



Munich Personal RePEc Archive

Poverty, population, inequality, and development in historical perspective

Chilosi, Alberto

Department of Economics, University of Pisa

8 February 2008

Online at <https://mpra.ub.uni-muenchen.de/15961/>
MPRA Paper No. 15961, posted 30 Jun 2009 08:53 UTC

Poverty, Population, Inequality, and Development in Historical Perspective

Alberto Chilosi

Dipartimento di Scienze Economiche,
sede di Scienze Politiche - via Serafini, 3 - 56126 PISA (ITALY)
E-Mail: chilosi@sp.unipi.it

*The rich nation is the novelty, and the development
that makes entire nations rich is itself the pivotal
development of modern history*
(Asa Briggs, British historian, 1963)

Abstract

Seen in historical perspective the main economic issues of the present world (such as poverty, inequality, backwardness) appear in a somewhat different light than in many current discussions. The achievements of the modern age, and in particular of the post- World War II period, are considered in the perspective of economic and demographic history, and in their relations with the contemporary systems of production and of international relations.

JEL Classification: P0, 010, N0.

Keywords: poverty, population, development, distribution, inequality, international relations, globalization

1. Introduction

We live in a very unequal world plagued by poverty. Overall, economic progress is perceived as too slow, as the advance of “globalization” renders the inequalities and miseries of the world less tolerable than in the past. There is a widespread rejection in some quarters (radical economists and political scientists in particular) of the economic institutions of the modern world (identified under the garb of “capitalism” and “globalization”).¹ However, from the perspective of economic history, the present state of the world appears in a different light. A rather uncontroversial fact is that never in the history of mankind have there been so many paupers as in the present times. But the reason for this is that never there have been so many people around. Indeed, never in

¹ For a sympathetic survey of those opinions see Zolo (2007). For a confutation of all sort of widespread anti-globalization prejudices and conventional opinions see Bhagwati, 2007. For a forceful defence of capitalist globalization see Norberg (2003).

the history of the world has the percentage of (absolutely) poor people been so low. Moreover, quite recently even the absolute number of world paupers has kept decreasing. Economic inequality in the world as a whole has probably never been so high, but the reason is not, as sometimes hinted, that the lot of the poorer has worsened (“exploitation”), but the dramatic, albeit unequally distributed, economic betterment of the many. At the same time the propensity towards economic inequality (as captured by the extraction ratio, defined below) has probably never been so low. The green revolution and technological progress have contributed to decisively overcome the Malthusian trap and to bring about an impressive demographic explosion. Indeed, never in the history of the world has economic and demographic growth been so rapid as after WWII, greatly favoured by the absence of major wars,² of the sort that were endemic in the past, and by the extraordinary expansion of international exchanges. Global overall peace can be obviously attributed to the mutual threat of atomic destruction, but also to a change of perspective in international relations against the respectability of wars of aggression and conquest, leading to a change in the rules of the game that was already attempted, but utterly failed, after the first World War. The price to pay has been the lingering of the world on the brink of a global nuclear catastrophe, as well as the freezing of frontiers and national aspirations (which have surged again with a vengeance after the end of the Cold War). But Malthusian traps, and different forces leading to destabilization of relatively peaceful world coexistence (such as the inevitable diffusion of nuclear capabilities and the rise of nationalism in some quarters) are looming, with the possibility of drawing the post-war period of overall peaceful economic and demographic growth eventually to a close.

2. Poverty

Historically world population has been increasing at a very slow pace, amounting to near stagnation, held in check by high mortality rates, especially of child mortality. Per capita incomes have been mostly at what we would regard utter poverty levels, and whenever they have increased they have done so at a very slow pace, amounting, in the long run, to some small fraction of one percent yearly. Following the industrial revolution things have started radically to change. But never have world population and world income increased so tumultuously as after the Second World War; indeed, the explosion both in wealth and population in this post-war period has been an historical unicum. Scientifically speaking, from the perspective of the history of mankind, the anomaly to be explained is not backwardness and poverty, but development and wealth. The brakes that in the previous epochs constrained the growth of world population, and which started to slacken following the Industrial Revolution,³ have apparently been swept away by the progressive lengthening in life expectancy, leading to unprecedented demographic growth, which has been accompanied by unprecedented economic growth.

² This means all-out wars between major military powers.

³ Or more exactly, following the scientific revolution of the sixteenth and seventeenth centuries that has led first to the Industrial Revolution and, subsequently, through the medical and public hygiene innovations it was able to conjure, to the Mortality Revolution of the second half of the nineteenth century and later, coinciding with the times of what has been dubbed the Second Industrial Revolution (cf. Easterlin, 1996, pp. 7-9, 23-29, 69 f.).

Still, a large part of humanity lives in appalling poverty conditions. Indeed, **there has never been such a high number of poor people in the world as in the post WWII period.** If conventionally (very conventionally, indeed) we define, following the World Bank, as (absolute) poverty a daily consumption of less than two dollars,⁴ their number in 2001 was estimated as 2.7 billion,⁵ more than the entire world population in 1950.⁶ The number of extreme poor consuming less than one dollar a day in 2001 was reckoned to have been close to 1.1 billion, about the same as the entire world population in 1820 (which may be conventionally taken as the year of the coming of age of the Industrial Revolution in the UK and of its spreading outside); the number of the extreme poor in previous years is estimated to have been even higher, about 1.6 billion around 1980 (before the recent tumultuous growth of the economy of China). Most of them are concentrated in third world countries, but a few millions are living in (and a number of them leaving from) Eastern Europe and Central Asia (the so called transition countries).⁷ See the data in the following tables:⁸

⁴ Or rather 2.15 dollars a day at 1993 purchasing power (somewhat less than 800 dollars a year), corresponding to 2 dollars of 1985 international purchasing power. According to the World Bank definition 1.08 dollars of 1993 purchasing power a day (somewhat less than 400 dollars a year), corresponding to 1 dollar at 1985 international purchasing power, characterize extreme poverty. In the text we use the colloquially usual distinction of 1 and 2 dollars a day. (For the definition of the international poverty line see World Bank, 2005, table 2.5, "Poverty", http://devdata.worldbank.org/wdi2005/Table2_5.htm#definition; see also UNPD, 2007, p. 367).

⁵ Source: World Bank (2005), table 2.5 "Poverty", at http://devdata.worldbank.org/wdi2005/Table2_5.htm. It should be noted that there has been actually a decrease (estimated at about 400 million) in the number of the extreme poor (less than 1\$ a day) during the 20 years from 1981 to 2001, but only because of the reduction of extreme poverty in China, and some further decrease in the amount of the less extreme poor seems to be happening in the more recent years. For some recent discussion on world poverty estimates and some updating, see Chen and Ravallion (2004) and (2007) and Ravallion, Chen and Sangraula (2007). Recently the World Bank has updated its definitions following a revised and extended appraisal of PPP exchange rates. We shall deal with these issues in the next section.

⁶ See Table 1. We refer to the World Bank data as the most authoritative, even by no means uncontroversial, source. The accuracy of World Bank data has been challenged in particular by Dhalla (2002) who estimates a significantly lower number of absolute poor and a much faster decrease in poverty in the two decades of accelerated globalization, between 1980 and 2000.

⁷ The above data refer to Europe and Central Asia, but the poor in the area are essentially concentrated in the transition countries of Eastern Europe (including South-Eastern Europe) and of the former Soviet Union.

⁸ The figures are expressed in millions, the data are taken from World Bank, 2005, table 2.5.

Table 1. Number of people living with less than 2\$ a day⁹

Region	1981	2001
East Asia & Pacific	1,170	864
of which China	876	594
Europe & Central Asia	20	93 (113 in 1999)
Latin America & Caribbean	99	128
Middle East & North Africa	52	70
South Asia	821	1,064
Sub-Saharan Africa	288	516
Total	2450	2735
Excluding China	1,574	2,142

Table 2. Number of people living with less than 1\$ a day¹⁰

Region	1981	2001
East Asia & Pacific	796	271
China	634	212
Europe & Central Asia	3	17(30 in 1999)
Latin America & Caribbean	36	50
Middle East & North Africa	9	7
South Asia	475	431
Sub-Saharan Africa	164	313
Total	1,482	1,089
Excluding China	848	877

2.1 The migratory potential of the world poor

Taking into account the overall number of the world poor, one can appreciate the enormous migratory potential towards the more prosperous (or even the less poor) countries in a shrinking world, with potential far-reaching social and political consequences. The optimism of that callous globalizer, Jagdish Bhagwati, on the consequences for the receiving countries of unrestricted immigration seems on this account rather misplaced. In case the costs of immigration were drastically reduced by abolishing the administrative constraints, as seemingly advocated by him,¹¹ this would bring about as a logical consequence that the migration flows would intensify up to the point where the worse off in the better off countries would be about as bad off as the worse off in the worst off countries. The consequences in the richer countries would be

⁹ Source: World Bank (2005), table 2.5 "Poverty", at http://devdata.worldbank.org/wdi2005/Table2_5.htm. For revised and updated data see World Bank, December 2008, table 2, p. 11.

¹⁰ Source: ibidem.

¹¹ Bhagwati, 2007, pp. 217-218.

disastrous for inequality and social cohesion, possibly leading to the same degree of ethnic violence plaguing the most unfortunate of the developing countries, with disastrous economic consequences, which could reverberate disastrously on the poorer countries themselves.¹² But such an outcome is rather theoretical, since at a certain stage of the process the tensions of a sudden massive immigration would lead to the introduction of harsh measures for its further containment.¹³ After all, no country in the world does, to my best knowledge, admit free immigration. As Bhagwati himself reminds (2007, p. 218) “immigration restrictions are the flip side of sovereignty”. Countries of emigration can at the same time become countries of immigration from even poorer countries, such as notably in the case of Eastern Europe as a whole, or parts of North Africa.¹⁴

2.2 Poverty and transition

It is notable that the number of the poor in transition countries as a whole has reached a peak in 1999, just a visible sign of the hardship engendered by the transition process during the nineties, but since then it has started to decrease. The same applies to the percentage of the poor in the population in transition countries, increasing, according to World Bank data, from 0.4 in 1987 to a peak of 6.3 in 1999, decreasing to 3.6 in 2001 (for those living with less than 1\$ a day); increasing from 3.3 in 1987 to a peak of 23.8 in 1999, decreasing to 19.7 in 2001 (for those living with less than 2\$ a day).

¹² In the usual model of international trade free migration leads to greater efficiency (in the sense of the principle of compensation), but the political and social consequences, which could deeply affect the social fabric, and thus the conditions of production, investment, and exchange, are not considered.

¹³ For a discussion of the issue of what the consequences of unrestricted immigration would be, see Chilosí, 2002.

¹⁴ On South-South migrations see Hujo and Piper, 2007.

Table 3. Percentage of the poor in Eastern Europe (in 2002)¹⁵

	Below1\$ a day	Below 2\$ a day
Albania	<2	11.8
Belarus	<2	<2
Bosnia	nd	nd
Bulgaria	4.7	16.2
Croatia	<2	<2
Cz. Rep.	<2	<2
Estonia	<2	5.2
Hungary	<2	<2
Latvia	<2	8.3
Lithuania	<2	6.9
Macedonia	<2	4
Moldova	22	63.7
Poland	<2	<2
Romania	<2	14
Russia	<2	7.5
Ser. Mon.	nd	nd
Slovenia	<2	<2
Slovakia	<2	2.9
Ukraine	2.9	45.7

2.3 The world poor as a percentage

But on the whole the share of the poor in the human population has never been so low. According to the historical estimates reported in Bourguignon and Morrison (2002, pp. 731-732), and taking into account the number of conventional poor people in 2001, estimated by the World Bank, as well as the estimate of the size of world population in 2001, reported in table 4, the share of world population living in poverty diminishes from 94,4% in 1820 to 44% in 2001, that of those living in extreme poverty from 83,9 in 1820 down to 18% in 2001. In the end, taking into account the fact that in the period the share of the poor has been greatly reduced, the fundamental explanation of why there are so many poor people in the world is that there are so many people around. Indeed, human population has increased steadily and dramatically in the last two centuries, and in particular in the last few decades. Some relevant data are reported in table 4.

¹⁵ Source: as in table 1.

Table 4¹⁶ Human population in the course of history (in millions) ¹⁷

8000 BC	5
1000 BC	50
500 BC	100
1 AD	231
1000	268
1500	438
1600	556
1700	603
1750	790
1800	980
1820	1,041
1870	1,271
1913	1,791
1950	2,535
1960	3,032
1970	3,699
1980	4,451
1990	5,295
1995	5,719
2001	6,148
2005	6, 515
2008	6,641, the 1/1/2008, as projected according to the World population clock

To grasp the extent of the dramatic acceleration of population growth in recent times one may notice that the increase in population in the ten years between 1995 and 2005 (796 million) is more or less the same as that in the 10,000 years or so from the start of the agricultural revolution to the dawn of the industrial revolution (for which we may conventionally take year 1750).

