

# Income Inequality in the World – Looking Back and Ahead

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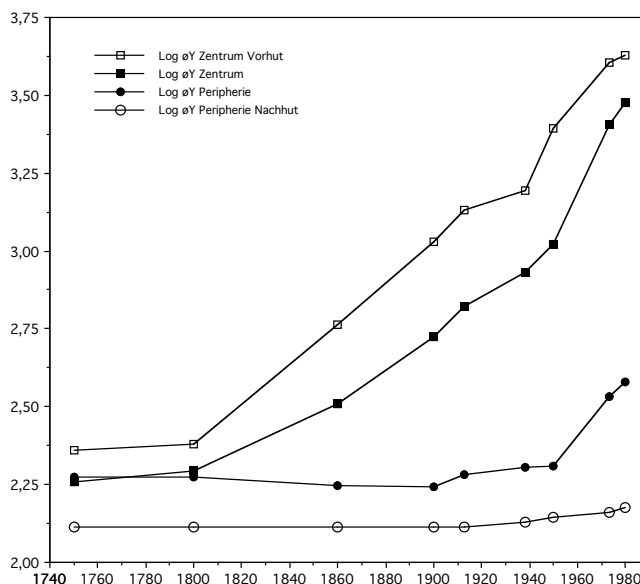
Forecast is a hard venture especially if it pertains to the future – a wise saying attributed to Keynes.

## Looking back

Before I shall make six forecasts about the future let me briefly recapitulate the past until now, acknowledging that the data are far from perfect.

For thousands of years during the evolution of human societies material inequality has been on the rise. A turning point in this history occurred only recently – two centuries ago – when average income levels between societies started to diverge, see **Figure 1**. Still between 1750 and 1800 the inequality comparing broad regions like Europe and China was mainly due to class differences in income and regional difference in fertility of the soil. From then onward diverging average income levels between societies increasingly became the main source of differences in income. Will this continue in the future? First back to past trends.

**Figure 1:** Polarization of average income levels from 1750 to 1980. Logged income per capita in different groups: core advanced (Vorhut), total core, total periphery, poor periphery (Nachhut)

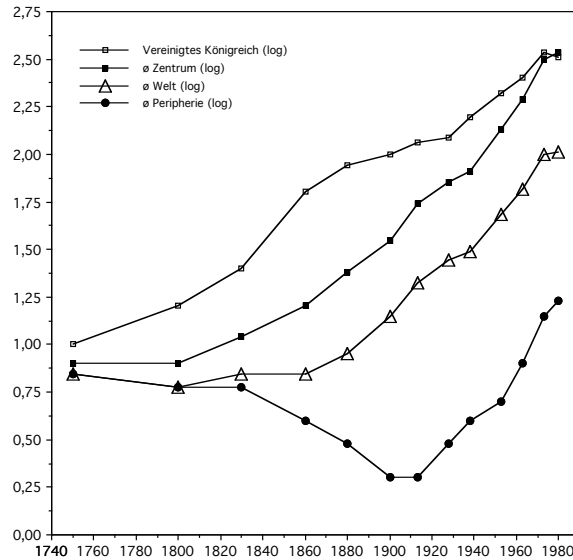


Source: Bornschieer, *Weltgesellschaft*, 2002: 330, 2008: 417. Figures from Paul Bairoch.

It would be tempting to relate the emerging divergence in income levels to the industrial revolution which started in Britain around 1750 and spread to the continent and European settler colonies during the early 1800s. This is the story which conventional modernization theory is telling us. Yet the size and pattern of this uneven development was not a consequence of industrialization as such. Instead, it was the consequence of two linked social processes – industrialization at the core and colonial rule at the periphery. This double peripherization was followed by a de-industrialization of the periphery, see **Figure 2**.

This specific economic and political power relation functioned at the advantage of the core and at the disadvantage of the periphery. For quite a while core countries enjoyed a monopoly in industrialization, with long lasting consequences.

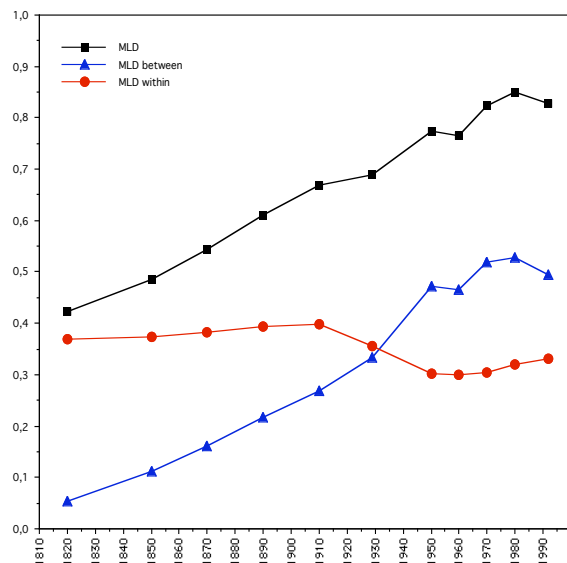
**Figure 2:** Industrialization and colonial rule: de-industrialization at the periphery. Logged per capita levels of industrial output 1750 to 1980. Standardized: United Kingdom (Vereinigtes Königreich) 1900 = 100. United Kingdom, total core, world, periphery



Source: Bornschier, *Weltgesellschaft*, 2002: 322 f., 2008: 408. Figures from Paul Bairoch.

