

## **LECTURE 8**

# **INTERACTION BETWEEN GROWTH, INCOME DISTRIBUTION, POPULATION GROWTH AND POVERTY**

### **A. Introduction**

**The Millennium Development Goal**

**Monitoring progress**

### **B. Determinants of Poverty: Income Level of Countries and Internal Distribution of Income**

### **C. Different Poverty Measures**

### **D. Economic Growth, Income Distribution, Population Growth and Poverty Reduction: The Interrelationship**

### **E. Estimated Extent of Poverty**

### **F. Income Redistribution and Poverty Reduction**

### **G. Growth and Social Welfare**

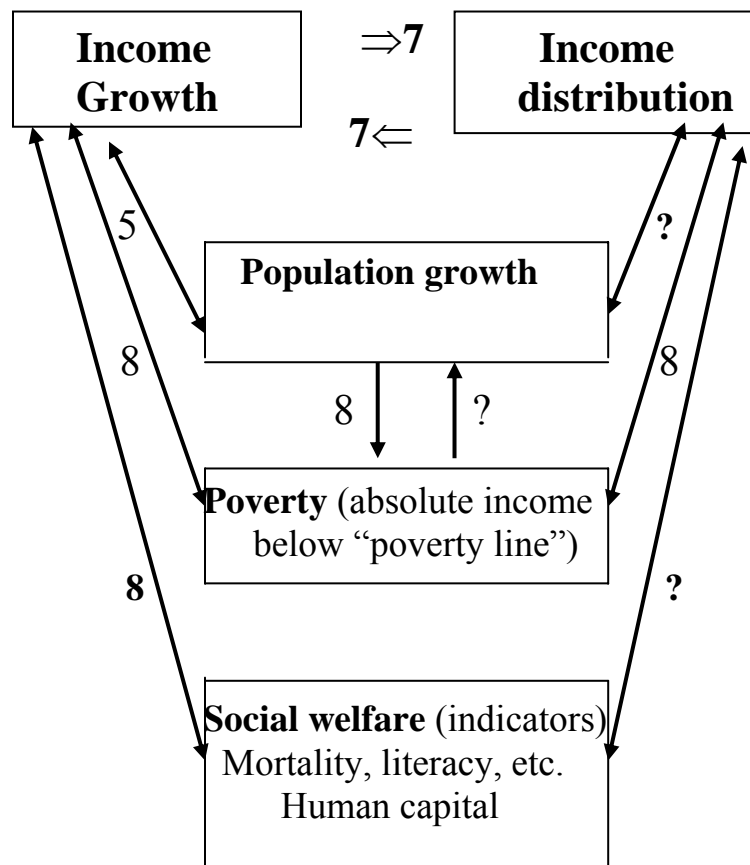
*For literature referred to, see last slide:*

## [8.2] The Millennium Development Goals and Poverty Alleviation

In lecture 1, we listed some 5 different normative objectives for development: (1) **Growth**, (2) more equal **distribution** of incomes **within** countries, (3) more equal **distribution across** countries, (4) **poverty** alleviation and (5) improvements in **social welfare**.

**All these objectives are causally inter-related**

Millennium Development Goal: Half Poverty by 2015!



**[8.3] Poverty, or low absolute income of the “poor”, is a function of income distribution and average income**

**According to the following identity, we have that:**

$$\theta_p = y_p/Y \quad \text{and, hence,} \quad y_p = \theta_p Y$$

**where  $\theta_p$  is the income of the poor ( $y_p$ ) as a ratio of total income ( $Y$ ). (see [8.4-8.5] for India and Brazil as examples)**

**Differentiate this expression and divide by  $y_p = \theta_p Y$ , we have that:**

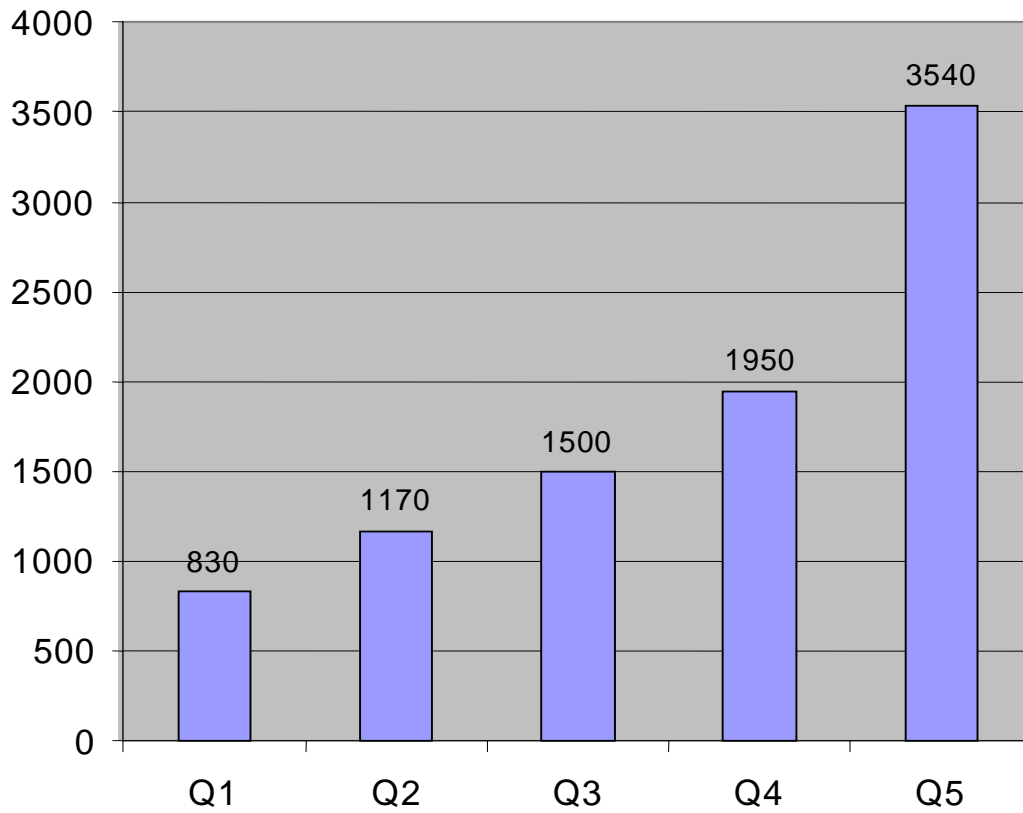
$$\Delta y_p/y_p = \Delta \theta_p/\theta_p + \Delta Y/Y.$$

**We then have the following four possible developments for a *change in poverty*, i.e. the absolute incomes of the “poor” (however defined and measured) *over time*:**

<b>Sign of <math>\Delta \theta_p/\theta_p</math></b>	<b>Sign of <math>\Delta Y/Y</math></b>	<b>Sign of <math>\Delta y_p/y_p</math></b>
+	+	<b>&gt; 0</b>
-	-	<b>&lt; 0</b>
+	-	<b>?</b>
-	+	<b>?</b>