¹⁶ The sources of the data are as follows: 8000 BC, Haub, 1995, p. 5, quoted in US Census Bureau (2007a); 1000 and 500 BC, McEvedy and Jones, 1978, pp. 342-351, quoted in US Census Bureau (2007a); 1-1700 and 1820-1913, Maddison (2006), p. 636; 1750 and 1800, United Nations, 1999; 1950-2005, United Nations, 2006, with the exception of 2001, taken from US Census Bureau 2007b. The data from 1800 in Europe and from 1900 in the other continents are regarded, by and large, to have a fair degree of reliability. The data concerning the previous years are just estimates or, even, more or less wild guesses. They should be considered to give an order of magnitude, rather than provide reliable data with any degree of precision (on this see Caldwell and Schindlmayr, 2002). Indeed, this applies even more to the estimates concerning national income in the tables that follow.

¹⁷ Looking at the first lines of the table, comparing them with the last ones, one is forced to come to terms with the fact that the momentous historical events of our distant past, recollected and magnified in history books, involved such comparatively insignificant numbers of people.

2.4 The evaluation of poverty

Of course this depends crucially on the definition of the poor. Here we use the World Bank definition, whereby the poor are defined in terms of absolute purchasing power, establishing “a realistic lower bound for the minimum ... level of consumption to meet basic human needs (World Bank, December 2008, p. 2). This may not well correspond to a subjective, socially and environmentally conditioned, definition of poverty, in the sense of deprivation (see on this point, in particular, Kenny, 2006). Subjective deprivation may be a function of achieved living standards, and increasing expectations (cf. Easterlin, 1996, pp. 131-144). Relative poverty depends on distribution. Then there is subjective poverty that depends on habits and aspirations, where the latter increase with the diffusion, facilitated by the means of mass communication, of the consumption models of the better off. We shall be concerned only cursorily with these issues. All this is perfectly true, but without a common measure one could hardly make intertemporal comparisons. Of course, in making the latter one should ideally go into detail as to the specific relevant circumstances of the various cases (possibly extending the narrative to the whole range of Sen’s capabilities). Here we may be content to note that the trends in average incomes are corroborated by comparable trends in life statistics (see below).

How are the poverty benchmarks of the World Bank at 1\$ a day and 2\$ a day set? Basically the first refers to average national poverty level of the poorest countries of the world, and the second to the average national poverty level of the developing countries as a whole.

Recently there has been a reevaluation of the dimension of world poverty by the World Bank, following a new expanded data base of household income and expenditure surveys, and a new comprehensive assessment of the PPP exchange rates. A new extreme poverty benchmark level has been set at 1.25 US\$ at 2005 purchasing power, and the new poverty level at 2 US\$ 2005 purchasing power. According to the new estimates extreme poverty is more widespread than according to the old. The amount of people living in extreme poverty is estimated at 1.4 billion people, and that of those living in poverty at 2.5 billion. The percentage of the world population living in poverty has been revalued at 47%, and of those living in extreme poverty at 25%. However the dynamic aspect of world poverty has remained more or less the same, since “over 15 years global poverty fell by an average of 1 percentage point a year” (World Bank, 2008, p.1). Moreover “Global poverty measured at the \$1.25 a day line has been decreasing since the 1980s. The number of people living in extreme poverty fell from 1.9 billion in 1981 to 1.8 billion in 1990 to about 1.4 billion in 2005” (*ibidem*, p. 10). At the same time “the poverty rate for all developing countries measured at [the median poverty rate of 2 PPP\$ 2005] fell from nearly 70 percent in 1981 to 47 percent in 2005, but the number of people living on less than \$2.00 a day has remained nearly constant at 2.5 billion” (*ibidem*), less than the 2.7 billion estimated in 2001 according to the old criteria. This obviously is the consequence of the fact that the purchasing power of 2\$ in 2005 is markedly less than that of 2\$ in 1985. The criteria used for defining extreme poverty according to the new benchmarks are still the same as before—“the poverty line typical of the poorest countries of the world” establishing “a realistic lower bound for the minimum... level of consumption to meet basic human needs” (*ibidem*, pp. 1-2). In particular, “the new extreme poverty line is set at \$1.25 a day in 2005 PPP terms, which represents the mean of the poverty lines found in the poorest 15 countries ranked by per capita consumption” (*ibidem*, p. 22). In turn \$2 a day in 2005 PPP terms represents the

median poverty line for the developing countries of the world (*ibidem*, p. 10). In the present text we do not take advantage of the new evaluations, because they represent a rupture in relation the previous historical data set that reduces historical comparability (“as a result of revisions in PPP exchange rates, poverty rates for individual countries cannot be compared with poverty rates reported in earlier editions” of *World Development Indicators* (*ibidem*, p. 22)). Our focus is on history and dynamic change in the very long run, for which the old estimates are more suitable, pending a recalculation of older data using the new methodology.¹⁸

3. An unequal world

While a considerable share of the world population still lives in poverty, world income and wealth are very unequally distributed. A recent research by *Wider*, the ONU economic research centre on poverty and development¹⁹ (Davis et alii, 2006a), shows the extent of world inequality in the distribution of personal wealth:²⁰

The 24 richer OECD countries own 83% of world private wealth (64% at PPP\$) with only 15% of world population and a per capita wealth of \$116,000 (114,000 at PPP\$). The 64 poorest countries with 40% of world population own 2% of world personal wealth (8% at PPP\$), with a per capita wealth of 1000\$ (5000 at PPP\$)²¹

In 2000 the 1% richest adults owned the 40% of overall private wealth (32% in PPP\$ terms)²²; the richest 10%, 85%; the poorest 50%, 1% (4% in PPP\$ terms).²³

The Gini index of inequality of overall world wealth distribution (calculated using current exchange rates) is given as 89 (80 in PPP\$ terms)²⁴, the same as that of a group of 10, where 1 has 1000, and 9, 1 each.²⁵

Income is distributed less unequally than wealth, but still in a markedly unequal way. According to most estimates, reported in Milanovic (2006, p. 8), the Gini coefficient of

¹⁸ This is particular relevant for connecting to the historical estimates in Bourguignon and Morrison (2002).

¹⁹ World Institute for Development Economics Research: <http://www.wider.unu.edu>.

²⁰ Where personal wealth is defined as “the value of physical and financial assets less liabilities” (Davies et alii, 2006a, p. 1). The data refer to the year 2000. Methodology: “average wealth level: based on household balance sheets and wealth survey data for 38 countries (56% of the world population and 80% of wealth) extended by regression methods to most other countries region--income class averages imputed to remaining countries...distribution of wealth: based on distribution data for 20 countries wealth concentration estimated from income distribution for most other countries region--income class averages imputed to remaining countries” (Davies et alii, 2006b). The data considered refer to the year 2000, and are either measured in dollar terms at the current exchange rates or in Purchasing Power Parity dollars. It must be noted that passing from current dollars to PPP\$ reduces somewhat world inequality, since the dollar purchasing power is usually higher in poorer countries, but it does not alter substantially the global picture. It should be noted that an inquiry such as the one referred to above is based on limited data and fraught with methodological difficulties; therefore one should stress that, as is always the case with statistics, but even more in the present instance, the data should be considered to give some order of magnitude rather than to be taken at face value. For a detailed explanation of the methods used in the inquiry one may refer to the source.

²¹ *Ibidem*, Table 8.

²² “37% reside in the US, 27% in Japan” (Davies et alii, 2006b).

²³ Davies et alii, 2006a, Table 10, and Table 11a.

²⁴ *Ibidem*, Table 12.

²⁵ Davies et alii, 2006b, p. 9.

world income distribution is around 65% in the contemporary world.²⁶ To make a comparison, the Gini index of the distribution of family incomes of Italy is reported as 36, that of the USA 45, that of Sweden 25.²⁷ The state where the Gini index appears to be highest, among those reported in CIA's *World Factbook*, 2007 is Namibia with 71, but probably only because in other, even more unequal, third world countries no statistical data allowing its calculation are available.²⁸

Table 5. Poverty and income distribution in recent world history²⁹

year	Gini coefficient of world income distribution	Percentage of the population living in Poverty	Percentage of the population living in extreme poverty
1820	0.500	94.4	83.9
1850	0.532	92.5	81.5
1870	0.560	89.6	75.4
1890	0.588	85.7	71.7
1910	0.610	82.4	65.6
1929	0.616	75.9	56.3
1950	0.640	71.9	54.8
1960	0.635	64.3	44
1970	0.650	60.1	35.6
1980	0.657	55	31.5
1992	0.657	51.3	23.7
2001	0.657 (0.699)	44	18

²⁶ The paper by Milanovic contains an interesting critical review of the different methodological approaches used to get those values. From the historical viewpoint it is believed that in the past income differences inside nations were relatively more relevant than nowadays in the determination of global inequality. In the pre-industrial world more than half of global income inequality could have been due to inequality in income distribution **inside** nations, while today the prevailing component, about 70%, is deemed to be due to differences in average per-capita incomes **between** nations (Milanovic, 2006, p. 9). On the other hand in more recent times, in the eighties and nineties, the weight of the inside nations component seems to have somewhat increased (cf. Nel, 2006, p. 697): The greater growth rate of less developed countries as a whole should be a factor leading to the reduction of the between nations component, while increased inequality inside developed countries would be a factor contributing to the increased inside inequality component. According to the data reported in Bourguignon and Morrison (2002, p. 731) there has been an increase through time in the world Gini coefficient, from 0,50 in 1820 up to the present values (see table 5). Values for so far away periods seem to be rather speculative estimates, even more daring than the speculative estimates needed to arrive at an aggregate measure for the contemporary world as a whole. But it seems plausible that the differences in incomes should have been lower in the past, owing to the fact that the great bulk of the population was living close to subsistence level, and given the low overall average per capita incomes.

²⁷ The Gini coefficients above are taken from CIA (2007).

²⁸ Such as in Equatorial Guinea that, according to CIA (2007), has the "fourth highest per capita income in the world" but where the great bulk of the population allegedly lives in desperate conditions with less than a dollar a day (cf. also "Playboy waits for his African throne", *Sunday Times*, 3/9/2006, available at: <http://www.timesonline.co.uk/tol/news/world/article626511.ece>).

²⁹ Data taken from Bourguignon and Morrison (2002, p. 731); the data of the last row are calculated from population data in table 4 and World Bank poverty data. The Gini coefficient in the last row is calculated by Milanovic (December 2007) from 2002 World Income Distribution Database. The figure between brackets refer to the recently revised set of PPP\$ exchange rates (ibidem).

4. What is the source of the present high inequalities and what can we do about it

4.1 Poverty, inequality, and maximum potential inequality

According to the previous table, while world inequality, as measured by the Gini coefficient, has steadily increased since 1820 (an increase of about 31% in Table 5), the proportion of paupers in the world has steadily decreased. In more recent times the inequality of income distribution inside nations seems on average to have somewhat increased, but the trend is not uniform in the different regions of the world.³⁰ At the same time the changes in the world Gini coefficient of the present in relation to the more recent past are of a quite different order of magnitude as compared to the dramatic increase in per capita incomes. This signifies that the rate of surplus extraction (“the inequality extraction ratio”) has dramatically decreased, where the inequality extraction ratio is defined as the share of maximum potential inequality reached by actual inequality, given the relative size of the elite (where the actual size of the elite appears to have relatively minor practical importance in the determination of the maximum possible, but still compatible with a the minimum subsistence level of the bulk of the population, Gini coefficient).³¹ In this perspective, the maximum of potential inequality depends on average income and subsistence income: if the incomes of the masses are maintained at physical subsistence level the surplus that is left corresponds to the rate of maximum potential extraction. The higher per capita income, the higher is the extent of maximum potential extraction. If the degree of statistical inequality is constant, an increase in average income translates into a lower rate of extraction, revealing a lower degree in the actual pursuit of inequality. This indeed is what has historically happened: the overall extraction rate has steadily decreased, a trend which could have been a consequence of the changed nature of political and economic institutions and of greater economic and social complexity, both a cause and a consequence of modern economic growth. To some extent inequality may be a consequence of the rules of economic organization (the economic system) that allow the attainment of the given production level (as argued, with some exaggeration, by Marx, 1875: “any distribution whatever of the means of consumption is only a consequence of the distribution of the conditions of production themselves. The latter distribution, however, is a feature of the mode of production itself”). Thus it is conceivable that under real circumstances inequality could not be reduced below some level (such as measured by the Gini coefficient) without bringing about a reduction of income produced, and of its growth.³² At the same time too much inequality can have a negative impact on income and growth.³³ One could then modify

³⁰ See IMF (2007a, pp. 138 f.).