Since the mentioned historic divide material inequality in the world continued to grow as it did before but at a faster pace. Between 1820 and 1992 total inequality doubled, see **Figure 3** (mean logarithmic deviation). Furthermore it changed its structure. In 1820 almost 90% of total inequality was due to the “within societies” component and this dropped to 40% at the end of the period, telling us that at the beginning of the 1990s almost two thirds of total inequality was due to the “between societies” component.

**Figure 3:** Increase of total income inequality (upper line) and its components: between societies (line below, going up) and within societies (middle line going down and up again), 1820 to 1992



Source: Bornschier, *Institutionelle Ordnungen und soziale Ungleichheit*, 2005: 102, *Weltgesellschaft* 2008: 70. Figures from François Bourguignon and Christian Morrison 2002.

## Processes in the 20th century – an overview

### Within country inequality

Inequality within societies which was increasing throughout the 19th century experienced marked drops after World War I and II. During the 1950s and 1960s income inequality achieved a historical trough – especially among rich democracies in the heyday of the Keynesian welfare state era.

The newly increasing inequality within countries which was setting in during the 1970s received great attention among scholars in social sciences. **Figure 4** demonstrates this newly emerging trend towards higher inequality within countries which holds for the majority of countries – although not for all. The trend did not stop in recent times but continues until 2000. The admittedly approximate data suggest that the trend was even more pronounced from 1990 to 2000. While it holds for the core, semiperiphery and periphery it seems to be even more pronounced for core countries.

**Figure 4:** Increase of “within” inequality, 1967–1992

Income inequality	World sample		OECD Sample	
	cases	%	cases	%
increasing	27	53%	9	56%
about constant	17	33%	5	31%
decreasing	7	14%	2	13%
	51	100%	16	100%

Source: Bornschieer, *Weltgesellschaft*, 2002, 2008: chapters 2 and 9.

### Increase of “within” inequality 1990–2000

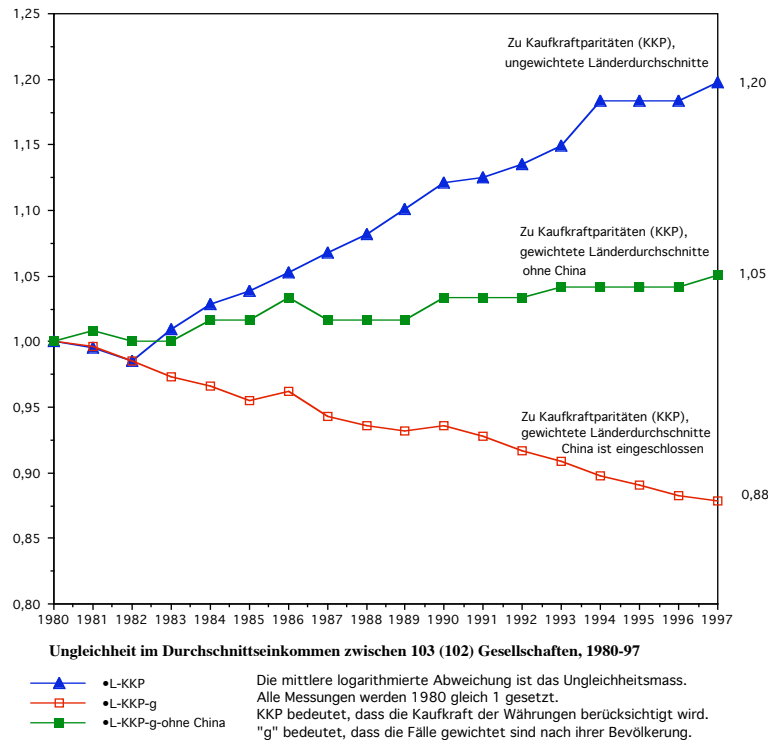
Income inequality	Developing countries		Rich countries	
	cases	%	cases	%
increasing	37	61%	14	68%
about constant	19	31%	4	19%
decreasing	5	8%	3	14%
Insgesamt	61	100%	21	101%

Source: Bornschieer, *Weltgesellschaft*, new edition 2008: chapter 9. Computed in collaboration with Hanno Scholtz.

### Between country inequality

Also average income differences between countries – a sample of 103 cases from 1980 to 1997 – continued to increase, see **Figure 5**. This finding has produced some unnecessary controversy and the following figures are shedding some light to the apparent differences in finding. Firstly, it demonstrates that the divergence also holds when purchasing power parities of income are used (which was contested). Secondly, it shows the effect of weighing the cases by population size.