**[8.4] Figure 8.1. GDP per Capita in India, by Income Quintile, in 1999 (US\$ corrected for PPP)**

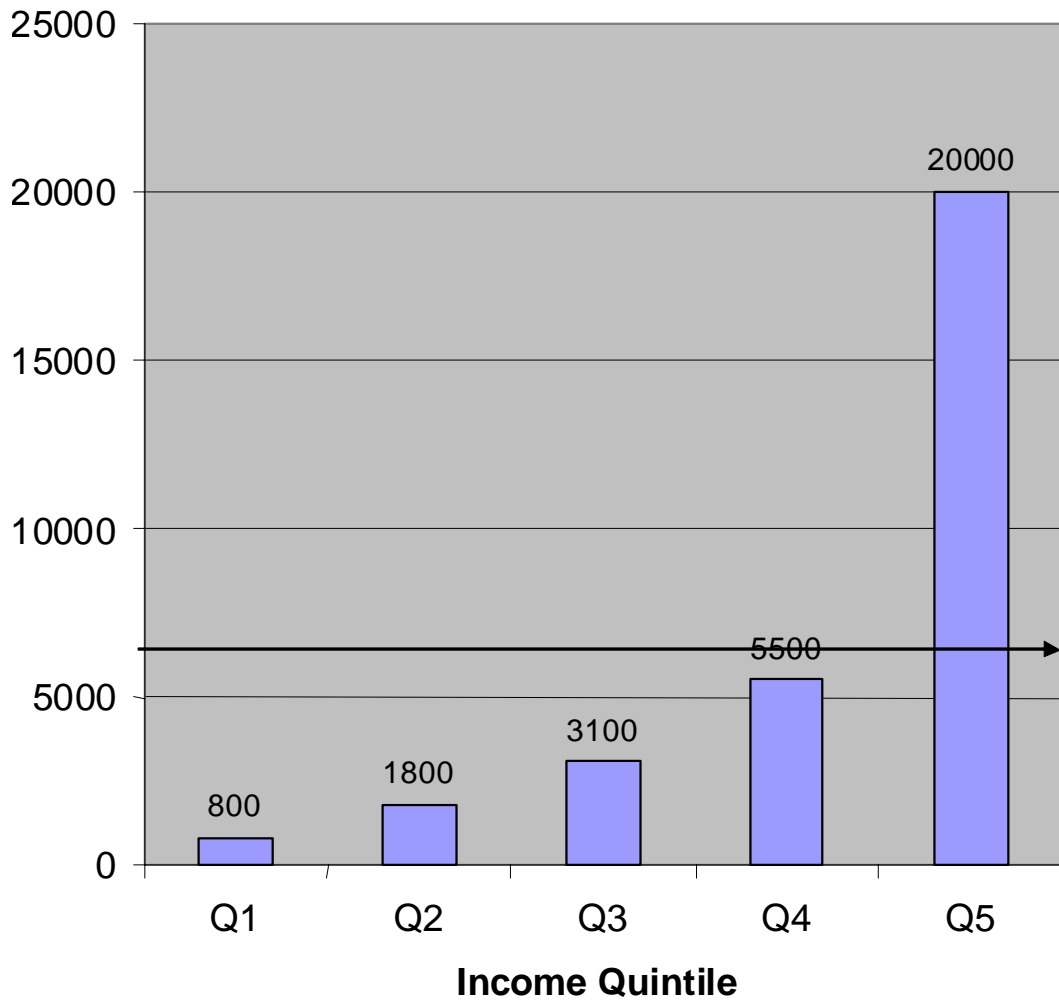
**GDP per capita**



**Income Quintile**

**[8.5] Figure 8.2. GDP per capita in Brazil, by Income Quintile, in 1999 (US\$ corrected for PPP)**

**GDP per capita**

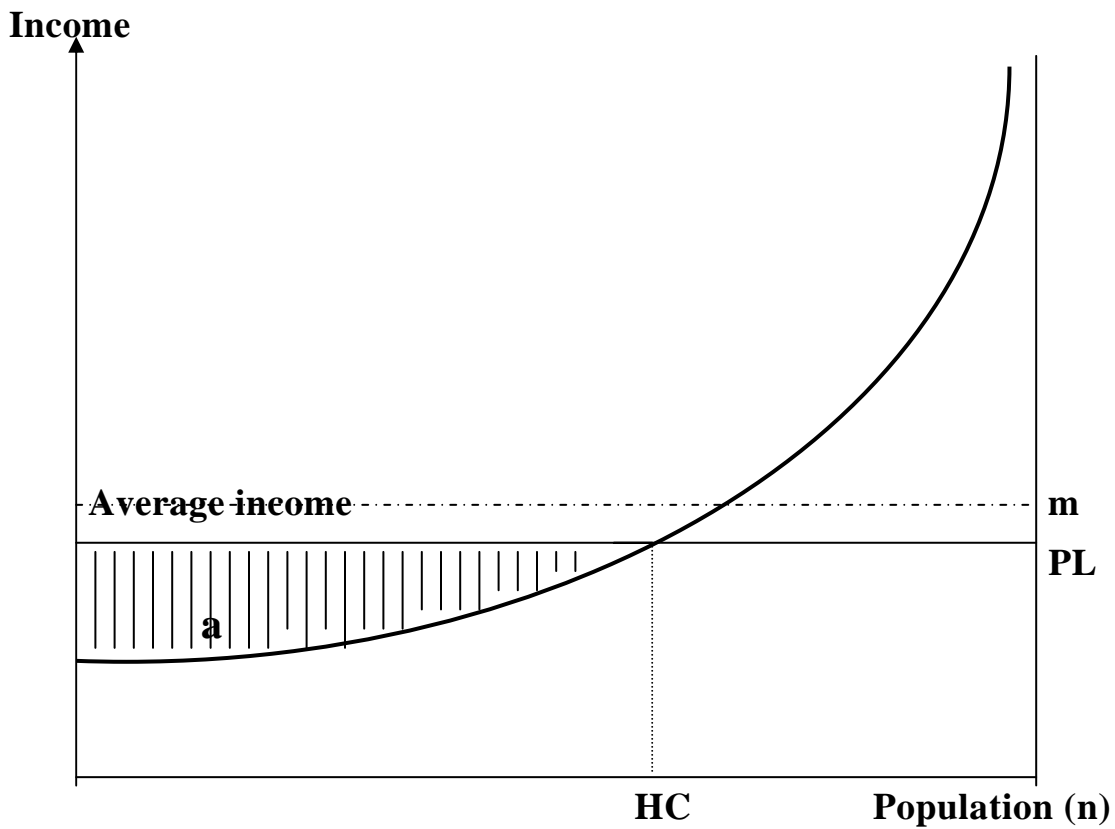


## [8.6] Poverty Measurements

All the commonly used poverty measurements take as the starting points (cf. [8.7]):

- 1) The average (per capita) income in the economy
- 2) The (absolute) distribution of incomes in the economy
- 3) A definition of a poverty line (PL)

Figure 8.3. Share of population in poverty ( $HCR=HC/n$ )



## [8.7] Poverty Measurements (cont'd)

a) *Headcount*: The number of people below the poverty line as a ratio of the total population:

$$HCR = HC/n$$

(Figure 8.3)

b) *Poverty Gap Ratio*: The ratio of the average income needed by those below the poverty line to get them to the poverty line, and total income of the country:

$$PGR = \sum_{y_i < p} (p - y_i) / nm$$

The hatched area (a) in Figure as a share of **total income (nm)**

c) *The Income Gap Ratio*: the ratio of the income lacking for those below the poverty line and total income of the poor needed to get them out of poverty

$$IGR = \sum_{y_i < p} (p - y_i) / PL \times HC$$

The hatched area (a) in Figure as a share of PL times HC

## [8.8] Poverty Measurements (cont'd)

d) *The FGD Index* (Foster, Greer, Thorbecke, 1984):

$$FGT = 1/n \sum_{y_i < p} [(p - y_i)/p]^2$$

Cannot be depicted easily in Figure 8.3. Why?

Which poverty measure that is the most relevant depends on the question asked, for example:

- \* How large is the share of the population that live in absolute poverty (HCR is useful)

- \* By how much do the incomes of the poor fall below the poverty line? An answer to this question may be helpful for designing targeted programs (e.g. oportunidades in Mexico). PGR gives an idea.

- \* By how much would taxes have to be increased to transfer income from the population at large to the poor? (IGR gives the income of the poor below the PL as a share of total incomes in the country, and hence the tax base)