³¹ Cf. Milanovic et alii, 2007, p. 10.

³² “An artificially compressed distribution of income differs from the optimal distribution based on differences in talent, merit, and effort, and for this reason inhibits growth by affecting incentives, labour shirking, and free-riding behaviour” (Cornia, 2004, p. 9), where the implied optimality presumably refers to the objective of fostering growth, and perhaps to some implied social welfare function.

³³ Cf. Milanovic et al. (2007, pp. 29-30): “More political power and patronage implies more inequality. The frequent claim that inequality promotes accumulation and growth does not get much support from history. On the contrary, great economic inequality has always been correlated with extreme concentration of political power, and that power has always been used to widen the income gaps through rent-seeking and rent-keeping, forces that demonstrably retard economic growth.” For the relationship of inequality and growth, and the hypothesis that could be u-shaped (too little as well as too much inequality being adversary to growth) see Cornia et al. (2004).

the concept of extraction rate as referring to the additional inequality above the minimum level compatible with the attainment of the given per capita income. Operationally one could, for instance, take as an upper bound to the minimum amount of inequality compatible with the sustainable production of the given per capita income the minimum level of inequality in comparable economies having similar levels of per capita income and the lower bound to the maximum level of possible inequality the maximum level of inequality in comparable economies having similar levels of per capita income. The extraction rate would then refer to the proportion of the difference between the two concretely attained by an individual economy. The above viewpoint could anyway strengthen the conclusion that overall the rate of surplus extraction (above the minimum subsistence level) is lower nowadays than in the past, since a part of existing inequality could be seen as a necessary consequence of running a highly productive complex economic system. Obviously one thing is inequality of incomes, another inequality of welfare. The latter is a very elusive concept, but it is what really matters. The first is at best a proxy. In considering how does income inequality translate into inequality in welfare it seems reasonable to assume decreasing utility of income, appraised for instance through “extended sympathy” (putting oneself in somebody else’s shoes). And this too could strengthen the conclusion that overall the rate of surplus extraction (this time in welfare terms) has become lower.³⁴ In the end, seen in an historical context, the extent of present inequality appears not to depend on the paupers of the world being worse off, since an increasing proportion of them are progressively lifted from a state of absolute poverty, but on the fact that on the whole the lot of humans has dramatically, albeit quite unequally, improved.³⁵

4.2 Demographic explosion, economic growth and medical progress

As a consequence of the unprecedented economic progress and of the diffusion of medical and hygiene innovations from the West to the Rest of the world, the rate of growth of world population has never been so high as after WWII (see Table 6). Among the regions of the world the highest demographic growth rate has been that of Africa, the poorest region with the least economic growth.³⁶ From this it is immediately evident that the strongest factor explaining the demographic explosion is the diffusion of medical innovations rather than economic growth per se (which at some stage leads to reduction

³⁴ See Milanovic et alii (2007). An instance of a recent reverse trend signalling an increase in the rate of surplus extraction could have been the steep increase of chief executives compensations in some advanced economies, which may amount to a sort of surplus extraction engineered by collusive behaviour.

³⁵ As Milanovic (2004, p. 24) puts it: “Average income levels also set an upper boundary on inequality. ... As societies develop, income inequality has the ‘space’ to grow simply because there is a surplus which can be appropriated or redistributed among members of the society.”

³⁶ The extreme poverty rate in Sub-Saharan Africa is reported as 41% in IMF, October 2007b, p. 20. On the whole the post-independence economic performance of African countries (with some exceptions, notably Botswana) has been dismal: “on average, over the period 1960–2000 Africa’s population-weighted per capita annual growth of gross domestic product (GDP) was a mere 0.1%” (Collier, 2007a, p. 16763). But African economic performance has much improved since the late nineties (cf. IMF, 2007a pp. 9, f.; IMF, 2007b); in Sub-Saharan Africa, in particular, per capita growth was running, before the recent economic crisis, at about 3% a year, not a bad performance considering the very high population growth rate (World Bank, 2007, p. 3).

of natality anyway).³⁷ The population explosion, together with the composite ethnic structure of the artificial political divisions left over from colonial times, replicated in the post-colonial state boundaries,³⁸ and the low educational attainments, contribute to explain the tensions and bloody conflicts that have engulfed that unfortunate continent.³⁹

4.3 What can be done

As to the concretely implementable measures for bringing about a more equal distribution, and reducing poverty, without affecting the unique engine of growth and welfare that has been running in the last sixty years or so of world history, there is no much clarity of thought. As is often the case, what appears at first sight, is not what really is, if one looks rationally at the implications.

4.3.1 Globalization, poverty and distribution

For instance the various proposals for limiting the extent of the liberalization of the world market, such as advocated by the various anti-WTO and trade-unions inspired movements, would probably hamper a main source of growth and economic improvement of the enterprising poor.⁴⁰ Indeed, it appears that for reducing the plight of the poor more globalization is needed, not less.⁴¹ Globalization improves the welfare of the worse off essentially because it is conducive to greater growth⁴² that spills over to the very poor.⁴³ However not necessarily globalization and growth, considering also the

³⁷ The impact of economic growth on the Mortality Revolution, and hence on demographic growth (before fertility controls step in) is downsized by Easterlin (1996, pp. 69-93).

³⁸ This does not mean that “natural” state boundaries would have existed anyway, given the patchwork distribution of ethnicities in the African continent.

³⁹ For a recent in-depth assessment of Africa’s economic predicaments see Collier, 2007a, and more amply, Collier 2007b.

⁴⁰ For the negative overall impact of protectionism on growth, see the quantitative inquiry in Milanovic (2005). Cf. also IMF (2007a, p. 157) for the favourable impact of international trade on the relative position of the lower quintiles.

⁴¹ For data on trade and financial globalization accompanying the high growth performance of developing economies in more recent times, especially since the nineties, see IMF (2007a, pp. 135-139). Trade globalization can be measured in terms of the increasing ratio of imports and exports to GNP, financial globalization as cross-border assets and liabilities as a ratio to GDP. Of course globalization is more than that, and includes globalization in technical knowledge, information, travel and contacts across countries, regions and continents. Technical progresses in communications and transportation, together with international trade and financial liberalization, have much contributed to all aspects of globalization.

⁴² On the role of international trade and openness in conjuring development and economic progress see Dollar and Kray (2004) and the literature referred there. For a contrary, if rather unbalanced, view, see Milanovic (2003).

⁴³ “Evidence suggests that better growth is translating into declining poverty levels... for a sample of 19 low income countries, 1 percent of GDP growth was associated with a 1.3 percent fall in the rate of extreme poverty and a 0.9 percent fall in the \$2-a-day poverty rate” (World Bank, 2007, p. 3). “Across all regions, the evidence therefore suggests that in an absolute sense the poor are no worse off (except in a few post-crisis economies), and in most cases significantly better off, during the most recent phase of globalization ... over the past two decades, income growth has been positive for all quintiles in virtually all regions and all income groups during the recent period of globalization” (IMF, October 2007a, p. 141).

impact of technical progress, lead to an improvement of the worse off in relative terms⁴⁴ and inequality increases could contribute to offset the positive impact on welfare of the increases in real incomes.⁴⁵ As to the trend in income distribution, apparently the main culprit of recent increases in economic inequality in some areas of the planet seems to have been technological progress, by demanding skills and qualifications and substituting less skilled labour.⁴⁶ On the other hand economic “globalization” (in the sense of increase of trade and financial flows,⁴⁷ with the first having an overall equalizing, the second a disequalizing effect) appears to have had a different impact in the different areas of the world. According to IMF (2007a) economic globalization is seen to increase inequality somewhat in developed countries (because of the prevailing impact of financial liberalization, while trade liberalization is seen to exert an equalizing impact anyway⁴⁸) and decrease inequality in the less developed ones (because of the prevailing impact of trade liberalization).⁴⁹ At the same time the diffusion of technological advances all over the world is obviously itself a manifestation of “globalization” and could hardly be isolated from the other intervening factors (such as for instance financial liberalization, since foreign direct investment in particular constitutes an essential vehicle for international technological transfers).

4.2.2 Aid and transfers

As to transfers, it is hardly possible that transfers of the size needed to really bring about a significant reduction of world inequality in per capita income and wealth could be acceptable to the public opinions of better off countries;⁵⁰ in general, the propensity to aid the poor of the world is quite widespread, especially in the “development buzz ... generated by rock stars, celebrities and NGOs”⁵¹, but with somebody else’s money and

⁴⁴ Whether globalization leads to a reduction or to an increase in inequality is a contentious issue. See on this point Milanovic (2006) and the literature quoted by him.

⁴⁵ Milanovic, 2006, p. 13: “the process of globalization by itself changes the perception of one’s position, and even if globalization may raise everybody’s real income, it could exacerbate, rather than moderate, feelings of despondency and deprivation among the poor.” This could contribute to create the motivation for migrating towards more affluent countries, while increasing incomes can supply the resources for meeting the costs of migration, often a costly business in relation to the scant resources of the poorest of the earth. (On the effect that raising incomes in poorer countries such as India and China can have on increasing the emigration push towards richer ones see Bhagwati, 2007, p. 210.)

⁴⁶ Cf. IMF (2007a, pp. 139-141).

⁴⁷ This corresponds to the World Bank’s narrow definition of globalization as the “freedom and ability of individuals and firms to initiate voluntary economic transactions with residents of other countries” (cf. Milanovic, 2002, p. 3).

⁴⁸ This appears to be contrary to what is implied by the Stolper-Samuelson theorem, but it may be explained by the reduction in the price of basic wage goods imported from developing countries, in particular, and by the reduction in the relative importance of worse paid manufacturing jobs (ibidem pp. 155-156). As to the impact of financial liberalization in increasing inequalities both in developed and in underdeveloped countries this is attributed to the fact that “higher FDI inflows have increased the demand for skilled labor, whereas outward FDI in advanced economies has reduced the demand for relatively lower-skilled workers in these countries” (ibidem, p. 159).

⁴⁹ Cf. IMF, 2007a, ch. 4, pp. 135-170.

⁵⁰ The schemes that have been proposed in regard, reviewed by Milanovic (November 2007), seem utterly unrealistic.

⁵¹ Collier, 2007b, p.4.

resources.⁵² As a prominent example we can mention the movement for international debt relief, where the proponents do not appreciate that the only radical way to suppress debt is to suppress credit, while insolvency makes international debt more risky, and therefore more onerous, and this is not necessarily in the interest of poorer countries.⁵³ None of the vocal members of the debt remission campaign seems to have started an international voluntary subscription for paying off poorer countries' debt by reimbursing the creditors, or advocating that government create an international special fund for the same purpose with taxpayers' money, in order to eliminate, or reduce, the debt without worsening the credit rating of poorer debtors.⁵⁴ Nevertheless the worsening of credit rating, and the consequent reduction in the capability to borrow, of poorer debtors could have some positive side.⁵⁵ Often the debt problem arises from the propensity of populist and/or corrupt governments to overborrow for financing consumption expenditures (the onus and unpopularity of servicing the debt will then fall on future governments), or the outright siphoning out of hard currency into the foreign bank accounts of the leaders. But a worsening of credit rating could also jeopardize the ability to borrow in an emergency or an economic downturn or for financing productive investment projects. An obvious fact that is overlooked by the debt remission campaign is that whenever the funds that have been borrowed are not repaid less is available for lending to other borrowers in need, and this is especially obvious with the International Financial Institutions.⁵⁶

None of the many who deem just and natural that the pharmaceutical industry renounce exploiting the intellectual property of Aids drugs, meritoriously discovered at the cost of huge investments, has proposed to start a subscription, or to pressurize governments for purchasing the corresponding patents at market value, in order to make them free for mankind, and in particular for the poorest and most affected by the disease section of world population, such as in Africa.⁵⁷ An alternative, more practical, way to overcome the issue of the excessive cost of patented drugs would be for poorer countries not to

⁵² As a prominent historical representative of the "somebody else's money handouts" school we may mention Jeffrey Sachs. After all it is very easy for a practicing development economist to become popular with one's charges by generously advocating the pledging of somebody else's money. For a comprehensive criticism of past experience of aid and its bureaucratic implementation see Easterly (2006). For a hefty criticism of Easterly's standpoint, and Easterly's reply, see Sachs (2006) and Easterly (n.d).

⁵³ For the ambiguous aspects of debt relief, in particular that affecting the International Financial Institutions, see Easterly (2006), pp. 230-236.

⁵⁴ On the other hand the creation of such a special fund would bring about an obvious moral hazard problem.

⁵⁵ On this see Stiglitz, 2007, pp. 216 f.

⁵⁶ Cf. Stiglitz, 2007, p. 228: "Today, the developing countries that have repaid what was owed ... worry that debt relief is commandeering money that might otherwise have been available to them".