**Figure 5:** The change of “between” income inequality (ppp) for a world sample of 103 societies, unweighed and weighed for population, controlling for the PR of China. Upper rising line unweighed, middle slightly rising line weighed, but without China, lower declining line weighed and including China



Source: Bornschieer, *Weltgesellschaft*, 2002: 281, und updates published in the 2008 edition of *Weltgesellschaft* (p. 369).  
 Legend: The mean logarithmic deviation is the measure of inequality which is set equal to 1 in 1980. The figure 1.20 for 1997 indicates that the mean logarithmic deviation has increased 20% over 1980.

When the same weigh to each country observation is given (what is the normal procedure in cross-national research) average income differences between the 103 cases have diverged during the 1980 to 1997 period. When we weigh cases by population (what is the necessary procedure in order to compute a between component of inequality for total income distribution), then the weighed income differences have been shrunk between 1980 and 1997. Figure 5 clearly demonstrates that the different trends are due to a single influential case, i.e., the PR of China.

Let me dwell a bit more on this point since it will be important for the forecast. Countries like China and India have enormous populations – representing together about 37% of the world population. To the extend that the economic growth rates of such influential cases deviate from the general pattern, this will have a considerable impact on the evolution of the world stratification of incomes. **Figure 6** gives details for growth rates over 30 years, 1975–2004, which are relevant for his issue. The figures for the different income layers are population weighed but do not include China and India, which are listed separately.

Over a quarter of a century the growth patterns over different income layers of the world income stratification in five-year periods (**Figure 6**) tell the following story: from 1975–79 stability can be observed, neither convergence nor divergence, from 1980–99 divergence or polarization is observed, and from 2000–2004 middle income layers were growing faster than the rich and poor income layers. This recent growth pattern – if it continues – will make the difference between the middle and the rich layers shrink and the difference between the poor layer and the rest grow. Last but not least, the separately computed growth figures for China and India over the six five-year periods always exceed the growth of any of the income layers, becoming very distinct after 1980.

**Figure 6:** Economic per capita growth in different income layers, 1975 to 2004, controlling for the PR of China and India by displaying their figures separately. Income layers according to World Bank definition

Income groups without China and India	Annual per capita economic growth, in %					
	75–79	80–84	85–89	90–94	95–99	00–04
high	2.5	1.1	2.9	1.5	2.2	1.8
upper middle	2.7	0.3	1.4	-1.1	0.9	3.4
lower middle	2.4	1.8	1.7	1.1	2.1	2.9
low	2.0	-4.1	1.0	-0.5	0.2	1.3
China und India	3.7	6.1	6.4	6.6	6.6	6.6

Source: Bornschie, *Weltgesellschaft*, new edition of 2008: 102. Computed in collaboration with Hanno Scholtz, data from World Development Indicators, World Bank, CD-Rom 2006.

Two findings from Figure 6 are relevant for the forecasts: (i) the much faster economic growth of India and China and (ii) the fact that for the first time in history, the high income layer has recently lost its lead in growth rates. These facts may indicate a beginning turning point in world inequality history.

In finishing my look backward I like to point to the most recent figures from Branko Milanovic for world income inequality and its components which cover also the 1990s, see **Figure 7**. The “within” component of world inequality is increasing also in the 1990s which is in line with the mentioned other findings, the “between” component is stabilizing at a high level indicating the beginning influences of the rapid growth of China and India, and as a consequence total inequality is stabilizing, too, yet at a very high level.

**Figure 7:** Most recent estimates for total, for “within” and for “between” inequality in world income distribution

Income inequality	Theil 1988	Theil 1993	Theil 1998
<b>Within</b> countries	20.3	22.8	23.2
<b>Between</b> countries	52.4	58.9	55.7
World inequality	72.7	81.7	78.9

Source: Branko Milanovic 2005: 112 (*Worlds Apart: Measuring International and Global Inequality*. Princeton: Princeton University Press).

## Forecasts

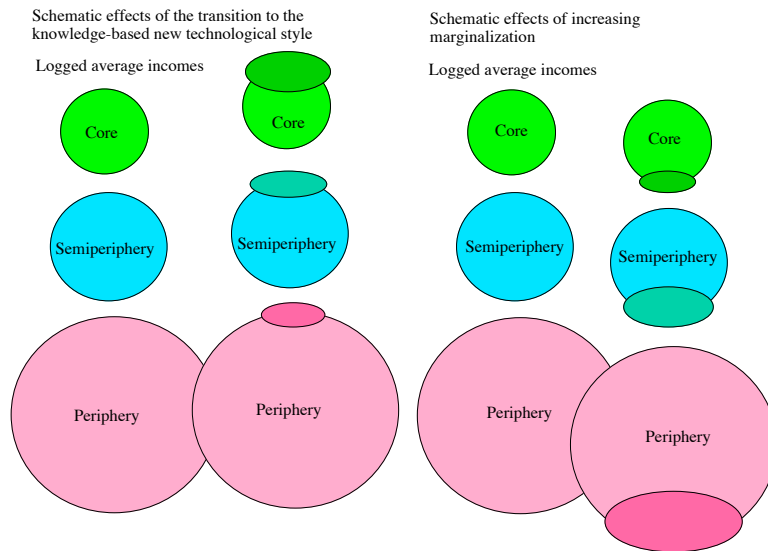
**1. Forecast.** Both “within” as well as “between” country inequalities (unweighed) are likely to increase in the next two decades. (See second forecast for weighed effects.)