## [8.9] Alleviating poverty—What it takes

The **economic growth** rate ( $y^*$ ) required to reduce **absolute poverty** marginally

$$y^* = \Delta P/P_1 + 1/\varepsilon$$

$$\text{where } \varepsilon = (\Delta HC/HC)/(\Delta Y/Y)$$

$\varepsilon$  = the **poverty elasticity**,

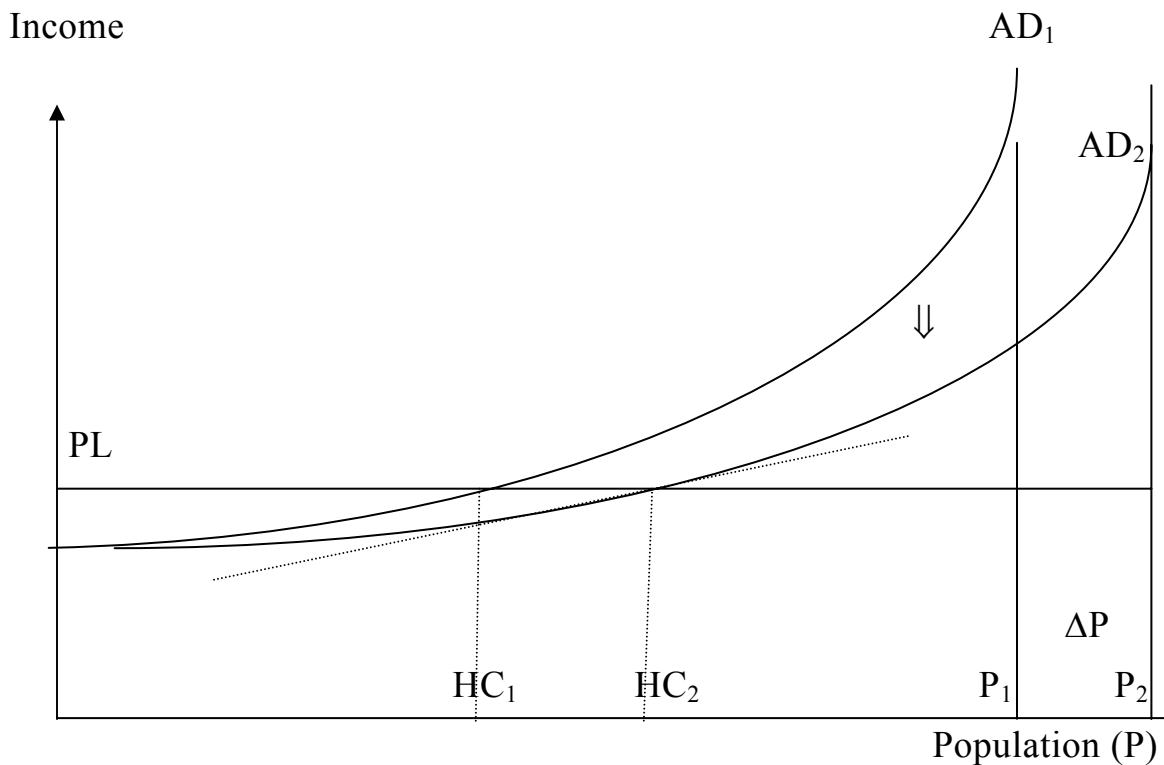
Assuming that the income distribution remains unchanged, the increase in income in the wake of (marginal) population growth needed to leave **the HCR unaltered**, is proportional

( $y^* = \Delta P/P_1$ ). That is, if the growth rate in the economy is equal to the population growth rate, and income distribution is unaltered, per-capita income **and** HCR will remain the same.

The increase in income, still assuming no change in income distribution, that is required to reduce the *absolute number* of poor **HC**, hence depends on the size of the “poverty elasticity” ( $\varepsilon$ ). This elasticity, in turn, is determined by the **initial distribution of income**, or more precisely, the slope of the absolute income distribution curve at the intersection with the poverty line (see next slide).

## [8.10] Alleviating poverty—What it takes (cont'd)

**Figure 8.4: The economic growth rate required to reduce absolute poverty (by the headcount measurement) in a country depends on (1) the population growth rate and (2) the initial income distribution.**



We have to think of the economic growth rate required to reduce absolute poverty *marginally*

### [8.11] Alleviating poverty—What it takes (cont'd)

In countries where the distribution is highly uneven (Gini > 0.50),  $\varepsilon$  is low (0.50 — 0.80) and high (1.50 — 2.00) in countries with relatively even income distribution (Gini < 0.35).

Inserting the these values for  $\varepsilon$  and different presumed population growth rates in the **equation** yields the following results:

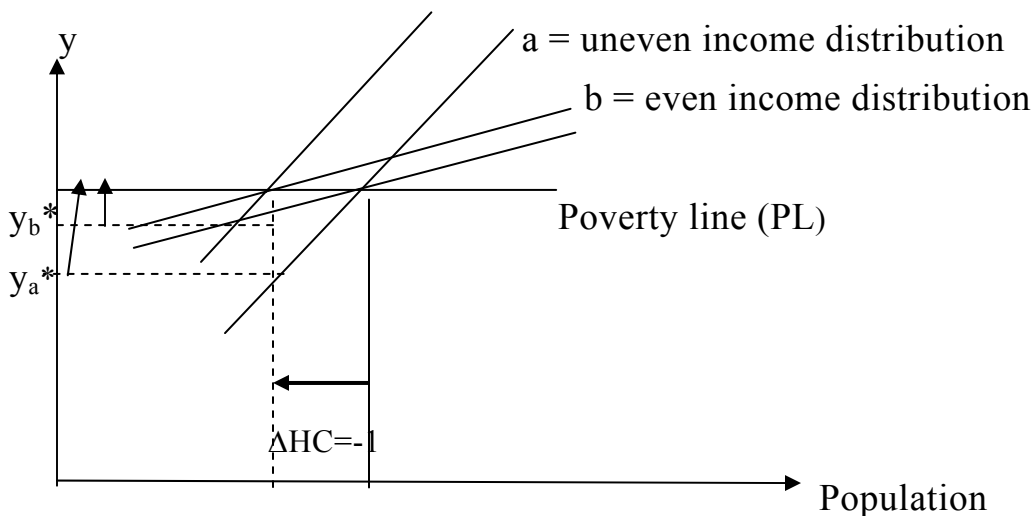
**Table 8.1. Required growth for poverty alleviation (revised)**

				Population growth rate		
	$\varepsilon$	$1/\varepsilon$		1%	2%	3%
Income distribution				Required growth $y^*$ (%)		
Even (Gini < 0.35)	2.0	0.5		<b>1.5</b>	2.5	3.5
Middle (Gini $\approx$ 0.40)	1.0	1.0		2.0	3.0	4.0
Uneven (Gini > 0.50)	0.5	2.0		3.0	4.0	<b>5.0</b>

The table shows that the higher the population growth rate, and the more uneven the income distribution is initially, the higher the overall income growth needed to reduce the number in poverty.

Huge differences, from 1.5 to 5% growth required

## [8.12] Alleviating poverty—What it takes (cont'd)



The income growth needed (the upward shift of the **b** schedule) in the country with **even** distribution of income to reduce absolute poverty is  $PL - y_b^*$ .

The income growth needed (the upward shift of the **a** schedule) in the country with **uneven** distribution of income to reduce absolute poverty is larger ( $PL - y_a^*$ ).

Several studies have used **cross-country data** to estimate poverty (HCR) as a function of per capita GDP and a measure of income distribution

$$\text{Log HCR}_{it} = \theta_i + \mu \log \text{PCGDP}_{it} + \beta \text{Dist}_{it} + \varepsilon_{it}$$

In Besley and Burgess (2004),  $\mu$  is estimated at  $-0.73$  for the whole sample of countries  $\beta$  is large and significant. Confirms that higher income and more equal distribution are associated with lower poverty

**[OH 8.13]:** Estimated share (%) of people and numbers who live on less than \$1.25 (PPP) per day, by major developing region, 1990 and 2005

*These estimates are based on the “new” PPP income estimates (2009)*

Region	1990	2005	Change
East Asia and Pacific (%)	55	17	-38
Eastern Europe and Central Asia (%)	2	4	+2
Latin America and Caribbean (%)	11	8	-3
Middle East and North Africa (%)	4	4	0
South Asia (%)	52	40	-12
Sub-Saharan Africa (%)	58	51	-7
Total (%)	42	25	-17

*Number of people living in absolute poverty (million)*

East Asia and Pacific (million)	873	316	-557
Eastern Europe and Central Asia (m)	9	17	+8
Latin America and Caribbean (m)	50	45	-5
Middle East and North Africa (m)	10	11	+1
South Asia (m)	579	594	-17
Sub-Saharan Africa (m)	298	388	+90
Total (m)	1818	1374	-440

Source: World Bank, 2009.