⁵⁷ Some feasible projects of financing private or public medical research of specific relevance for poorer countries, and insufficiently financially rewarding for unfounded private medical research, with suitable contracts allowing poorer countries taking advantage through free access of the innovations thus produced, have been proposed. This kind of schemes would have the advantage of helping poorer countries with aid expenditures bypassing corrupt and inefficient governments, helping, at the same time, the production of public goods useful for the whole of mankind. In general aid expenditure resulting in the creation of public goods that are of particular interest for poorer countries (for instance producing information or educational material) could by-pass their government and administrations and remedy at the same time the inefficiencies deriving from the insufficient provision of public goods.

adhere to the international conventions protecting intellectual property rights, but this would put them outside the WTO, since TRIPS (Agreement on Trade Related Aspects of Intellectual Property Rights) has become a part of WTO agreements.⁵⁸ As a matter of fact underdeveloped countries have little to gain and much to lose from the degree of protection of intellectual property rights contemplated by TRIPS. Even if they do not comply, still a large market (that of developed countries), where intellectual rights are protected, and innovation is financed by market proceeds, would remain.⁵⁹ With the Doha Declaration the extent of TRIPS has been attenuated, and some further development in this direction could be contemplated in future WTO negotiations.⁶⁰ In theory a possible way to reconcile the objective of maintaining revenues and incentives for intellectual production with that of helping the less developed countries could be to transfer part of development aid expenditures to national producers of intellectual public goods (preferably through some general measures such as tax rebates), while allowing the underdeveloped economies (or some subset of them such as the poorest ones) their free utilization. The downside is that lack of protection for intellectual goods could dampen their production in the underdeveloped countries themselves: at a certain stage of their development even less developed countries may decide that protection is worth the while. In practice it is hard to expect that the developed countries, and especially the USA, could allow an attenuation of the protection of intellectual goods, owing to the intensity of the lobbying by the industries concerned. Indeed, the latter have already succeeded to extend the protection to much higher levels than what appears reasonable and economically justifiable.⁶¹

As far as aid in general is concerned there is the issue of the lasting effects of the culture of dependency in perpetuating the poverty trap, by facilitating the survival of corrupt and inefficient governments, and the old saying that international aid amounts to taking away from the poor of the donor countries for giving to the rich of the receiving

⁵⁸ See the entry TRIPS in Wikipedia, and the sources listed there. [References from Wikipedia are usually shunned because of the way mistaken and inexactitudes can be incorporated (but also corrected) by everybody concerned. But a basic principle of Wikipedia is that all information should be supported by external sources to which one should refer for control. Moreover many articles are constantly updated and are often of surprising depth and quality. I must take this opportunity to express my indebtedness to Wikipedia, one of the greatest intellectual achievements of our age, for constantly supplying to me a first information and direction on previously uncharted territories, in particular during the preparation of the present paper.]

⁵⁹ On TRIPS and intellectual property issues concerning less developed countries see Stiglitz, 2007, pp. 103-132.

⁶⁰ An issue in this respect would be competitive export of goods benefiting of lack of intellectual protection to developed economies. But this may not be insurmountable, since the developed economies could agree to undertake far-reaching specific import controls. Of more practical relevance may be the lack of actual enforcement of the discipline concerning protection of intellectual property, whatever the theoretical obligations associated to the underwriting of TRIPS, and the legal measures implemented.

⁶¹ For instance the extension of the economic protection of copyright after 50 years at least after the death of the author, contemplated by TRIPS (not to speak of the 70 years of the US or European legislation; see http://en.wikipedia.org/wiki/List_of_countries%27_copyright_length, and the sources listed there) seems hardly to be required to stimulate the production of intellectual works. How reasonable is it to expect that the motivation of an author towards intellectual creation be influenced by the economic property rights somebody else may have after his own death (not to speak 50 and more years after)? All this simply amounts to the imposition rents for **past** production of intellectual goods, to the advantage for some who were not involved in their creation, reducing their diffusion and enjoyment, not of an incentive for future production,

countries, which, in its apparent paradox, may capture a relevant aspect of international aid.⁶² What is sometimes overlooked is that aid usually does not directly transfer resources to the poorer of the world, since it is governments that act as representatives of the inhabitants of a country, and governments in poorer countries are often comparatively more corrupt and inefficient.⁶³ There is the damaging possibility that aid be simply wasted away and siphoned off by corrupt regimes, or, even worse, spent in armament feeding third world wars.⁶⁴ It is argued that aid, analogously to natural resources windfalls, weakens the determination to reform and to combat corruption and may hamper growth through the so-called Dutch disease, by increasing prices and wage costs.⁶⁵ Analogously to the rents from oil and natural resources, and even more than them, aid has been found to have a negative impact on democracy.⁶⁶ Theoretically speaking aid could aid reform and better governance through ex-ante conditionality, but, besides being strongly resented as a violation of sovereignty, and sometimes as a plot of richer countries to the detriment of aid receivers, ex-ante conditionality apparently does not work in practice, at least with respect to the poorer countries with worse governance.⁶⁷ It is also doubtful whether massive aid transfers, as proposed by some, could raise the long term growth prospects, even if they could certainly increase the short-run average incomes (but not necessarily the incomes of the poor) of the recipient countries.⁶⁸ According to Boone (1995) “Aid does not significantly increase investment and growth, nor benefit the poor”.⁶⁹ On the other hand there is a specific type of aid that the more prosperous countries are giving freely and massively, and mostly

⁶² According to Knack (1999) “Aid dependence can undermine institutional quality by weakening accountability, encouraging rent seeking and corruption, fomenting conflict over control of aid funds, siphoning off scarce talent from the bureaucracy, and alleviating pressures to reform inefficient policies and institutions.” And “analyses of cross-country data provide evidence that higher aid levels erode the quality of governance, as measured by indexes of bureaucratic quality, corruption, and the rule of law.” For the tendency of aid to benefit corrupt and undemocratic governments, see Easterly, 2006, p.133: (according to him “aid shifts money from being spent by the best governments in the world to being spent by the worst”). For a discussion of this issue and of the way to overcome it see Milanovic (October 2007). To his plea for taking into account, in directing aid, the degree in inequality of income distribution in the receiving countries, “penalizing countries with highly unequal distribution” one may add that the degree of inequality may be seen as an indicator of the extraction power of the elite in a receiving country, and of its power to appropriate the advantages of transfers, increasing the probability of the latter acting regressively.

⁶³ We may refer in this respect to the classification of Transparency International. An extreme case is mentioned by Collier (2007b, p. 66): only 1% of the funds spent by the Government of Chad for financing rural health clinics actually reached them. Another less extreme case relates to Uganda, where “only around 20 percent of the money that the Ministry of Finance released for primary schools, other than for teachers’ salaries, actually reached the schools” (p. 150).

⁶⁴ According to Collier (2007b, p. 103) “something around 40 percent of Africa’s military spending is inadvertently financed by aid”.

⁶⁵ Collier, 2007b, pp. 40 f. According to Collier (ibidem, p. 102) “large inflows of money without any restrictions do not seem to be well spent in many of the countries of the bottom billion.”

⁶⁶ See Djankov et alii (2006).

⁶⁷ Collier (2007b), pp. 109-110. For a consideration how aid could be tailored to really help the development of “the bottom million”, see chapter 7, pp. 99-123.

⁶⁸ For a sceptical view on the ability of aid to raise growth of the recipient countries, see in particular Easterly, 2006, ch. 2, pp. 60-55.

⁶⁹ For the discussion following Boone’s controversial paper, and further interesting contributions on the issue, see Easterly (2006), pp. 45-50.

unintentionally. Through the scientific progress and the technological advances they produce, they create public goods that deeply affect the economic and social fabrics of less developed countries. This is probably the fundamental explanation of the great economic and demographic advances of most less developed countries in relation to their past.⁷⁰ The same applies to the example provided by the economic, social and political institutions of more advanced countries, in particular to the basic idea of democracy, according to which governments should be changed by the ballot, rather than through civil strife and violent means. The latter have the fundamental disadvantage, in comparison to the ballot, to be usually much more expensive in terms of wasted economic resources, not to speak of the other, non-economic, profiles.

4.2.3 Changing the basis of the international economic order

As to changing the basis of the international economic order from free exchange and market to supranational planned allocation and material barter, even aside from the concrete issue of its (in)feasibility, the Comecon experience of planned material exchanges is not really enticing; the same applies to the other historical instances where barter exchange prevailed, with consequent high transaction costs and greatly reduced gains from trading. To some extent distribution is internationally, as well as inside nations, a consequence of the institutions that regulate and, directly or indirectly, affect production and exchange. The institutions that may favour high levels of productivity and growth, such as the remarkable performance of the developing countries, aside from the unfortunate “bottom billion”, reaching in the last two decades of the last century the unprecedented rate of 4 per cent of per capita income growth, and even more in the first years of the new millennium)⁷¹ have some distributional consequences that only partially can be mitigated without affecting economic outcomes. Thus to radically change those institutions could be against the interest of the world poor, despite the deep injustice of a world where at least 60% of one’s position in the global personal income distribution can be explained by the accident of being born in a country instead than somewhere else, and a good deal of the rest by the accident of having been born in a family rather than in another.⁷² In reality the greatest practical opportunities for redistribution appear to lie inside countries through reform of their institutions and the political process. In lower and middle income countries, with good natural resource endowments in particular, the specific extractive nature of the institutions, enhanced by the absence of checks and balances, often leads to the formation of high incomes based on rents, whereby the resulting high degree of inequality (at a Gini coefficient of 40 and above) represents a brake to growth rather than a by-product of growth-enhancing institutions and social processes,⁷³ not to speak about the much higher risk of civil war and instability associated with “dependence upon primary commodity exports”.⁷⁴

⁷⁰ See below, tables 5 to 9.

⁷¹ Collier, 2007b, p. 8. This finds a counterpart in the transformation of trade and the economic basis, whereby actually “80 percent of developing countries exports are manufactures, and service exports are also mushrooming.” (Ibidem, p. 81.)

⁷² See Milanovic (2008).

⁷³ See Nel (2006), pp. 697-698 and the literature quoted there.

⁷⁴ Collier 2007b, p. 21. According to Collier some international charter agreed among all main industrial partners requiring greater transparency in the conditions of the exploitation of natural resources and the utilization of the rents thereof would be of great help in improving the way in which those revenues are

The most radical way to overcome this issue would be the cosmopolitan one to make of the world a single country, with the power and responsibility to decide and enact redistribution policies. One could only (idly) speculate about the kinds of institutions and economic governance such a cosmopolitan world would have; not necessarily the best ones, owing to the actual composition of its potential citizenship. But for good or for worse humanity is divided into separate territorial states and solidarity towards the citizens of other states is much lesser than solidarity towards fellow citizens, or even more, wherever there are strong ethnic divisions inside states, towards one's own ethnic community. Moreover measures of solidarity are also the outcome of the fact that citizens, however destitute, are partaking into, and therefore have some scope for influencing through collective action the political process, albeit with quite different degrees, according to its specific characteristics. Thus "the state is, for the time being, the only legitimate context within which relative deprivation can be addressed through redistributive policies and practices", and "it is at the level of states only that the principles of distributive justice can and may apply, as it is on this level alone that we have the institutional means to legitimately take from the rich and give to the poor". For good or for worse, people will belong to separate states for a long time to come, rather than being simply citizens of the world, and this will limit the degree of solidarity and redistribution at the world level.⁷⁵ John Lennon's utopia of *Imagine there's no countries Nothing to kill or die for -- And no religion too* is unfortunately very far off.

4.2.4 The problem of the "fragile" states

A related problem to which no easy solution can be seen is that of the so-called fragile states, "countries with particularly weak governance, institutions, and capacity...often in conflict"⁷⁶ (where either internal or external conflicts are often at the origin of "fragility"), which did not partake of recent world economic growth, and are plagued by particularly severe problems of extreme poverty, high child mortality, and illiteracy. Short of neo-colonialist endeavours, which could hardly be a choice, the only way seems to hope that, favoured by the impact of globalization and institutional imitation, and possibly through the help of the international community, their internal dynamics could evolve so as to bring about a more favourable environment, in particular through the overcoming of the violent conflicts often at the origin of "fragility". Indeed, as argued by Collier (2007b, p. 31), a greater participation in peace keeping by the international community, in order to reduce the probability to conflict reversion, could be the best form of aid. As to peace enforcing, and nation and institution building, this is a much more tricky issue, because of its neo-colonialist connotations and implied violation of national sovereignty, lack of consensus by the international community, and lack of volunteers to offer the needed resources and face the inevitable losses and expenditures. The history of humanity is a long history of horrors. We surely cannot do anything about the horrors of the past. Probably we cannot do much about the horrors of the future.

spent. To the obvious objection that China's unconditional scrambling for the underdeveloped world's natural resources would break any conceivable charter, Collier's rather unpersuasive counterargument is that "The West has to offer China greater inclusion in power in return for adherence to international standards." (Ibidem, p. 146.)