Two main reasons for this first forecast can be brought forward:

- The transition to the knowledge-based new technological style (overview Fig. 8, details follow in Fig. 9)
- The impact of increasing marginalization (overview in Fig. 8 with details in Fig. 10)

Figure 8 graphically presents the jointly working effects: the sectoral change towards the knowledge-based new technological style and the increasing marginalization. The schematic presentation keeps the relative population size of the three income layers (symbolized by the size of the circles) constant. Both processes make for more income inequality within countries and at the same time polarize income between the three groups.

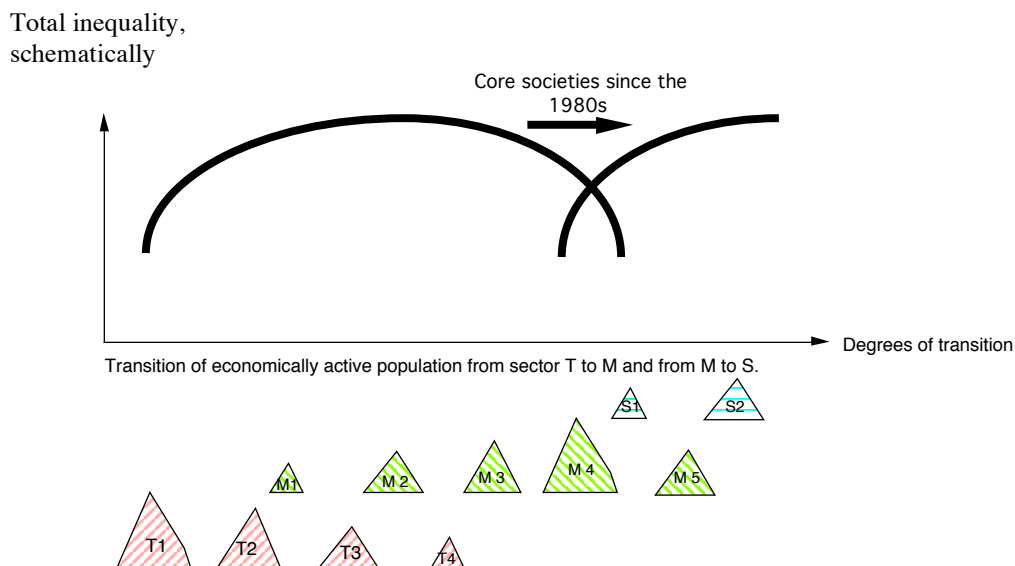
**Figure 8:** Graphical demonstration that the two effects together make for more within inequalities and for a polarization of income levels across core, semiperiphery and periphery. The transition to the knowledge-based new technological style (left part) has a greater impact for the core, whereas increasing marginalization (right part) has a greater impact outside the core.



### Sector transition

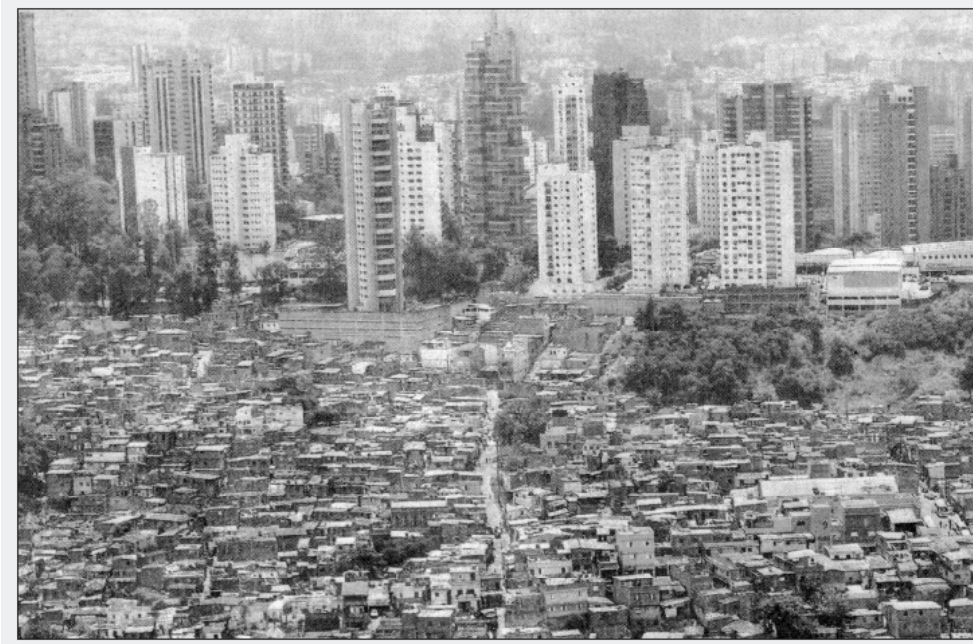
**Figure 9:** The theoretical impact of the transition to the knowledge-based new technological style. Kuznets-curves with more than two sectors. Change in total inequality is dependent on the transition of the economically active population between sectors with different average income.