[OH 8.14] The MDG and China's role

Progress towards the MDG, China vs other countries

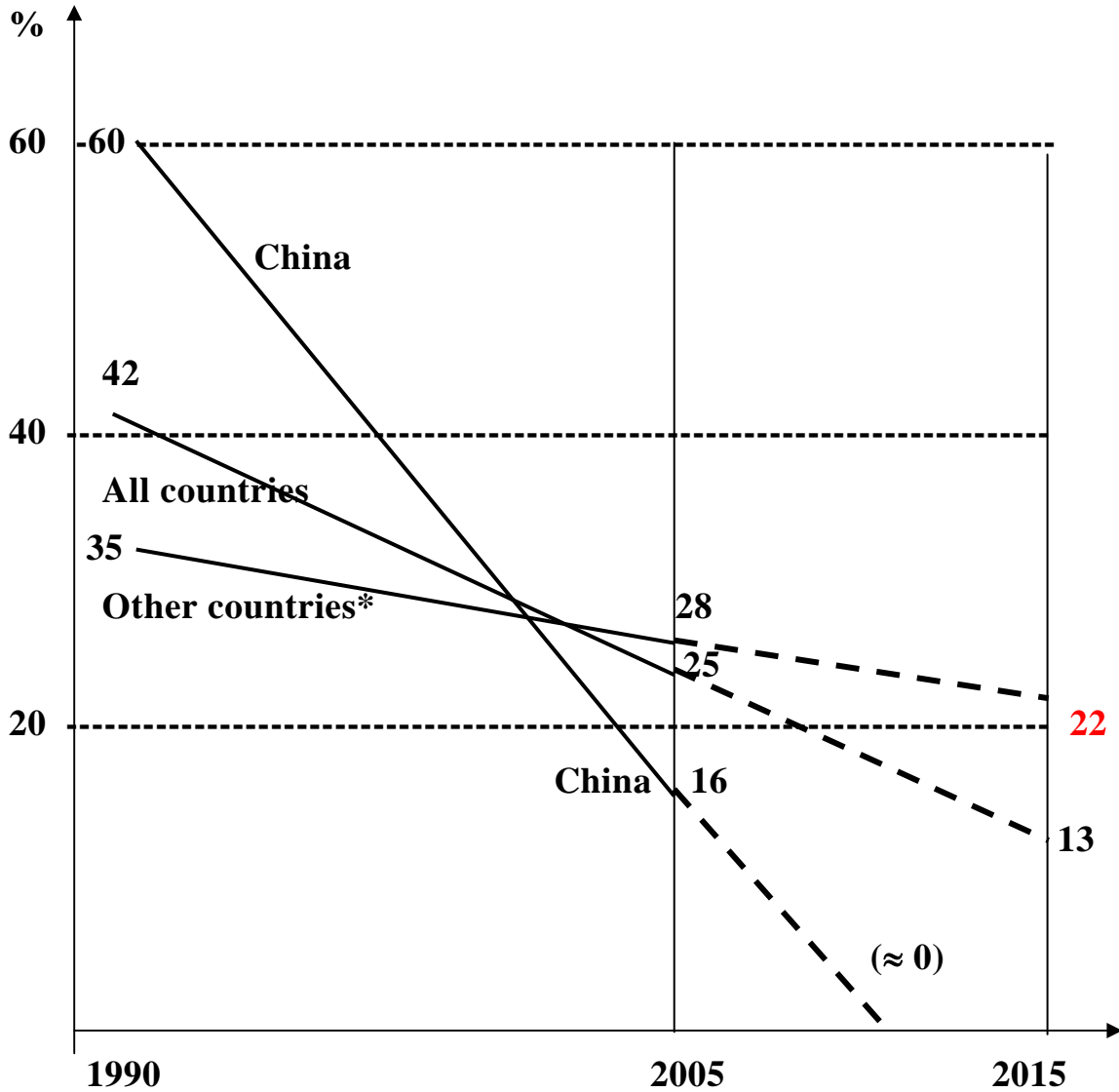
*The estimates are based on the new PPP income estimates from 2009*

		1990	2005	Change
HCR (%)	Total	42	25	-17
\$1.25 (PPP)/d	China	60	16	-44
	Others	35	28	-7
HCR (%)	Total	63	47	-16
\$2 (PPP)/day	China	85	36	-49
	Others	55	51	-4
HC (million)	Total	1818	1374	-444
\$1.25 (PPP)/d	China	683	208	-475
	Others	1135	1166	+31
HC (million)	Total	2765	2564	-201
\$2 (PPP)/day	China	961	474	-487
	Others	1804	2090	+386

Source: World Bank 2009, table 3

**[OH 8.15] Is the MDG going to be missed, or saved by China?**

**Poverty rate (HCR)**  
**(2009 estimates)**



**\* All developing countries except China**

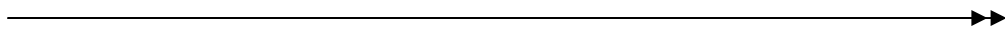
**(data from World Bank 2009) NB. These estimates are based on the “new” PPP income estimates (cf OH 8.15 for old)**

**[8.16] Poverty reduction so far: Comments:**

1) Considering the high economic growth rates required to reduce poverty in absolute numbers (HC), when **population growth** is high and **income distribution** uneven, it is to little surprise that absolute poverty remains largely unaltered in large parts of the developing world.

2) Clear that **poverty** has been reduced where **economic growth** is high and population growth small (South-east Asia and China) and **vice versa** where economic growth is minuscule and population growth high (Sub-Saharan Africa).

3) The estimates of poverty and poverty reduction produced by the **World Bank** and associated researchers hence give a very **gloomy picture** of the progress towards the MDGs. **Outside China**, with 1,300 million people, the rate at which poverty has been alleviated since 1990 up to 2005 (the most recent year for which we have data) is dismal, some 7 percentage points (from 35 to 28 per cent). Absolute increase!



**This raises two important questions:**

a) Are the World Bank poverty estimates to be **trusted**?

b) Are there other ways of reducing poverty than reliance on economic growth? Is **income re-distribution** within countries a feasible method?



### **[8.17] Challenges of the World Bank Poverty Estimates**

Up to about year 2002, the World Bank was the sole provider of estimates of the prevalence of poverty in the developing world. More recently, **alternative poverty estimates** have come forth, produced by Sala-i-Martin (2002 and 2005) and also Balla (2002).

#### **The alternative estimates suggest (see [8.18]):**

- (1) Much lower prevalence overall in 2000 (both); in fact **Sala-i-Martin's** estimate for 1998 is only one-fourth of the WB's;
- (2) A faster decline both in the 1980s and 1990s (Balla);

-----[8.18]-----

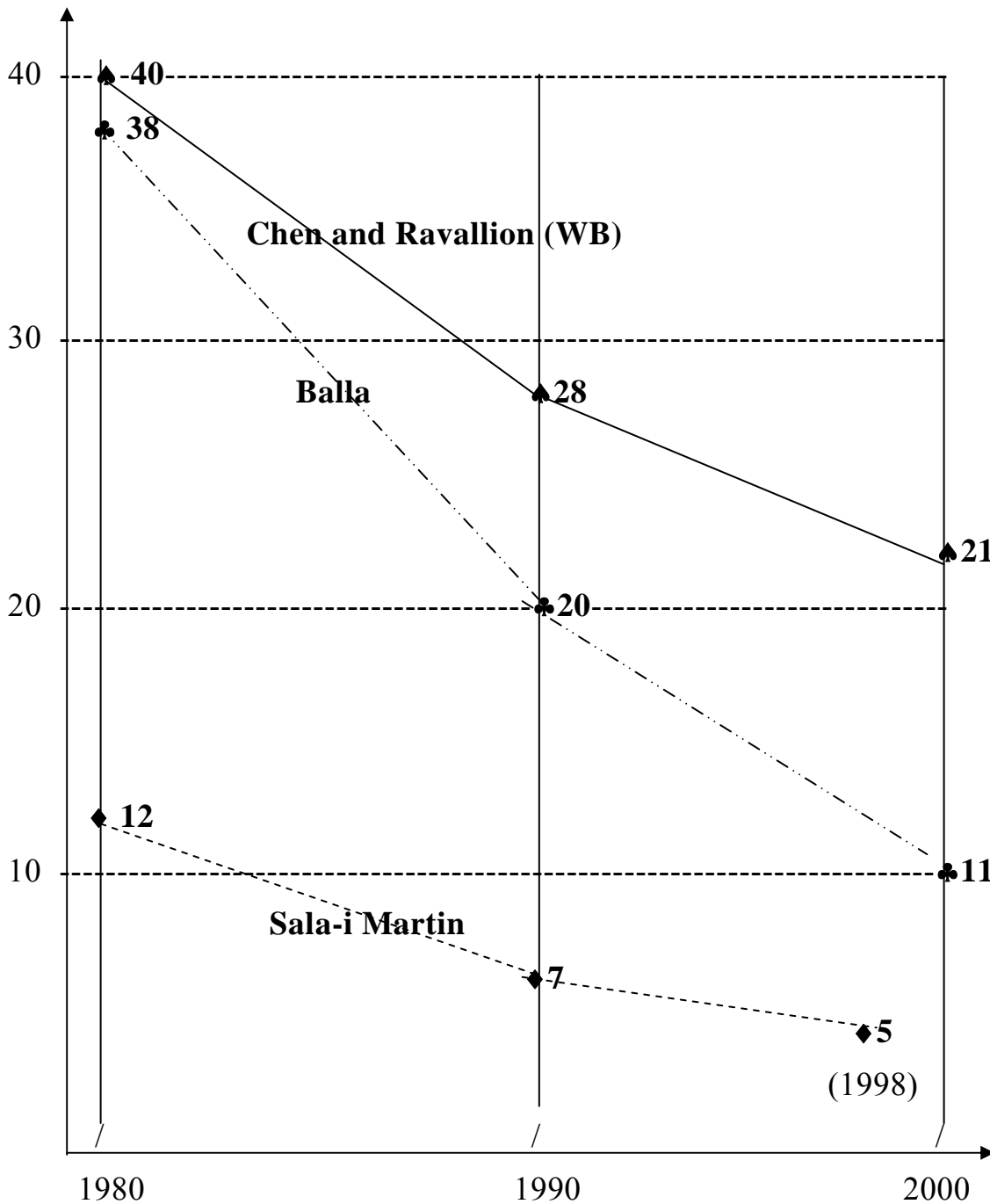
NB. The estimates shown in [OH.18] are all based on the “old” PPP income estimates (not the 2009 new estimates from the World Bank)