⁷⁵ Cf. Neal, 2006, pp.702-703.

⁷⁶ World Bank (2007, pp. 2-3).

Only a delirium of omnipotence can lead us to believe that we should be able to deal with all the horrors of the present. We may just be left with the solution to end the patronizing approach,⁷⁷ and to leave fragile states to do their own experiences, as everybody else has done in the past, and learn through generations how to progress, forming and changing their own institutions. But our world has become much more impatient with historical time, the perceptions of contemporary horrors is enhanced by the spread of information and of visual representation all over the world, and we have become used to the idea that, by resorting to appropriate techniques, reforms and interventions we could solve all human and social problems. Moreover a country's internal disturbances may severely impact on its neighbours, not only as a consequence of the collapse of trade following the collapse of the economy, but especially by originating massive sudden migrations, and by the spreading abroad of internal disturbances, as well as diseases.⁷⁸ We may just remind the disastrous consequences of Ruanda's internal conflicts on Congo/Zaire or, quite recently, of Mugabe's follies for the internal peace of South Africa, and of the internal conflict and absence of a state in Somalia for the safety of sea routes. The consequences of failed states on the outside world can be indeed very severe, even if only the economically measurable aspects are taken into consideration.⁷⁹

5. Soul-searching and self-bashing

How much are the plight of poorer countries and the affluence of richer ones due to colonialism? And how much is the misery of Africa in particular a consequence of the transatlantic slave trade? How much does the responsibility of the latter fall on European shoulders? Branko Milanovic has recently produced an interesting inquiry into the first issue (Milanovic, 2005). According to his quantitative analysis on a large historical statistical data base, colonialism has not appreciably helped nor damaged on balance the economic development either of colonial powers or of colonies.⁸⁰ One may add that however repulsive for our modern sensibility is the imperialist idea to conquer a militarily weaker country and rule it by force in the interest of the conqueror, the countries that were conquered and subjected were not usually peaceful prosperous heavens. By and large the West and the Rest were players of the same historical game, of violent territorial expansion and domination, war, plunder, and conquest, that only quite

⁷⁷ Exposed and lamented by Easterly and others (Easterly, 2006, pp. 26-27).

⁷⁸ Cf. Collier, 2007b, p. 31.

⁷⁹ According to a rough estimate by Collier (2007b, p.103) the "costs of a typical civil war" are around \$ 64 billion. Collier's quantitative analysis, as well his favourable attitude to peace keeping and peace enforcement are severely criticized by Easterly (2007), according to whom "If Collier's statistical analysis does not hold up under scrutiny, unfortunately, then his recommendations are not a reliable guide for deploying foreign aid, technical assistance, or armies. Economists should not be allowed to play games with statistics, much less with guns" (p. 1476).

⁸⁰ This is consistent with the fact that "colonies accounted for only a minor share of the trade and investment of developed countries in the nineteenth century, and most of the greatly expanded world trade and investment was carried on within the developed bloc itself" (Easterlin, 1996, p 2). "In the half century before World War I the market for developed countries' exports were chiefly in other developed countries, and the principal suppliers of primary products requirements of the developed countries were other developed countries...Considering Great Britain, France, and Germany together, on the eve of World War II their own Third World colonies accounted for only 11 percent of their merchandise trade and 12 percent of their foreign investment" (ibidem, p. 43).

recently has been relinquished and declared illegal by most part of humanity (see below).⁸¹ In the history of humanity evil has always been banal, or, even more, evil (what we moderns consider evil) was often not seen as such, or was simply cloaked under false pretensions.⁸² As is often the case in what we may see as the progress of the moral awareness of humanity, some activities that in an epoch are considered as legitimate, come up to be subsequently perceived as crimes. The history of mankind is a dense collection of actions of the kind that nowadays are defined as crimes against humanity, and even in sacred books genocides can be extolled as acts of pious obedience to God.⁸³

Tied to the issue of the evaluation of the present economic order is the issue of the historical responsibility of the West in the plight of the Rest. Overall the impact of the West has been mixed. On the one hand it has played with greater efficiency, owing to its recent technological superiority, the same deadly games that most of humanity has played for most of the time. On the other it has spread modern social and technological innovations, with dramatic consequences in terms of improvement of the economic and living standards of most of the Rest. It has also spread its germs, with a deadly impact for some populations, in particular in South America.⁸⁴ But in the historical interaction of peoples it is difficult to do cherry picking: the same technological and organizational dominance that has made the West deadly for some has brought about the improvement of the living standards of the many through almost universal imitation. . Let us turn now to the specific responsibility of the West on slavery. Slavery has been practiced by humanity from time immemorial, and probably very few parts of the earth have been immune. Africa has certainly been no exception.⁸⁵ Trans-Saharan slave trade in particular was practised to a large scale before the encroachment of the Europeans, but also slave trade towards Asia was substantial.⁸⁶ With the advantage of European technology and organization, and pulled by the demand of the new plantation economies of the New World, slave trade reached from the sixteenth century onward unheard of dimensions. But in partaking blames and responsibilities one should consider that European traders were taking care (so to speak) of transport and marketing, while the actual production of slaves was the domain of the Africans themselves and, even before the transatlantic trade, the capture and trade of slaves was one of the main economic activities of Sub-Saharan Africa. If to the demerit and shame of the Europeans should be ascribed the massive extent of the transatlantic trade, to their merit and honour it must be attributed having made slave trade and slavery illegal, extending the prohibition of slavery to their colonial domains, thus bringing to an end a time immemorial historical tradition of slavery and slave trade.⁸⁷

⁸¹ For an outline of the history of African autochthonous kingdoms and empires and of their wars, see Collins and Burns (2007).

⁸² Such as saving through conversion the souls of the infidels, as in the 1455 Papal Bull *Romanus Pontifex*, legitimizing the slave trade (Maddison, 2006, p 60), or King Leopold's pretension to administer Congo for exclusive humanitarian purposes.

⁸³ Such as the story of Saul and the Amalekites in the Bible.

⁸⁴ See Diamond (1997).

⁸⁵ The oldest documentation of slavery in Africa dates back to 2900 BC (Collins and Burns, p. 202).

⁸⁶ Cf. Collins and Burns, 2007, pp. 202-247; Maddison, 2006, pp. 574-575. Hellie, 2007.

⁸⁷ Notable were in particular the British 1807 "Act for the Abolition of the Slave Trade" and 1833 "Slavery Abolition Act". For a more comprehensive picture see *Wikipedia's* entry "Abolition of Slavery Timeline".

6. The population explosion

In a secular (or rather millennial) perspective, before the Industrial Revolution population growth was held in check by high mortality rates, which were accompanying high birth rates. The source of high mortality rates in a classical Malthusian perspective could have been the limitation in the amount of available agricultural resources, either continuously, leading to poor nutrition (and therefore to higher morbidity and premature deaths), or episodically, through famines. But there were also other forces at play.⁸⁸ First of all very high rates of child mortality, either through systematic infanticide (itself probably a function of available resources), especially of females, or as a consequence of neglect and of poor living, childbearing, and childrearing conditions. Second, possible neglect of the elders, the disabled and the infirm. Third the spread of epidemic diseases (which was favoured by overcrowding and poor living conditions in the cities of agricultural societies). Then, endemic warfare, between tribes, nations or individuals, leading to direct deaths, as well as to misdirection and destruction of the resources otherwise available for survival.⁸⁹ Still, following the improvements of agricultural technology in particular, there was some population growth at a very slow pace, slightly accelerating in time, as shown in table 6.⁹⁰ Later on, especially since the half of the nineteenth century, the decrease in mortality rates (a true “mortality revolution” “which has resulted in doubling or more of average life expectancy at birth”⁹¹ and has been the direct consequence of the diffusion of medical knowledge and discoveries that has followed with some delay the Industrial Revolution) has led to a much faster population growth, while the demographic consequences of two world wars and related upheavals are shown in a temporary decrease of growth rates. The post World War II period has seen an unprecedented population explosion, with some signs of abating however following increasing living standards and progresses in the technology of birth control,

⁸⁸ In Malthus’ own words: “The positive checks to population are extremely various, and include every cause, whether arising from vice or misery, which in any degree contributes to shorten the natural duration of human life. Under this head, therefore, may be enumerated all unwholesome occupations, severe labour and exposure to the seasons, extreme poverty, bad nursing of children, great towns, excesses of all kinds, the whole train of common diseases and epidemics, wars, plague, and famine.” Malthus 1826 [1798], I.II.9.

⁸⁹ According to Ember (1978) about 60% of the societies of hunter gatherers of which there is documentation were recorded to be at war at least once every two years. As to pre-industrial civilizations it is enough to recall world and European history (for instance, considering European history immediately preceding the Industrial Revolution, in the 16th century 95% of the time there were wars involving the major European powers, 94% in the 17th and 78% in the 18th century; cf. Eloranta, 2005). For the issue of population control in pre-industrial societies, with a survey of the relevant literature, see Caldwell and Caldwell (2003).

⁹⁰ The relation between population growth and agricultural technology was stressed by Boserup (1965), even if in Boserup’s work the causal relation was supposed to act in the contrary sense than the one implied above; the crucial element being the density of population affecting the length of fallows. However this could be the case if a complete blueprint of alternative agricultural techniques were to exist at any given time, not if alternative agricultural techniques had to be discovered, or rediscovered, in a lengthy historical process. For a critical assessment of Boserup’s work, see Federico (2001). On the other hand Boserup’s argument could be reinterpreted as pointing towards endogenous technological progress in agriculture being stimulated by demographic conditions (see on this Cuffaro, 2001, pp. 67 f.).

⁹¹ Easterlin, 1996, p. 1.

spreading from the more advanced countries to the lesser developed areas of the world, leading to a forecast of about 9.2 billion around the year 2050.⁹²

What have been the causes of the post World War II world population explosion? Essentially the reduction in mortality rates and the increase in life expectancy (see the tables in the Statistical Appendix at the end). The birth rate has on the whole decreased in the post-war period, but the increase in life expectancy has been stronger; 17 years between 1950 to 1999 in the world as a whole, more or less the same as in the first half of the twentieth century, three times more than the increase of life expectancy in the crucial eighty years of the spread of the industrial revolution, from 1820 to 1900. One may also note that all the areas of the world have partaken in the great advance in life expectancy,⁹³ while the present inequality in average life expectancy between the different areas (about 50% between the highest, Western Europe, and the lowest, Africa), is much lower than either in wealth or in income (see the Statistical Appendix; with respect to some other life statistics, however, the picture is more extreme). Moreover, “differences in lifetime survival rates between rich and poor countries and between rich and poor individuals within countries were much higher two centuries ago than they are now”.⁹⁴ One of the reasons of the population explosion in the post WWII period lies in the impact of the Green Revolution in third world countries, such as Mexico and India, leading to the strong growth of agricultural production, as well as in the improvements in transportation.⁹⁵ There was no major demographic catastrophe, of the kind that in the old times were blocking demographic advance in a secular perspective.⁹⁶ (For some relevant demographic data we may refer to the statistical appendix at the end.)

⁹² Cf. United Nations, 2006.

⁹³ Cf. tables 4A and 5A.

⁹⁴ Milanovic et alii, 2007, p. 28. According to Bourguignon and Morrison (2002, p. 741) the inequality in world life expectancy started to decrease from the beginning of the second quarter of the 20-th century, while the inequality in per capita income distribution continued to increase.

⁹⁵ With the “Green Revolution” modern agricultural techniques and high productivity seeds were imported from the developed world into developing countries through organized efforts spurred first by the Rockefeller Foundation (starting from Mexico in 1944), to which the Ford Foundation later joined forces. The result was that “the adoption of High Yielding Varieties (HYVs) enormously increased the productivity of land and labor” (Federico, 2005, p. 214). For comprehensive statistical data on agricultural growth see *ibidem*, pp. 233 f. However in a number of areas, in particular in Africa, and Latin America, the methods of the Green Revolution have encountered fundamental organizational and environmental obstacles (on this see Cuffaro, 2001, chapters 5 and 6, in particular pp. 117 f.). But taking into account the increasing integration of the world food market, productivity advances in some countries can have a favourable impact on the food balance in others through their effect on world supply and prices anyway.