Transition from traditional agriculture (T) to manufacturing (M) and from manufacturing to knowledge-based economy of the telematic era.



## Marginalization

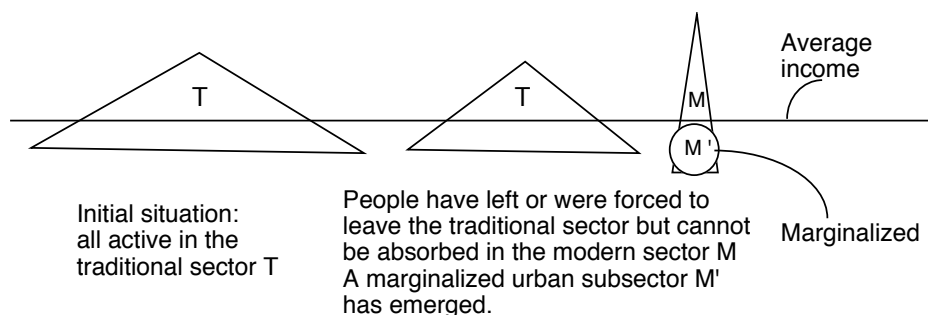
A telling visual representation of urban marginalization is given before we start with the argument.



Skyscrapers and favela in São Paolo. Source: *Neue Zürcher Zeitung*, 4.2.2008, p. 23.

Marginalization has an obvious impact on within inequalities. Less recognized is its role for enduring inequality at later stages of the rural-urban transition. The argument is as follows: At later stages of the rural-urban transition – when more than 50% having left the rural sector – total inequality will not decrease with further increasing size of the non-rural sector as the classical Kuznets argument would suggest. This is because such a decline would be dependent on the average productivity differences between the traditional sector and the rest. Marginalization in the urban sector, however, sharply reduces the mentioned differences which are necessary for such a decline.

**Figure 10:** The effect of marginalization



The classical Kuznets argument would suggest that total inequality starts to decline as soon as more than 50% are outside the traditional sector. But this will only happen if there are considerable differences in overall productivity between the two sectors. See below: the weight of the quadratic term (c) which would make for a decline at later stages of the transition is only dependent on such a difference in productivity which is, however, unlikely due to increasing marginalization.

The curvilinear model can be written as:  $s^2 = a + bx - cx^2$

The coefficient of the quadratic term (c) is a function of the average income differences between the two sectors, see below for a mathematical proof.

**Mathematical reasoning (text in German).** Eine formelmässige Herleitung, die an die Arbeit von Simon Kuznets (1955, 1966, 1971) anschliesst, ist bei Sherman Robinson (AER, 1976: 437) zu finden. Wir definieren die Populationsanteile von zwei Sektoren als:  $x$  in Sektor 1 und  $(1-x)$  in Sektor 2, wobei dann selbstverständlich gilt:  $x + (1-x) = 1$ .

Das gesamte logarithmierte Durchschnittseinkommen wird mit  $Y$  bezeichnet, das in den beiden Sektoren mit  $Y_1$  und  $Y_2$ . Dann gilt:  $Y = xY_1 + (1-x)Y_2$ .

$s^2$  ist das Mass für die Varianz der gesamten logarithmierten Einkommen, eines der gebräuchlichen Ungleichheitsmasse. Dieses Ungleichheitsmass ist zerlegbar:

$$s^2 = xs_1^2 + (1-x)s_2^2 + x(Y_1 - Y)^2 + (1-x)(Y_2 - Y)^2$$

Durch Umformung gelangt man zu:

$$s^2 = s_2^2 + [(s_1^2 - s_2^2) + (Y_1 - Y_2)^2]x - (Y_1 - Y_2)^2x^2$$

Durch Konstantsetzung, nämlich:

$$a = s_2^2$$

$$b = (s_1^2 - s_2^2) + (Y_1 - Y_2)^2$$

$$c = (Y_1 - Y_2)^2$$

gelangt man zu einem Polynom zweiten Grades:

$$s^2 = a + bx - cx^2$$

Given considerable marginalization, the less developed countries at later stages of the rural-urban transition will thus not benefit from decreasing inequality. Instead they become increasingly affected by the new dualism, the transition to the knowledge-based new technological style as modelled in Figure 9.

**2. Forecast.** Although polarization “within” as well “between” countries will be the prevalent trend for the coming two decades, total world income inequality may not increase but remain rather stable, albeit at a historically very high level. This is because world stratification of income will considerably change its shape.