They are hence all “obsolete”, but still offer insights into the estimation problems encountered in assessing poverty incidence!

At face value, it is difficult to understand how different researcher can arrive at such different results when they have access to the same statistical basic sources

### [8.18] World Bank and Alternative Poverty Estimates 1980-2000

Poverty rate (%) (Poverty line: \$1.08 (PPP) per day)



Sources: Sala-i-Martin 2002, 2006, Balla 2002, Table 9.1; Chen and Ravallion 2004, table 3 (all estimates built on old PPP income data)

### [8.19] Identifiable reasons for the differences

1) Balla and Sala-i-Martin calculate the HCR as the share of people in developing countries with a per capita income below the poverty line as a proportion of the **world population**. Chen and Ravallion (WB) use the **developing world** population as the denominator. Correcting for this methodological difference, means that the WB estimates have to be divided by a factor of about 6/5 (=1.20). Still, most of the discrepancies remain!

2) Most of the discrepancies is due to the use of different income data. The **World Bank** estimates are based on **income** data from **household surveys**. **Sala-i-Martin** uses GNI/capita data from **national accounts**. Household income (HI) is only one (major) part of national income (GNI):

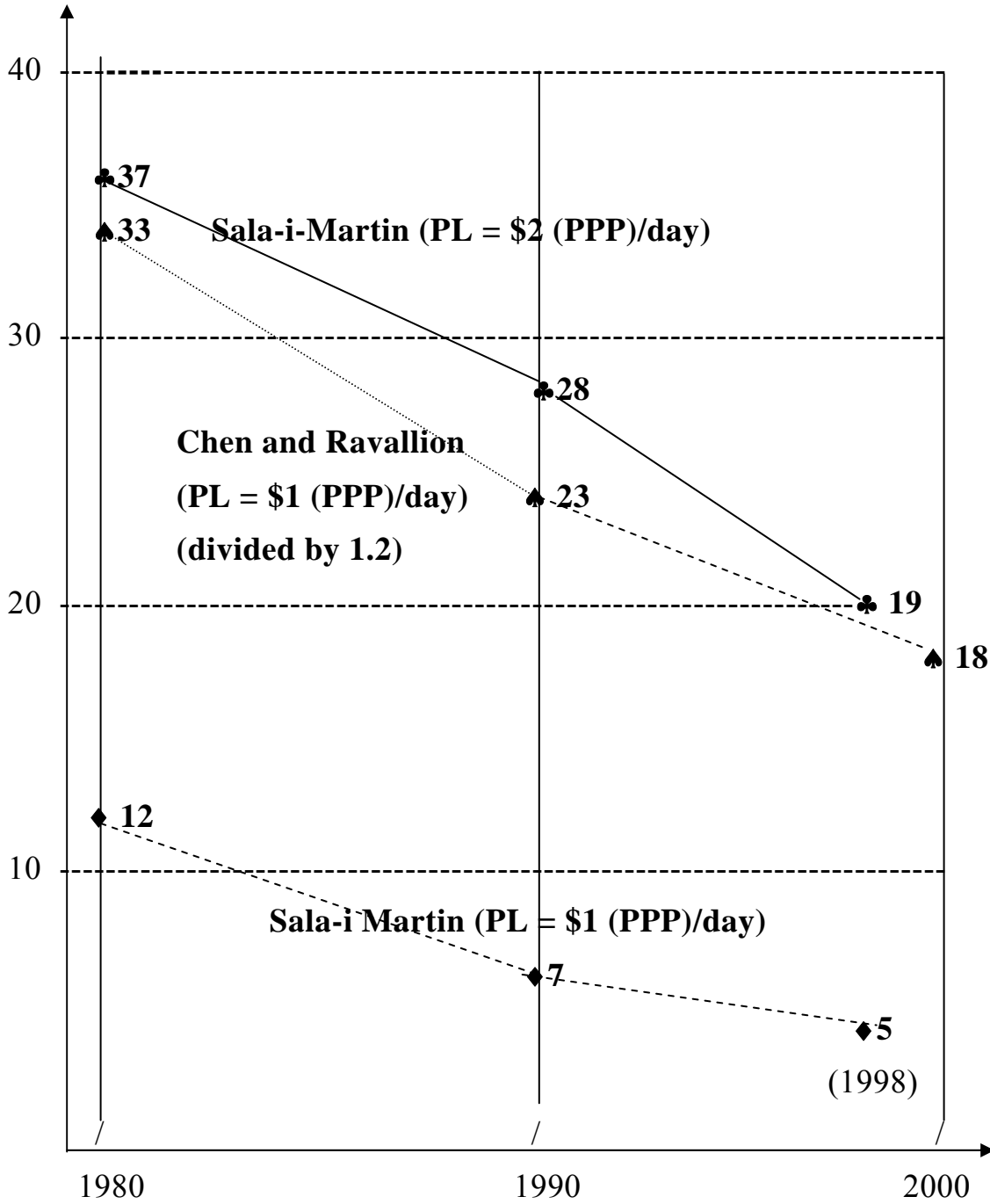
$$HI = GNI - (GOVEXP + INVEST + EXPEN \text{ by Non-Profit-org})$$

In low- and middle-income countries, HI accounts for about 50% of GNI (see World Development Indicators, 2003, table 4.9).

Increased **comparability** between the various poverty estimates can hence be accomplished by using a higher poverty line for the national account-based estimations. When a \$2 (PPP)/day poverty line is applied by Sala-i-Martin, his and the WB \$1.08 estimates for the 1981-2000 period become **almost identical** (when the denominator is the **world population** in both estimations) (see [8.20]).