⁹⁶ Such as in the case of the Black Death. The only globally relevant demographic catastrophe in the post War II period could have been a population deficit of an undetermined (and undeterminable) few tens of millions Chinese as a consequence of the famine following Mao’s Great Leap Forward: “a dip in the growth rate from 1959-1960... was due to the Great Leap Forward in China. During that time, both natural disasters and decreased agricultural output in the wake of massive social reorganization caused China's death rate to rise sharply and its fertility rate to fall by almost half” (US Census Bureau, 18/7/2007; the dip could be graphically seen in the sudden fall in the line of the population growth rate reported in the site of the [World Population Clock](#)). According to Yao (1999) the demographic deficit in the three years 1959-61 was somewhat higher than 49 million, of which about 18.5 million extra deaths and the rest lost births. Not a big difference anyway to the size of world population at the time, of about 3

Table 6. Yearly average rates of population growth 1-2007⁹⁷ (in percentages)

	1-1000	1000-1500	1500-1820	1820-1870	1870-1913	1913-1950	1950-1973	1973-2001	2001-2007
Western Europe	0.06	0.16	0.26	0.69	0.77	0.42	0.71	0.32	0.26
Eastern Europe	0.03	0.15	0.31	0.77	0.92	0.26	1.01	0.32	-0.03
Former USSR	0.06	0.17	0.37	0.97	1.33	0.38	1.44	0.54	-0.15
Western offshoots ⁹⁸	0.05	0.07	0.44	2.86	2.07	1.25	1.54	1.09	0.94
Latin America	0.07	0.09	0.07	1.25	1.63	1.96	2.73	1.96	1.3
Japan	0.09	0.14	0.22	0.21	0.95	1.32	1.14	0.55	0.06
Total Asia excl. Japan	0.00	0.09	0.29	0.15	0.55	0.92	2.19	1.80	1.29
Africa	0.07	0.07	0.15 ⁹⁹	0.40	0.75	1.64	2.37	2.69	2.36
World	0.01	0.10	0.27	0.40	0.80	0.93	1.93	1.62	1.20

7. Maddison's statistical summing-up of world economic growth

Even in the poorest of continents, Africa, per capita income has strongly increased (about three times; an unheard of performance in the past) since the spreading to the whole world of the present mode of production that followed the industrial revolution (see Table 7). This has taken place notwithstanding the rapid population growth, which in the post World War II years has become the highest in the world (2.69% yearly in the period 1973-2001, somewhat decreased to 2,36% in the last six years; cf. Table 6).

According to Maddison's statistical account (somewhat daring, owing to the length of the historical period covered), per capita income has decreased in Western Europe during the first 1000 years of our era, from 450PP\$ to 400 (where 400 stays for the physical subsistence level), reaching a nadir around 600 AD, and then starting a very slow recovery.¹⁰⁰ In that period the rest of the world fared slightly better, per capita

billion. For other estimates one could refer to the literature quoted by Yao, in particular Peng Xizhe (1987).

⁹⁷ Source of the data of the last column: U.S. Census Bureau, International Data Base, at <http://www.census.gov/cgi-bin/ipc/aggggen>; the remaining data are taken from Maddison (2006), p. 637.

⁹⁸ USA, Canada, New Zealand, Australia.

⁹⁹ One may be puzzled by the acceleration of the demographic development of Africa in a period of massive slave transatlantic trade. The answer seems to lie in the fact that "although some areas of Africa were depleted by slave raiding, on balance the African population grew after the establishment of the transatlantic slave trade because of new food crops introduced from the New World, particularly manioc, corn (maize), and possibly peanuts" (Hellie, 2007). Cf. also Collins and Burns, 2007, pp. 198-199, 311 (p. 199: "The introduction of New World and Asian crops transformed many African agricultural societies, enabling them to expand into the vast unpopulated lands of the continent."); Maddison, 2006, p. 569. The demographic consequences of the new crops were somewhat compensated however by the spread of new diseases brought by the Europeans (Collins and Burns, pp. 199-200).

¹⁰⁰ The data for the year 1 in Western Europe and Asia are considered implausibly low by Federico (2002, p. 115). Federico's viewpoint is consistent with Milanovic (December 2004) estimate of 840 (p. 22) or

incomes being throughout the period somewhat higher in Africa (430 at 1AD, 425 at 1000AD), and in Asia (450 in both years), while the remaining areas were still at low subsistence level (400). Five hundred years later the world as a whole had made some modest progress (from 436 to 566). Italy was by far the richest country with 1100PPP\$, but was stagnating until the Industrial Revolution (1820). The territories that were to become the Western Offshoots were the poorest at 400, Africa had somewhat declined at 414, stagnating until the colonial conquests of the nineteenth century, China had progressed from 450 to 600, staying at that level until 1820 and declining afterwards, down to 439 in 1950, Japan also progressed reaching 737 in 1820. At the threshold of the Industrial Revolution, in 1700, the richest world country were the Netherlands with 2130, Western Europe was somewhat lower than 1000PPP\$ on average.¹⁰¹

Table 7. World Per Capita GDP, Regional Averages, 1-2001 AD¹⁰² (1990 international Geary-Khamis dollars)¹⁰³

	1	1000	1500	1600	1700	1820	1870	1913	1950	1973	2001
Western Europe	450	400	771	890	998	1 204	1 960	3 458	4 579	11,416	19,256
Eastern Europe	400	400	496	548	606	683	937	1 695	2 111	4 988	6 027
Former USSR	400	400	499	552	610	688	943	1 488	2 841	6 059	4 626
Western Offshoots	400	400	400	400	476	1 202	2 419	5 233	9 268	16,179	26,943
Latin America	400	400	416	438	527	692	681	1 481	2 506	4 504	5 811
Japan	400	425	500	520	570	669	737	1 387	1 921	11,434	20,683
Asia (excl. Japan)	450	450	572	575	571	577	550	658	634	1 226	3 256
Africa	430	425	414	422	421	420	500	637	894	1 410	1 489
World	445	436	566	595	615	667	875	1 525	2 111	4 091	6 049

Economic growth has been accompanied, wherever data are available, by a great reduction, in many cases almost a halving, since 1870, of labour time (Maddison, 2006, p. 347). And hence by an enormous growth of hourly labour productivity (p. 351). Notwithstanding the reduction in labour time, production per worker has greatly increased (about ten times since 1870 in Western Europe: Maddison, 2006, p. 349).

between 800 and 900 1990 PPP\$ (p. 23) as the average per capita income of the Roman empire at the times of Augustus.

¹⁰¹ For the detailed country data one is referred to Maddison (2006, p. 639).

¹⁰² Maddison, 2006, p. 642.

¹⁰³ For a definition of Geary-Khamis dollars cf. United Nations, 1992. Perusing the above data it becomes obvious that at the time Marx was writing *Das Kapital* no amount of redistribution could have ever brought about the dramatic improvement in the living standards of the masses that technical progress and development (“the development of productive forces”) would have brought about in less than a life-span. Thus Marx (1875) was right in downplaying the issue of distribution as such. Distribution may be important in the short-run for allowing some of the worse-off to improve their lot. In the long run for the worse off it is more important the relation between distribution, technical improvements, production and accumulation.

Table 8¹⁰⁴ Growth of Per Capita GDP by Major Regions, 0–1998 (annual average compound growth rate)

	0–1000	1000–1500	1500–1600	1600–1700	1700–1820	1820–1998
Western Europe	-0.01	0.13	0.14	0.15	0.15	1.51
Western Offshoots	0	0	0	0.17	0.78	1.75
Japan	0.01	0.03	0.03	0.09	0.13	1.93
Group A	-0.01	0.11	0.13	0.12	0.18	1.67
Latin America	0	0.01	0.09	0.19	0.19	1.22
Eastern Europe & former USSR	0	0.04	0.1	0.1	0.1	1.06
Asia (excluding Japan)	0	0.05	0.01	-0.01	0.01	0.92
Africa	-0.00	-0.01	0	0	0.04	0.67
Group B	-0.00	0.04	0.02	0	0.03	0.95
World	-0.00	0.05	0.05	-0.00	0.05	1.21

Table 9.¹⁰⁵ Growth of Per Capita GDP by Major Region, 1820–2001 (annual average compound growth rate)

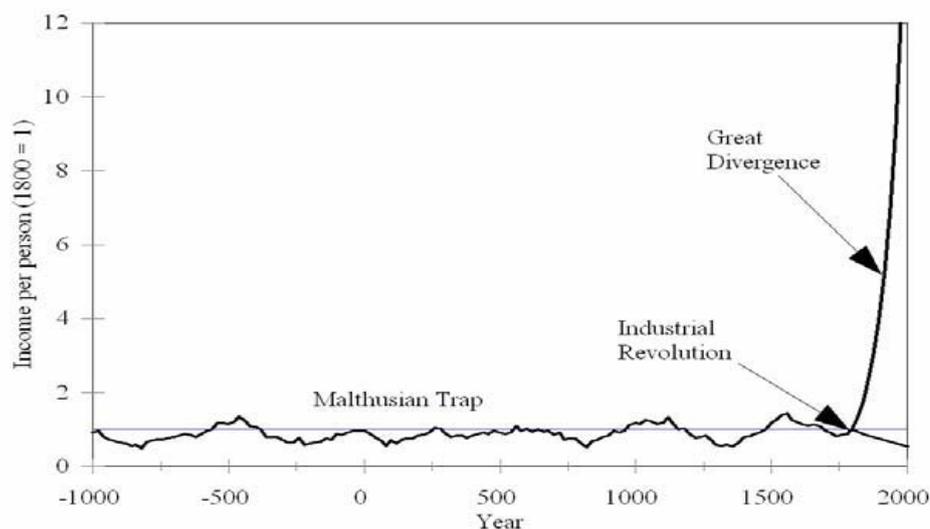
	1820–70	1870–1913	1913–50	1950–73	1973–2001
Western Europe	0.98	1.33	0.76	4.05	1.88
Eastern Europe	0.63	1.39	0.60	3.81	0.68
Former USSR	0.63	1.06	1.76	3.35	-0.96
Western Offshoots	1.41	1.810	01.56	2.45	1.84
Japan	0.19	1.48	0.88	8.06	2.14
Latin America	-0.03	1.82	1.43	2.58	1.84
Asia (excluding Japan)	-0.10	0.42	-0.10	2.91	3.55
Africa	0.35	0.57	0.92	2	0.19
World	0.54	1.30	0.88	2.92	1.41

¹⁰⁴ Source: Maddison (2006, pp. 30; 643).

¹⁰⁵ Data taken from Maddison (2006, p. 643).

8. The very long perspective of the world economic history according to the Malthusian viewpoint

Fig. 1 The Malthusian trap (“world economic history in one picture”), according to Gregory Clark¹⁰⁶



A possible interpretation of available historical evidence is the Malthusian view. Up to the dawn of industrial revolution the great majority of humans were on the brink of physical survival. In a very long perspective there was by and large a Malthusian equilibrium between population and resources, with a very weak long run growth, amounting to near stagnation, of world population.¹⁰⁷ Under such circumstances distribution of income and wealth affects in the long run the size of the population (because unequal distribution uses up resources that could allow a larger population to subsist), but not the living standards of the masses. At the same time the existence of privileged strata, which in the short run at least are somewhat out of the Malthusian trap, can affect the well being of the worse off through the externalities they generate. These could be negative (envy and the sense of relative deprivation) or positive (the hope, however slim, to be able to raise among the privileged, some identification with their interest and life experience).¹⁰⁸ Their relative impact may depend, among others, on the

¹⁰⁶ Fig. 1.1 in Clark (2007).

¹⁰⁷ Clark's 2007 book is a recent representation of this viewpoint.

¹⁰⁸ According to Kenny (2006), and the empirical enquires reported by him, economic and social inequalities can have a powerful negative effect on subjective measures of poverty and deprivation, so their impact in the past, when they were associated with even greater differences in status and rights than in the present times, could have been far more devastating than nowadays. Kenny also underlines the negative impact of increasing expectations and new consumer goods on welfare or happiness. But happiness is a rather subjective matter, as is well expressed by the Italian poet Metastasio: “Se a ciascun l'interno affanno si leggesse in fronte scritto, quanti mai, che invidia fanno, ci farebbero pietà!” (If everybody's internal pain were written on their forehead, many who are envied now, would be pitied instead.) As economists, we may content ourselves of dealing with per capita incomes, but with a lot of

degree of mobility in the society concerned. Religion could surrogate mobility in this world with a belief in mobility in the afterworld. Even in the slave society of ancient Rome slaves had some degree of hope to be liberated, and even to become affluent or, in Christian times, to earn after death, alike their rich masters, and ever more than they, the Kingdom of Heaven. Moreover the existence of some strata that were able to enjoy a surplus over subsistence could have been an engine (however very inefficient) of progress in living patterns, and an instrument for providing the resources for some to devote themselves to art, technology and science, with eventual long run benefits for average living standards, as well as cultural benefits for mankind.¹⁰⁹ Other utilizations of surplus were for collective purposes, such as building cathedrals or waging wars, the latter possibly being in itself one of the principal instruments, through their disruptive consequences, of population control. The working of Malthusian limits could have affected economic progress negatively, pushing living standards down; however greater population density could have led to more advanced production techniques and modes of organization, in particular through the division of labour and increasing returns to scale.¹¹⁰ Moreover, even if the Malthusian trap had worked in the very long-run, in the shorter run there may have been long periods (such as after the Black Death) when population growth was compatible with some improvement in average living standards. Thus in the shorter run how wealth (land ownership in particular) was distributed could have made a great deal of difference for the well being of the bulk of the population. The pressure of population on resources could have been reduced by reducing the tendency to demographic growth either by decreasing natality or by increasing mortality. Historically speaking the increase of mortality and reduction in life expectancy would first of all be based on infanticide, but also on high propensity to accidental death in later ages. In particular looser or absent organized political power under pre-agricultural conditions could have made life more precarious and insecure, leading to higher adult mortality, and lower pressure on resources, thus allowing higher living adult standards than in later more densely populated agricultural societies. This could be the reason explaining the paradox of the alleged lower living standards in agricultural in relation to hunter-gatherers societies.¹¹¹

9. The take off from the Malthusian Trap, the Industrial Revolution, Socialism and Transition

Thus for almost the totality of human history poverty and starvation have been the rule, wealth and affluence a tiny exception in a sea of misery and precarious lives. So the real historical singularity that must be explained is not poverty and backwardness, but development and wealth. If the issue of relative poverty and underdevelopment arises

caveats, among others of the kind argued by Kenny. On happiness and economic growth see also Easterlin, 1996, pp. 131-144.