The expected changing shape of world stratification of incomes is driven in large part by rapid economic growth in the two population rich countries China and India. Although this rapid growth is unlikely to last forever (as the historical growth trajectory of Japan suggests) it will be likely to continue for many years to come.

**The changing shape of income stratification.** For two centuries world income stratification had increasingly become a pyramidal shape with a privileged hydrocephaly (Wasserkopf) on top, i.e., the population in the rich countries at the core. The change already going on is into the direction of an onion-shaped distribution of populations over income layers, see **Figure 11**.

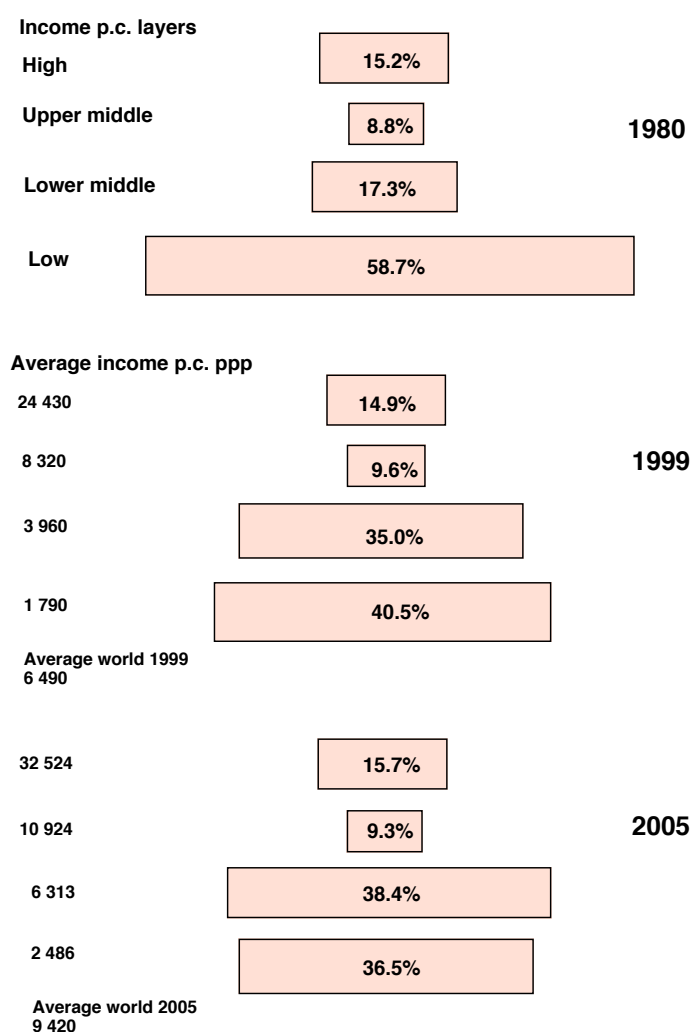
As emphasized, this historically remarkable shift is, however, to an overwhelming extent due to the shifts of only two cases, PR of China and India. Of course, there are several other cases with rapid economic growth adding to the trend, but in terms of population they are even together comparatively small as compared to the China and India's share in world population (PR of China's share in world population is 21.4% in 1980 and India's 15.2%, together they account for 36.6% of world population). Thus talking about the future of world income distribution over income layers one can – without making a too big mistake – concentrate on the predictions of the further growth trajectories of China and India. (Other population rich countries, like Brazil, Russia, Mexico and Indonesia, account together for only about half of only China's population.)

**Comment to the next figure.** In 1980 both China and India were still in the low income layer, i.e. at the bottom of world income stratification. In 1999 and 2005 China has switched to the lower middle income layer, whereas India still remained in the lower income layer. The likely soon shift of India to the lower middle layer will – other things being equal – reduce the population share in



the low income group from 36.5% to about 21.5% while the population share of the lower middle layer will increase by India's upward move. At the same time China will then have moved into the upper middle layer which will increase its share in world population from 9.3 to well over 30%. Therefore, the picture for 2005 given in Figure 11 is but a transitory one. In the years to come a population structure of about the following kind will emerge: 16% in the top income layer, 64% in the two middle income layers, and about 20% in the bottom layer – clearly an onion-like distribution.

**Figure 11: The beginning shift in the shape of the world income stratification.**  
Percentage shares of world population in four income layers, 1980, 1999, and 2005



Source: Bornschieer, *Weltgesellschaft*, new edition 2008: 85. Income layers according to World Bank classification. 1999 and 2005 GNP per capita ppp in USD.