## [8.20] The Puzzle Resolved?

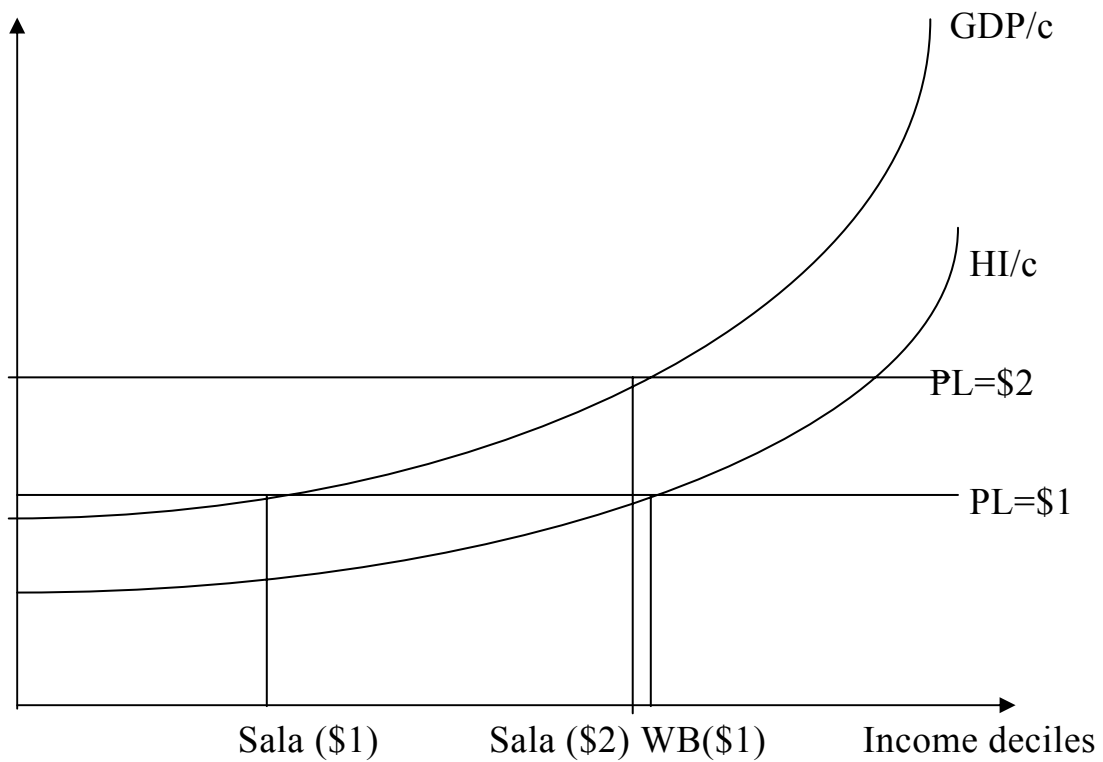
Poverty rate (%), with world population as the denominator



Sources: Sala-i-Martin 2002, Figure 5; Chen and Ravallion 2004, table 3.

**[8.20a] Reconciling WB and Sala-i-Martin's poverty estimates**

Y/capita/income deciles



The World Bank's poverty line at \$1 per day is calculated from basic minimum household income/expenditures. Since household income is only about 50% of GDP, a poverty line for GDP/c should be higher to be comparable (e.g. \$2)

## **[8.21.a] Resolved? Not really!**

A big remaining question that is difficult to resolve is whether household income (HI) data, or national account (NA) data are **best suited** for poverty estimations.

### **Neither data set is “perfect”!**

#### **1) Both contain systematic measurement errors (bias)**

**HI:** Systematic under-reporting by the better off;

Long recall periods meaning that many expenditures forgotten

**NA:** Do not include non-market (subsistence) income (50 %?)

#### **2) What kind of “incomes” affect welfare in a broader meaning?**

**HI:** do not include public provision of government services (e.g. public education and health care)

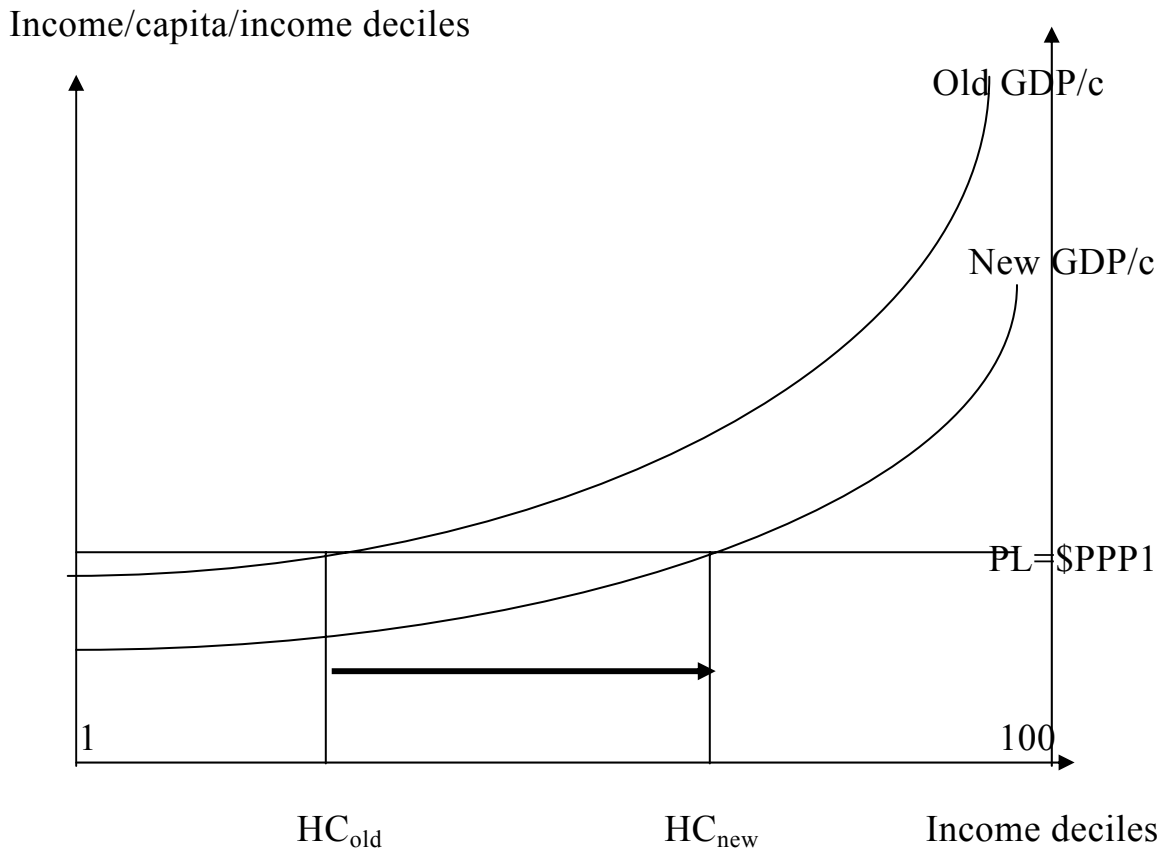
**NA:** include many expenditures that are remotely affecting consumer welfare (e.g. defence and many government activities).

Also to notice: Academic infighting!

\* No citation in Chen and Ravallion (2004) to Sala-i-Martin and Balla

\* No serious attempt in Sala-i-Martin (2002) to make clear why his estimates deviate so much from World Bank!

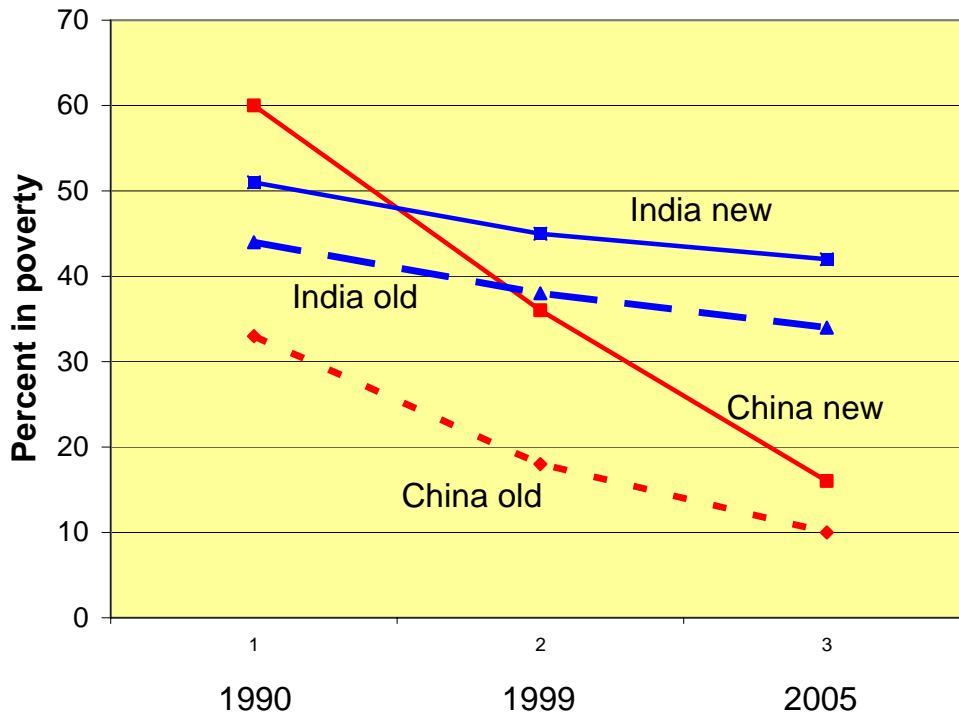
**[8.21.b] Recent re-estimation of \$PPP GDP/capita in China, India and most other countries: huge potential increase in estimated poverty**



With a downward revision of per capita \$PPP income of 40-50% in the case of populous China and India, the effect on estimated poverty in these countries and in the world must be quite dramatic.