¹⁰⁹ Moreover if a priori, under the veil of ignorance, as under Rawles' paradigm one should have chosen two different possible societies where to live, one with a smaller population in Malthusian demographic equilibrium with inequalities, and another one with larger population in Malthusian demographic equilibrium with lower or absent inequalities, it is not quite clear that the choice would have been for the second alternative, given that to the first one, unlike the second, is associated some probability of finding oneself better off, once the veil of ignorance is dispelled, than in the Malthusian subsistence level.

¹¹⁰ In the development of agriculture this is stressed by Boserup (1965).

¹¹¹ On this see Ember (1978); Diamond (1987); Caldwell and Caldwell (2003).

from the economic development of the countries that have become well off rather than from some countries having made worse off in an absolute sense, it is to the development of poorer countries that one should turn for getting rid of the issue, as well as for reducing, and one day perhaps eliminating, absolute poverty. In a number of countries, particularly in Asia, the take-off has succeeded, in others, particularly in Africa, seems to have failed.

The gigantic increase in population and wealth in the last two centuries, and the very rapid (historically speaking) decrease in the proportion of the poor have been the outcome of a mode of production characterized by the systematic application to production of scientific principles, and the organized pursuit of scientific and technological progress, dramatically improving the living prospects of billions of men and women, as a consequence of the basic “idea of the world as open to transformation by human intervention.”¹¹² According to conventional wisdom its ultimate sources may be found in the Renaissance and the Enlightenment, tied together by the Reformation’s critical discussion of traditional received faith. Until the Soviet Revolution this mode of production took the organizational form and vehicle of transmission of the internal and international capitalist market. This does not detract anything from the role performed by the state, in particular as provider of public goods and infrastructure, but the basic principle of economic functioning has been voluntary exchange. It is on voluntary exchange, and the creation and expansion of markets, as made possible by the creation of a mercantile economy and the gradual establishment of the rule of law and clear attribution of property rights, that the success of the Industrial Revolution and its aftermath can be attributed. According to conventional wisdom in this lies the difference with other environments of the past (such as historical China or the Arab world at its apogee) where scientific progress and innovations did not translate into sustained economic and technological progress. Real socialism can be seen just as a specific variety of this mode of production whereby the fundamental aspects have been upheld through a sort of rough extension of the rational organizing principle to the whole of society, and accumulation and innovation have been organized from the centre rather than having been the outcome of the working of market forces. Eventually this daring experiment has encountered a bitter dead end, but in the process it has partaken both of the increase in population and of the increase in aggregate production. Its failure has been a comparative failure, but still its achievements in aggregate economic and life statistical terms may be seen as substantial in relation to pre-industrial epochs. If we are willing to indulge a little bit in counterfactuals, suppose that real socialism had prevailed throughout the world by way of revolution and/or military conquest, destroying the international market system in the process. It is conceivable that after the initial disruptive consequences of the change of system some process of increasing world wealth and population would have persisted anyway, at very least by way of capital accumulation and technological diffusion in the lesser developed areas. Of course there is the issue as to the extent the survival of Soviet type socialism has been helped in practice by the contemporary existence of an international capitalist economy, from which to draw technology, as well as goods (such as foodstuffs) for whose production Soviet-type socialism was utterly less proficient, and an international price system easing

¹¹² Giddens and Pierson, 1998, p. 94.

the difficult task of evaluating economic opportunities.¹¹³ But let us abstract from the latter point. Would it have been enough to argue that no better system is possible and to ascribe to the very nature of real socialism the economic and demographic outcomes? In this respect two viewpoints seem to be equally objectionable: that a really existing, and therefore highly imperfect, system of production must be rejected because its performance is seen as defective, and another abstractly implementable system (socialism vs. capitalism) should do better; as well the opposite contention that no better system of organization (in our counterfactual example capitalism vs. Soviet-type socialism) is possible.¹¹⁴ A further consideration refers to the heavy cost of transition, as borne out in what follows by life statistical data. If compared with the case of China's transition away from the Maoist system, this may exemplify the heavy toll of revolution as compared to evolution. Indeed transition in the former socialist camp has amounted to a, by and large pacific, but on the whole very disruptive, revolution led by institutional constructivism, the idea that everything can be explained by legal institutions, irrespective of the social and historical environment where these institutions are nested.¹¹⁵ One may also think in this respect of a second best theorem (as a consequence of institutional complementarity): whenever institutions from a superior environment (in the sense that on its whole it brings about superior results) are introduced in an environment where the complementary institutions (which may well be of a tacit nature) are missing this can actually lead to a worsening, rather than to a betterment, of performance, until the complementary institutions are introduced, or a suitable adaptation of the overall institutional framework takes place.

10. Post-war development and the Malthusian trap

As we have already mentioned, a most remarkable fact is that the world has never grown so fast, as to population and wealth, as in the post World War II period.¹¹⁶ We have considered the possible causes: globalization (in particular the great intensification of international trade and investment), technical progress (and the progress of medicine), originating in the European countries and Anglo-European offshoots; in particular progress in transportation and agriculture,¹¹⁷ and the absence of devastating conflicts at the global level (the world has been on the brink of a nuclear global disaster, but it didn't fall into the precipice, yet).

¹¹³ Soviet-type socialism appears to have been much less proficient than capitalism in the production of consumer goods in general and in particular in the innovation of better consumer goods and better ways to satisfy consumer needs. The only innovative consumer goods developed in the socialist camp that comes to my mind is Rubrik's cube, developed in Hungary in the mid seventies. However Soviet type socialism was no inferior to western capitalism in the production and development of military hardware.

¹¹⁴ Following Demsetz (1969) economists dubb the first of the two views as Nirvana fallacy.

¹¹⁵ The issue of the best strategy of transition is a complex and most debated one. A crucial factor constraining transition strategies was of course the fact that the economic and political system in the European ex-communist countries was rotten from the inside, and its credibility and social support was low, rendering a path of gradual economic reform difficult to follow.

¹¹⁶ This is epitomized by the title of Easterlin 1996 book: *Growth Triumphant*.

¹¹⁷ The progresses in transportation and agriculture have bee of particular importance for the provision of the basic means of survival.. For the remarkable performance of world agriculture in modern times, but especially in the post-second world war years, when agricultural output growth was exceeding the most exceptional growth of population, see Federico (2005, p. 19). For the role of agriculture spearheading, alongside industry, modern economic growth, see Easterlin, 1996, p.5.

Notwithstanding the above successes, for the world as a whole the Malthusian trap is still lurking.¹¹⁸ But rather than decreasing agricultural returns, as in the classical explanation, it may be here relevant the pressure on scarce natural resources, and in particular the retroaction, on development and living standards, of the possible “tragedies of the commons”, including climate change.¹¹⁹ The industrial and demographic developments that have accompanied the present relative prosperity have taken place at the cost of world’s commons, in particular at the cost of the decumulation in the span of two hundred years of huge reserves of fossil fuels, the leftovers of hundreds of millions of years of life on earth.¹²⁰ To this one may add the destruction of forests and pristine habitats, the pollution of air and water, and, last but not least, CO² emissions. The plunder has mostly taken place to the advantage of industrialized countries, and of countries provided with large reserves of raw materials (in particular hydrocarbons), appropriating the rents of their exploitation. On the other hand the overall balance for poorer and energy poor countries cannot be considered as negative, since in the process their average living standards (considering both per capita income and life statistics) have greatly improved all the same, as a consequence of the diffusion of the technological advances of the West, notwithstanding the colonial domination to which most of them had been subjected in the past. But as more and more countries successfully pursue the type of industrialization and economic development that has made rich the West and better off the emerging economies, the pressure on resources and the enhanced generation of externalities may exert a negative feedback elsewhere, especially on the living standards of the countries deprived of natural resources, with potential destabilizing consequences on the economy and the peace of the world.¹²¹

Extrapolating historical experience, the way out the Malthusian trap could lie on the one hand in the enhancing of technological progress, and on the other in population containment, lessening the pressure on the resource base (including the world commons). Population containment could be the outcome of a voluntary process, either at the individual and family level, following the demographic pattern of reduction of natality accompanying the development of the presently more developed countries, or it may be favoured by public policy; the possible alternatives are the usual ones that have constrained the development of population in history. Once demographic developments are considered an object of policy, some delicate philosophical problems present themselves: Is it better in presence of limited resources to have many overlapping generations with short lives, or fewer generations with longer lives? How short or how long, and how many generations? How many people for each generation? Many people with low living standards, or few ones with higher living standards? And how low or

¹¹⁸ The extent to which the Malthusian trap is lurking is however controversial. For a contrary optimistic opinion see Julian Simon (1981). On the opposite side there is a vast intellectual current following the Malthusian tradition, such as by Garret Hardin, Albert A. Bartlett, Paul Ehrlich, and the Club of Rome.

¹¹⁹ According to a plausible view, very specialized life styles, such as in the contemporary world, increase population vulnerability to dramatic environmental changes; see Chu, 1998, pp. 193-194.

¹²⁰ In this perspective the long run survival and spreading to the rest of humanity of the high living standards of the most developed world crucially depend on the successful untapping of relatively clean and plentiful new sources of energy, such as nuclear energy either in the development of its fission or even more, perhaps, in its elusive fusion form.

¹²¹ Among the important externalities associated to the growth of production there is the global warming that would damage some countries while favouring other ones. This could be another important destabilizing factor.

how high?¹²² In this respect one should be reminded of the old saying “more souls more joy”. *Ceteris paribus*, the larger the population the greater the number of possible originators of new ideas and discoveries, from which the progress of humanity (however conceived) ensues, and the greater the number of possible contacts and personal interactions, favouring the development of ideas.¹²³ At the same time there may be some trade-off between quantity and quality: a smaller better educated population could be more conducive to economic and intellectual progress than a larger uneducated one living at the margin of survival. Theoretically speaking we can have a dynamic equilibrium whereby high population growth spurs fast technological progress, the latter higher per capita incomes, which would retroact in maintaining the momentum of technical progress and of demographic and economic growth, compensating Malthusian static decreasing returns.¹²⁴

11 The limits to population growth: natality, mortality, and catastrophes

It is obvious however that a demographic explosion such as that of the last decades cannot last forever. Carlo Cipolla (1974 [1962], p. 86) quotes “an exercise in astronomical arithmetics” by C.P. Putnam (the inventor of the first windmill generation turbine), according to which “if the [human] race had sprung from a couple living not long before agriculture was discovered—let us say 10,000 B.C.—and if its members had expanded at the rate of one per cent per year since then [which is lower than the present rate of growth of world population], the world population would form today a sphere of living flesh many thousand light years in diameter, and expanding with a radial velocity that, neglecting relativity, would be many times faster than light.”¹²⁵

A correction to the process of world overpopulation could be found in a decreasing birth rate, as a by-product of per capita income growth, and in the extension of social security systems into the countries where the survival of the elderly is otherwise dependent on family ties, as well as in the improvement and diffusion of the technology of birth control. Thus, according to Easterlin (1996), p. 112, “both theory and evidence indicate that the population explosion is a transient phase of contemporary development experience”, since in developing countries “the more rapid the Mortality Revolution, the more rapid is the transition to lower fertility”, replicating, albeit with different speed and modalities, the demographic transition of present developed countries. But can one really discount the possibility that the Mortality Revolution could intensify as a consequence of further medical discoveries after the transition to lower fertility is over, or that preferences regarding procreation could differ as a consequence of different culture in developing countries, or preferences regarding procreation could change even

¹²² These dilemmas can be seen as brought to their extreme consequences in Asimov’s utopian world of the *Foundation* series (cf. in particular Asimov, 1986): As an alternative model to the crammed world of Trantor, the capital of the Galactic Empire, where 40 billion humans live in artificial domes, we have the very sparsely populated Solaria, where the population is controlled by strict demographic planning, with few (mutated) humans living very comfortably in very large estates worked by armies of robots.