### 3. Forecast

**Changing income differentials between the different income layers.** The mentioned comparatively lower growth of the upper income layer is novel and until now observed only for the short period 2000–2004 (see Figure 6). If this continues – and there are good arguments for it (see so-called beta-convergence) – then the middle and upper income layers will come closer together. This might have quite surprising different effects: the average citizen in rich countries will fall back in *relative* terms. For sure, only the lower classes in rich countries will be the *relative* losers while the

upper class can gain from global accumulation opportunities. The shrinking relative income privileges of lower classes in rich countries contrast with the relative income gains of the population in middle income countries. This seems relevant for people's perceptions even if the relative shares of lower classes in the middle income layers are shrinking. It may mitigate or even overcompensate their shrinking relative share as long as economic growth remains rapid. For quite a while this suggests a novel support for world capitalism since the world middle income layer will soon – if the second forecast is correct – represent a relative majority of world population.

While the upper and middle income layers come closer together, the bottom income layer falls back in relative terms. This might represent less a grave legitimacy problem for the whole distribution since the relative population size of the bottom layer will shrink (see forecast 2). And upward mobility into the middle income layers which will have taken place may well foster an ideology of the kind “one can do it if one really works hard”.

Talking about interest that may stem from the changing world stratification of incomes lead us to the next forecast which is, however, rather cautious in terms of politically relevant consequences of inequality.

#### 4. Forecast

**Will collective action as a reaction to inequality have a feed-back impact on inequality?** There exists a long history of thought in social philosophy and science to look at conflict and rebellion as likely reactions to inequality. The popular nexus which is also prominent in the Marxian model is: inequality → conflict → change in inequality. Our detailed cross-national results, based on a sample of 28 countries, suggest several noteworthy points of doubt, see **Figure 12**.

– First of all, objective inequality (as it is usually measured) has little effect on collective conflict articulation aimed at changing the structure of power and rewards. This is also supported by a recent meta-analysis of the research literature on that correlation (Mario Bazzani 2008).

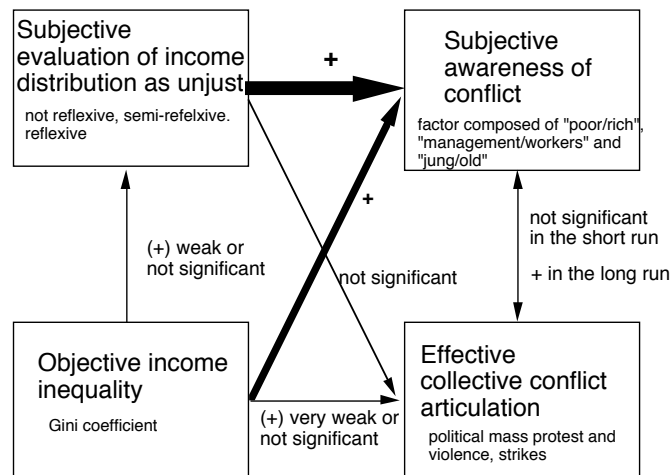
– Secondly, subjective evaluation of income distribution as unjust is hardly related to objective income inequality, probably because considerable absolute income gains due to rapid growth may compensate.

– Thirdly, subjective evaluation of income distribution as unjust is by far the most important predictor of subjective awareness of conflict. The latter, however, does not necessarily translate into collective action since political opportunity structures and considerable absolute gains in income intervene.

For the time being, collective reactions towards inequality will thus hardly have a significant feed-back effect on inequality. Conditions under which the latent conflict potential might turn into action will be mentioned in the last forecast.

The results displayed in Figure 12 are also in line with observations in the aggregate: Whereas inequality mostly increased in recent time, all available conflict data are on decline since the 1990s (figures available from the author, see also Bornschieer 2007, 2008).

**Figure 12:** Objective income inequality, subjective evaluation of income distribution as unjust, subjective awareness of conflict and objective, collective conflict manifestations



Source: Bornschieer, *Konflikt, Gewalt, Kriminalität und abweichendes Verhalten* 2007: 515ff, *Weltgesellschaft* 2008: 110ff. Results in collaboration with Thomas Volken.

## 5. Forecast

Reactions to absolute deprivation – like food riots, for example, in Egypt – are likely to have a more immediate political impact. But hunger relief measures are hardly changing overall relative deprivation, i.e. the unequal distribution of incomes.

Absolute deprivation – hunger – has been a topic not touched so far in this paper. The available figures suggest that absolute deprivation has become less salient over the last decades. World poverty headcounts at USD 1 per day declined in absolute and even more so in relative terms (see Chen and Ravallion 2004, Hillebrand 2008). Yet, the sudden recent surge in agricultural commodities prices (after twenty years of constant or even slightly decreasing real prices) will bring the issue of world hunger again to the fore. The attention of the public and politicians is quite considerable. For sure a moral issue is involved in the fact that a world of affluence is unable to fight the hunger of considerable populations. Last but not least it is obscene to see widespread hunger coexisting with starting obesity problems among the middle class youth, like, for example, in India. To feed the needed is an obligation, not only a moral one but also a question of political stability. Yet, even after having solved this problem this will not change the relative deprivation what is the topic of this paper.