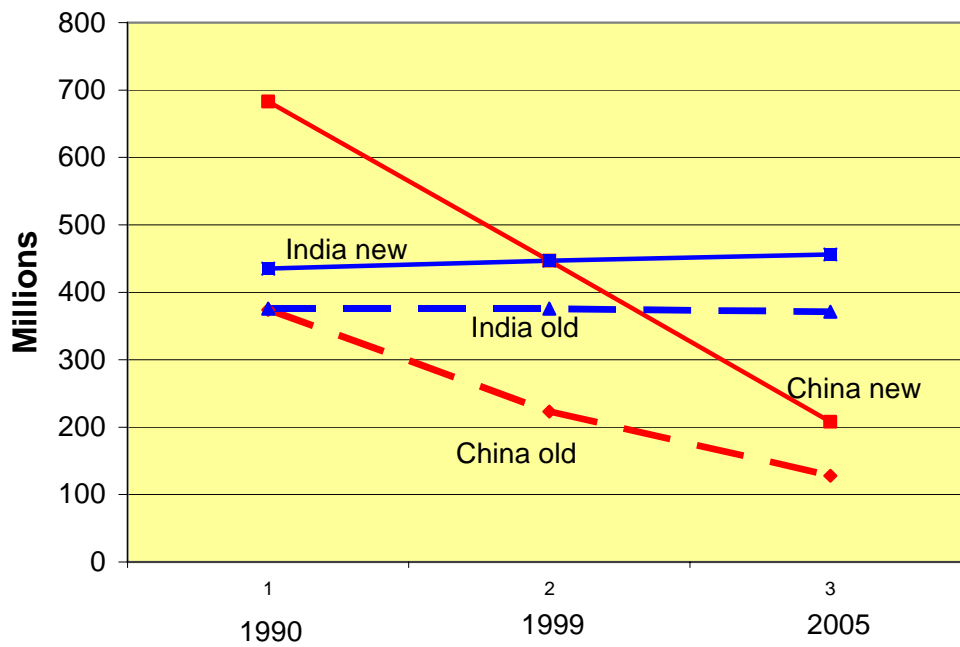
***New estimates from the World Bank released this year!***

**[OH 8.21.c] Share of population in poverty in  
China and India 1990 - 2005 by old and new World  
Bank estimates**





**[OH 8.21.d] Million of people in poverty in China and India 1990 - 2005 by old and new World Bank estimates**



**[8.22] Can Poverty be reduced through redistribution of income?**

**Thought Experiment:** Transfer one-third of income of the top 20 per cent in the population to the poorest 40 percent. Base data World Bank:

**India:** total GNP = \$1,587 billion; population = 961 million; GNP/c = \$1,650

**Brazil:** total GNP = \$1,020 billion; population = 164 million; GNP/c = \$6,240

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	<b>India</b>		<b>Brazil</b>	
	<b>Low 40</b>	<b>Top 20</b>	<b>Low 40</b>	<b>Top 20</b>
<b><u>Situation before transfer:</u></b>				
<b>Group's % of total income</b>	<b>22.2</b>	<b>39.3</b>	<b>8.2</b>	<b>64.2</b>
<b>Total income of group (bill)</b>	<b>352</b>	<b>624</b>	<b>84</b>	<b>655</b>
<b>Million of people in group</b>	<b>384</b>	<b>192</b>	<b>66</b>	<b>33</b>
<b>Per capita income group (\$)</b>	<b>920</b>	<b>3,250</b>	<b>1,275</b>	<b>20,000</b>
<b><u>Situation after transfer:</u></b>				
<b>Initial income per capita (\$)</b>	<b>920</b>	<b>3,250</b>	<b>1,275</b>	<b>20,000</b>
<b>Transfer per capita (\$)</b>	<b>535</b>	<b>-1,070</b>	<b>3,333</b>	<b>- 6,667</b>
<b>New Income per capita (\$)</b>	<b>1,455</b>	<b>2,180</b>	<b>4,608</b>	<b>13,333</b>
<b>Increase of income (%)</b>	<b>58</b>	<b>- 33</b>	<b>262</b>	<b>- 33</b>

[8.23] **Obstacles** to **income** redistribution in developing countries:

**1. Economical:**

- \* Redistribution through taxation stifles **growth?**

**2. Political:**

- \* The relative well-off have the **political power** and usually object redistribution

**3. Technical obstacles for re-distribution through income taxation**

**(Bird and Zolt 2005, table 1-3):**

- \* Incomes not **declared and recorded**
  - \* Most taxes are not on **income taxes** (but sales, trade, corporate taxes)
  - \* **Identification** of individual poor households “technically” difficult (waste literature on “targeting”).
- 

**Asset (re)distribution more efficient, but rather long long-term?**

- \* **Land**
- \* **Private physical capital (credit for the poor)**
- \* **Human capital (education)**
- \* **Political power as an asset (democratisation)**

## [8.24] Social Poverty Conditions and Growth:

### The Simultaneous Inter-relationships

Three basic questions:

1. How close is the correlation? — irrespective of causality
2. How does growth affect social conditions?
3. How do “social conditions”, in turn, affect growth?

1) Closeness of Correlation and the Human Development Index (HDI) from the UNDP. Countries are ranked by a weighted index of GDP per capita, life expectancy and adult literacy.

Table 8.4. Correlation coefficients ( $0 < r < 1$ )

Variables	Low HDI (n=44)	Med HDI (n=40)	High HDI (n=46)	Developing (n=99)	All countr. (n=30)
HDI & GDP/capita	0.53*	0.53*	0.65*	0.89*	0.93*
LEB & GDP/capita	0.39*	0.31**	0.32**	0.83*	0.88*
Literacy & GDP/c	-1.14	-0.28	0.31**	0.61*	0.74*

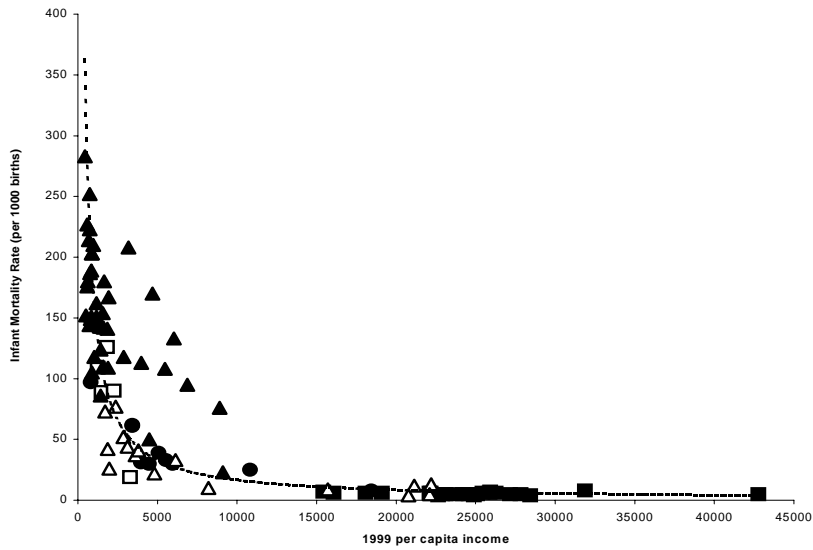
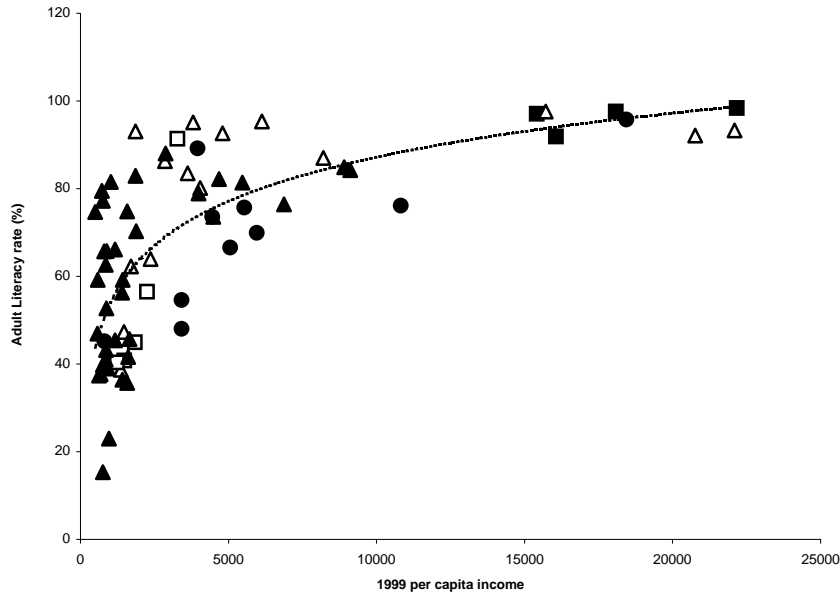
Source: McGillivray 1991, World Development

