Johnson-Robinson)

- High initial inequality: Gini about 0.57 (!)
- Fastest growth rates in 1965-2000 in the world (7.7% p.a.)
- Natural resource abundance:
  - diamonds
- Still has been able to maintain good economic policy
  - Why?

The big question: Whither China?

- Mid 1970s: Very equal but very poor
- Development strategy of Dan and Jiang:
  - Promote FDI, concentrate in the coastal areas
  - Restrict mobility so that movement of people from the West is gradual
  - Huge inequality between rural and urban, between east and west
- Hu Jintao: need "harmonious society"
  - Recent crackdown on "Shanghai Gang"

Pulling away

Average income per head, yuan '000

Urban*

Rural†

1990 92 94 96 98 2000 02

*Disposable income †Net income

Source: National Bureau of Statistics of China