## 6. Forecast and concluding remarks: the politics of inequality

**Class politics across national borders, will it become more likely?** Given the mentioned trends greater parts of lower classes in the world will – after long time – come closer together in terms of objective life conditions. In principle, this would work into the direction of world classes as such – much more than in the past. It seems, however, unlikely that such a “class in itself” will result in politics of a “class for themselves“ to use Marx' terms. The necessary solidarity is too hard to achieve. The emerging class in itself is heavily split into fractions: (i) into parts of the lower class which are downward mobile in relative terms and into parts of the lower class which are upward mobile in relative terms; (ii) into an integrated and legal part of the lower class vs a marginalized and illegal part. How difficult it is to achieve solidarity even among the for long time during the Apartheid regime heavily discriminated blacks shows present-day South African where the poor violently fight against the poorer.

More likely than class politics is therefore an increasing focus on alternative movements which absorb latent class conflict resulting from inequality, i.e., reactionary populist nationalism. It detracts the attention from "within" inequalities by focussing on "us" against "others". During the times of increasing inequality in the past decades this option has already quite frequently seen manifestations – in rich democracies and poorer societies alike. In poorer societies this reactionary branch of movements may go together with a contradictory anti-systemic thrust (anti-imperialistic, anti-capitalistic, anti-globalization), like, for example, in Malaysia (see annex, see also Malay reservation act/bangsa Malaysia program), in Venezuela, Iran and Russia. (As a historic example serves Nazi Germany.)

For the years to come this will be the likely way in absorbing much of the latent class conflict. Yet, as long as world economic growth remains high, this is hardly causing severe international disturbances. But the world economic boom associated with the diffusion of the new technological style will reach its peak in about a dozen years. After the ending boom such diverted conflict potentials may cause severe troubles for world peace. To prevent such a scenario means to fight inequality now.

**Annex.** Let me add brief excerpts from a longer speech by the Prime Minister of Malaysia, Mahathir Mohammad (1996):

"What does globalization hold in store for the developing countries? (...) (...)

A globalized world is not going to be a very democratic world. A globalized world is going to belong to the powerful dominant countries. They will impose their will on the rest. And the rest will be no better off than when they were colonies of the rich. History would have turned a full circle within just two generations. Fifty years ago the process of decolonization began and in a space of about twenty years was virtually completed. But even before all colonies of the West have been liberated, indeed before any had become truly and fully independent, recolonization has begun. And it is recolonization by the same people. (...)

This is what globalization may be about. This is a gloomy prediction. It is pessimistic. It does not contain much hope for the weak and the poor. But unfortunately it is entirely possible. And it will be unless the weak and the poor appreciate now this possibility and fight tooth and nail against it. There are ways of fighting the powerful. It will be a kind of guerilla war. But it can succeed. And that war can only begin if there is understanding of what globalization can mean. Of course globalization may bring about Utopia, a paradise on earth, a world of plenty in which everyone can have everything. But nothing that has happened so far seems to justify this utopian dream."

Source: Mahathir, Mohamad, Prime Minister of Malaysia. 1996. "Globalization – What it Means to Small Nations." Inaugural Lecture of the Prime Ministers of Malaysia Fellowship Exchange Programme at Dewan Merdeka, Putra World Trade Centre, Kuala Lumpur, on 24 July 1996. Extracts in *South Letter* (published by the South Centre), 3 (26), October 1996: 10–11.

## References

- Bairoch, Paul. 1982. "International Industrialization Levels from 1750 to 1980." *The Journal of European Economic History* 11 (2): 269–333.
- Bairoch, Paul. 1986. "Historical Roots of Economic Underdevelopment: Myths and Realities." Pp. 191–216 in Wolfgang J. Mommsen and Jürgen Osterhammel. Hg. *Imperialism and After. Continuities and Discontinuities*. London: Allen & Unwin.
- Bornschiefer, Volker. 2007. *Konflikt, Gewalt, Kriminalität und abweichendes Verhalten. Ursachen, Zeit- und Gesellschaftsvergleiche*. Zurich: Loreto. Order directly from the author ([bornschiefer@soziologie.uzh.ch](mailto:bornschiefer@soziologie.uzh.ch)).
- Bornschiefer, Volker. 2008. *Weltgesellschaft. Grundlegende soziale Wandlungen*. New and enlarged edition of 2008. Zurich: Loreto. Order directly from the author ([bornschiefer@soziologie.uzh.ch](mailto:bornschiefer@soziologie.uzh.ch)).
- Bourguignon, François und Christian Morrisson. 2002. "Inequality Among World Citizens: 1820–1992." *The American Economic Review* 92 (4): 727–744.
- Chen, S. and M. Ravallion. 2004. "How Have the World's Poorest Fared Since the Early 1980s?" *The World Bank Research Observer* 19 (2): 141–169.
- Hillebrand, Evan. 2008. "The Global Distribution of Income in 2050." *World Development* 36 (5): 727–740.
- Milanovic, Branko. 2005. *Worlds Apart: Measuring International and Global Inequality*. Princeton: Princeton University Press.