\* (\*\*) Significant at 99% (95%) level

#### *Critique of the HDI approach:*

- a) Ad hoc choice of (1) indicators and (2) weights
- b) Political choices (why is not democracy or human rights included?)
- c) Strong correlation with GDP per capita, meaning that little additional information is gained (except for poorest countries!).

[8.25] Figure 8.7. The association between selected indicators of social quality of life and per-capita income level, 1999



- OECD
- Middle East/North Africa
- △ South-east Asian countries
- South Asian
- ▲ Sub-Saharan Africa

Source: World Development Indicators 2001, World Bank

**[8.26] Test of Determinants of U5MR (on cross-country observations)**

$$\text{Model: } U5MR = \beta_0 + \lnGNPc \beta_1 + [X_i][\beta_i] + \varepsilon$$

where  $X_i$  is a row vector of n-1 additional explanatory variables and the  $\beta$ 's are the coefficients to be estimated.

**Table 8.5. Regression results. Dependent variable: *U5MR***

Explanatory Variables	(1)	(2)	(3)	(4)	(5)	(6)
lnGNPc	-174.9 (13.7)*	-183.4 (8.9)*	-173.7 (8.2)*	-146.1 (9.3)*	-142.8 (8.0)*	-143.2 (7.9)*
ALR	-0.8 (3.3)*	-0.6 (1.7)#	-0.4 (1.2)	-0.7 (2.6)*	-0.6 (1.7)#	-0.6 (1.6)
ACC	-1.0 (4.1)*	-1.2 (3.5)*	-1.0 (3.0)*	-0.8 (3.5)*	-0.9 (3.0)*	-0.9 (2.8)*
WAF	-	-0.2 (0.3)	0.1 (0.2)	-	0.7 (1.5)	0.7 (1.5)
FERT	-	-	10.1 (2.3)*	-	-	2.8 (0.6)
SSA	-	-	-	32.8 (3.1)*	28.2 (2.7)*	25.1 (2.1)*
SA	-	-	-	-15.1 (0.8)	-41.4 (1.2)	-42.5 (1.3)
No. Observation	73	53	53	73	53	53
R <sup>2</sup> -adjusted	0.80	0.75	0.76	0.83	0.79	0.79

Absolute value of *t*-statistic in parantheses: \* significant at 0.05; # significant at 0.10.

Source: Svedberg, P. (2000), *Poverty and Undernutrition*, ch 15. Oxford University Press.

## [8.27] Comments to Table 8.5

**ALR** = Adult literacy rate (%)

**ACC** = Per cent of population with **access** to basic sanitation, clean water and primary health care (unweighted averages)

**WAF** = Per cent of children below the age of five who have a **weight for age** below the norm consistent with health

**FERT** = Fertility **rate** (number of children per adult woman)

**Main result:** GNP/c alone explains 69% of the variation in U5MR across countries (not shown in Table 8.4). Adding ALR, ACC, FERT and a dummy variable for the sub-Saharan African countries only raises the explanatory power of the model to 83%. This tentatively indicates that income per capita is the by far most important variable explaining child mortality. (for an extension and update, see Svedberg, 2004a)

## [8.28] Quality vs Quantity in health indicators (cont'd)

Table 8.7. Input and Output indicators for selected countries 1998

	Input indicators			Output indicators		
	GDP/ capita  US\$ PPP	Total Health/ GDP (%)	Health Expen/ capita ( $\text{\$}$ )	LEB  (years)	U5MR  (%)	Adult Mort. Rate (‰)
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Botswana</b>	8,310	2.9	240	47	11	64
<b>Kenya</b>	1,130	2.6	29	52	10	50
<b>Nigeria</b>	820	1.3	11	51	15	40
<b>Uganda</b>	1,170	3.9	46	40	17	69
<b>Zambia</b>	860	3.3	28	40	15	75
<b>Zimbabwe</b>	2,150	6.2	133	44	12	70
<b>India</b>	1,700	5.6	95	63	9	21
<b>China</b>	3,220	3.8	122	70	5	13
<b>Brazil</b>	6,160	4.6	283	48	5	23
<b>Sweden</b>	19,480	7.3	1,422	79	0.7	8
<b>USA</b>	29,340	14.0	4,110	77	0.9	12

Sources: World Health Report 1999, A. Table 1 (columns 2, 4-6); World Development Report 2000, Table 1 (columns 1, 3).



## [8.29] Summary of lecture 8:

\* There are several **different poverty measures**; which one to choose depends on the question asked and data availability

\* The most commonly used measure, **the HCR**, is blunt as it does not measure the depth of poverty. The IGR and PGR useful for estimating severity of poverty.

\* The per-capita economic growth needed to reduce the HCR must exceed the population growth rate. The per-capita economic growth needed to reduce poverty in absolute numbers (HC) at the margin is:

$$y^* = \Delta P/P + 1/\varepsilon, \text{ where } \varepsilon \text{ is the poverty-income elasticity.}$$

\* According to the **World Bank's new** (2009) estimates of HCR, poverty in the developing world (using the new \$1.25/day poverty line) has declined from 42 to 25% since 1990, a drastic improvement.

\* However, the by far largest reduction of poverty has taken place in China, where the HCR has dropped from 60 to 16% and in absolute numbers, nearly 500 million Chinese have been lifted out of poverty.

### [8.30] Summary of lecture 8 (cont'd):

- \* In the rest of the developing world (as a whole!) there has been little change. The HCR has dropped from 35 to 28% only and around 1.2 billion people remain in poverty in these countries (with inter-country variations of course).
- \* Alternative poverty estimates show **lower prevalence** and **faster decline**. Which estimates are the most trustworthy is difficult to tell, but the recent thorough estimations of PPP in China and India are a great improvement.
- \* **Redistribution of incomes** in the developing countries could theoretically be a way of **alleviating poverty**, but many **obstacles** (political, economic and technical)
- \* Most social indicators and growth are highly correlated for **all countries**, but not for the **least developed** countries, signifying that government social policies here vary much more than in more developed countries.
- \* Large discrepancies across countries in **input-output indicators** of health.

**Literature to read:**

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**Further suggested readings:**

- Bourguignon, F. and C. Morrisson 2002, 'Inequality Among World Citizens: 1820-1992', *American Economic Review*, Vol.92, No.4, pp.727-44.
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- Reddy, S.G. and T.W. Pogge 2002, 'How *Not* to Count the Poor' (version 4.4; available at: [www.socialanalysis.org](http://www.socialanalysis.org)).
- Schneider, F. and D. Enste 2000, 'Shadow Economies: Size, Causes, and Consequences', *Journal of Economic Literature*, Vol.38, pp.77-114.
- Svedberg, P. (2004a), "Hunger and Malnutrition: An Alternative Perspective", in B. Lomborg (ed), *Global Crisis, Global Solutions*, Cambridge University Press.
- World Bank 2000/01, *World Development Report 2000/01*, New York: Oxford University Press.