¹²³ Cf. Simon (1981).

¹²⁴ On the relation between population growth, technical progress, and per capita incomes see Kremer (1993).

¹²⁵ A more recent statement in this line, by Albert A. Bartlett, is that “the greatest shortcoming of the human race is our inability to understand the exponential function” <http://www.albartlett.org/>.

in the developed world, altering the dynamic demographic balance? Preferences and technology cannot really be considered as given in the long-run.

The shape of a future long-run population equilibrium, absent a sudden demographic catastrophe, could entail a low mortality rate, a low birth rate, a long life span, and a marked increase in the average population age. Perhaps a senescent population will be less dynamic but wiser.¹²⁶ While we can think of demographic policies affecting the size of a population at the country level (even if a country could represent an important part of the world population, such as China), it seems hardly possible that demographic policies could be devised and implemented at the world level (such as advocated notably by Julian Huxley¹²⁷) in order to take into account the important externalities that individual decisions regarding procreation have for the world as a whole.¹²⁸ In the past demographic control, contrasting the operation of the Malthusian trap, was often ensured by custom, involving habits such as organized celibacy (as in monastic orders), repression of sexuality, and late marriages (the way out praised by Malthus himself), systematic infanticide, or belligerent habits leading to an increase of adult mortality.¹²⁹ Under conditions of progressively increasing life expectancy demographic control could assume the form of some limitation to the length of life, if not explicitly and legally binding as in the dystopian world of the *10-th Victim*,¹³⁰ in the more subtle form of denying life supporting medical treatment and, possibly, the economic means of survival, to the elderly.

Of the three factors that have historically contributed to held populations in check through recurrent catastrophes: epidemic diseases, famines, and war, the impact of epidemic diseases has been greatly reduced by the progresses of medicine, and even the definitive cure or prevention through vaccination of the AIDS epidemics appears only question of time. Of course the possibility of the surfacing of some new epidemic disease, such as aviary influenza, is always possible, but only with temporarily limited consequences, until, presumably, medical research comes to grip with it. Mass starvation as a consequence of famine has been largely overcome by progresses in transportation and agricultural technique, with the possible exception of countries plagued by war and heavy internal disturbances. Even if at the moment tensions are re-surfacing on the international food market, following increased demand and the ill-advised subsidization

¹²⁶ And more endowed by experience. On the quality advantages of a more aged labour force see Easterlin, 1996, p. 124. For the economic consequences of population aging see *ibidem*, pp. 113, f.

¹²⁷ Cf. Julian Huxley (1964). Huxley is rather vague however on the instruments. Apparently the main instrument of population control that he envisages is the diffusion and promotion of the technology of birth control (p. 248: "When I say a population policy, I don't mean that anybody is going to tell how many children she may have... It means that you recognize population as major problem of national life, that you have a general aim in regard to it, and that you try to devise methods for realizing this aim. And if you have an international population policy, again it doesn't mean dictating to backward countries or anything of that sort; it means not depriving them of the right ... to scientific information on birth-control, and it means help in regulating and controlling their increase and planning their families.") Fictionally, there is far-reaching demographic planning in Julian's brother Aldous Huxley dystopian novel *Brave New World* (1932).

¹²⁸ A rather provocative and thought provoking discussion of the externalities generated by individual population decisions and the (un)suitability of a deliberate public policy aimed at affecting them is Friedman (1972).

¹²⁹ For an account of various methods of population control in different historical and anthropological contexts, see Caldwell and Caldwell (2003).

¹³⁰ Petri (1965).

of fuel producing crops, another agricultural revolution is in progress through the development of OGMs, which, notwithstanding misgivings and preconceived hostilities, seems essentially a foregone development. The impact of the new revolution appears more far-reaching and of potentially much greater impact than the previous one, because of the much faster process of scientific plant breeding, and the much greater potential of invention of new varieties suitable for the most various environmental conditions.¹³¹ However, alike the Green Revolution, and even more than the latter, the OGMs revolution also presents specific problems of compatibility to the various natural and institutional environments, especially in less developed countries. Obstacles to its spreading are presented by the specific nature of its associated private property rights, and consequent hindrances to imitation of privately owned know-how.¹³² The latter aspect could be partly overcome through internationally concerted public action, involving in particular public, instead of private, funding of research. Moreover public international funding could be provide an opportunity to direct research in areas which, while privately unprofitable, may contribute to stave off humanitarian crises, and help development, of poorer countries subject to environmental degradation. All in all the potentially most destructive factor, besides some sudden environmental disaster, could be eventually war, as a consequence of the spreading of atomic technology and of international tensions building up in an increasingly overcrowded and progressively shrinking world.¹³³

12. War, peace, the Bomb, and their economic consequences

12.1 The economic consequences of war and peace in historical perspective

The game humanity played in the past, when conquest, plunder, territorial expansion and domination, slavery, torture and mass killings were respectable endeavours and part of the rules of the game, and mass murderers acquired the status of national heroes, still remembered and glorified in monuments and history books, has led on the whole to very poor results, as measured at least in terms of demographic and economic growth.¹³⁴ However the real extent to which wars were contributing to hold in check the progress of humanity is difficult to gauge. A strict Malthusian could object that living standards and population would have been held in check by Malthusian factors anyway. But certainly wars brought about untold suffering and destructions both of physical and, even more, of human capital, subtracting resources which could have been better used in principle towards economic and cultural progress. At the same time they tended to bring to the fore populations and civilizations notable for their destructive and coercive power rather than for their peaceful achievements. Whatever the reasons, until recent times the progress of humanity, both in terms of population and of productive achievements, was so slow as to amount, in our present perception of time, more to stagnation than to

¹³¹ See Cuffaro, 2001, p. 139

¹³² Ibidem, pp. 136-144.

¹³³ It is well known that overcrowding is a factor of aggressiveness in animal populations. Some tendencies of this sort could apply to human populations as well, especially if overcrowding leads to tension building processes such as massive migration flows and increasing pressure on natural resources and the environment.

¹³⁴ For a quantitative assessment of the negative impact of war on growth in modern times, see Milanovic (2005).

growth, with long spans of regression. The first millennium of the vulgar era was for Europe a lost millennium: the decadence and fall of the Roman Empire and the dislocations following the barbaric invasions left Europe worse off economically in the year 1000, at the dawn of the new Christian nations, than at the time of the birth of Jesus Christ. Real sustained progress, meaning a substantial overcoming of the Malthusian trap (or anyway, whatever the interpretation, of the near long run stagnation, according to a modern perspective, in world population and economy), had to wait until the Industrial Revolution gradually spread all over the world. But it has been the peace period after the Second World War (localized conflicts notwithstanding) that has led to the greatest acceleration in the speed of demographic and economic advance the world has ever known in its history.

Following the tragedy of two world wars the international community refuses in principle the model of wars of aggression directed to the enlargement of national borders and the acquisition of new territories.¹³⁵ In the post war period these have been very limited: Tibet's conquest by Mao's China, Timor-Leste's conquest by Indonesia, Western Sahara's annexation by Morocco, Saddam Hussein's expansionary wars aimed to acquire new territories, in Iran first, and through the annexation of Kuwait later, and the wars of Yugoslav succession, renovating the old bloody Balkan wars.

In the past a war of conquest had some rationality since the natural productive foundations on which to re-start a growth process were largely unaffected by catastrophic events, as the foundation of wealth and survival was agriculture.¹³⁶ Things appear differently with the drastic change in the economic basis and the advances in military technology. The prosperity of the advanced countries relies on very delicate social and economic mechanisms and a much greater surplus could be enjoyed through voluntary exchange than through conquest and enslavement. This was the point raised by Angell (1913) on the eve of the First World War, declaring its impossibility on rational economic considerations.¹³⁷ Eventually, the "impossible" war broke out, with

¹³⁵ Waging a war of aggression, in particular, has been made an international crime in the charter of the United Nations (art. 39). It is not particularly tranquillizing however that this provision had a precedent in article 10 of the Covenant of the League of Nations but this did not hinder Nazi Germany and the Soviet Union attacking Poland in September 1939, thus triggering the Second World War!

¹³⁶ For a similar view see Gilpin (1981), quoted in Liberman, 1996, p. 9.

¹³⁷ "It is impossible for one nation to seize by force the wealth or trade of another -- to enrich itself by subjugating, or imposing its will by force on another" (Angell, 1913, p. ix). For a recent contrary view see Liberman, 1996. Liberman, drawing on a survey of historical cases argues that "ruthless invaders can, in fact, successfully exploit industrial societies, at least for short periods of time." But "the balance sheets evaluated [in his book] do not consider the costs of military conquest or economic sanctions imposed by states outside the empire...Mainly because other states balance against aggressors, conquest usually leads to disaster"(p. 4). Moreover successful exploitation requires ruthless coercion and repression (p. 5). On balance, it seems quite likely that the economic benefit of free trade may be highly superior to the economic benefits of military conquest., even if the latter is accompanied by ruthless exploitation (in this may lie the often assumed tendency of free trade to lead to peace, while the latter instead could be jeopardized by trade barriers, which could give some justification to the merging of market through imperial conquest; see on this Liberman, 1996, p. 30, and the literature quoted there). But this is particularly true of our modern times where technological progress is particularly fast and the modern fabric of society particularly complex. One thing is to exert outside repressive control over mass production in large factories organized along tayloristic principles (such as it may have been in the historical cases considered by Liberman) under unchanging or slowly changing technology, another in the framework of modern post-industrial economies based on information technology and on

catastrophic economic (not to speak of the non-economic) consequences for everybody concerned, putting a halt to the successful economic progress of the “belle époque”. War is indeed an eminently destructive endeavour, not always avoidable on the basis of strictly rational considerations. Moreover “not the facts, but men’s belief about facts, shapes their conduct”.¹³⁸

12.2 The economic consequences of the Bomb

The economic argument against war becomes much more compelling with nuclear technology. The spreading of nuclear armaments brings about a reduction in the propensity towards armed regional conflicts. After India and Pakistan had acquired nuclear status there have been moments of acute tension, but, unlike in the past, none of these tensions has led to open war, but for the localized Kargil conflict on the Indian side of the Kashmir line of control in 1999, where the possession of nuclear weapons may have contributed to keep the conflict localized and to lead eventually to the withdraw of Pakistani forces.¹³⁹ Since it has become a nuclear power, Arab countries have ceased to wage open war to Israel, with the exception of the 1973 Yom Kippur War, when the Israel atomic capability may have weighted heavily on the extent of American support for Israel,¹⁴⁰ and on the restricted aims of the Syrian-Egyptian offensive.¹⁴¹ Open direct conflicts between nuclear powers have been very rare and localized, such as the Kargil conflict mentioned above and the Russian-Chinese Ussuri conflict in 1969. At the same time, in case of escalation of hostilities towards a global conflict between atomic powers, the consequences could be disastrous, and not only for the countries concerned. The nuclear deterrent could be used instead than for maintaining a cold peace as a safeguard against escalating a conventional conflict to a nuclear war. But waging a conventional war against another nuclear power under the deterrence of a nuclear umbrella, being confident that it will not escalate in a nuclear conflict could be a very dangerous game. In the present world the victory in a nuclear war could be a Pyrrhic one, since the conquered territories would stay contaminated and

sophisticated management of production and innovation, where about three quarters of National Income rely on the production of services in a context of rapid technological progress. The latter could be greatly hampered anyway by the kind of exploitative organization that Liberman is considering. It should be noted that the Liberman’s argument in support to the historical profitability of conquest is ambiguous. It refers rather to the “cumulativity” of the resources of the conquered to be used for the military power of the conquerors rather than for the economic welfare of the latter. Conquest, according to Liberman, could enhance military power through exploitation of the resources of the conquered by the conqueror government towards warlike endeavours favoured by making those resources available to the state. But trade may instead increase economic welfare, without its benefits being amenable to centralized control, especially if the opportunity for trade could be progressively enhanced by technological progress and increased productivity, while economic developments, and so the growth of potential surplus, could be hampered by exploitative dominance.

¹³⁸ Ibidem.

¹³⁹ CSIS, 1999.

¹⁴⁰ Cf. Farr, 1999, and the literature quoted by him.

¹⁴¹ “Arab strategies and war aims in 1967 may have been restricted because of a fear of the Israeli ‘bomb in the basement,’ the undeclared nuclear option. The Egyptians planned to capture an eastern strip next to the Suez Canal and then hold. The Syrians did not aggressively commit more forces to battle or attempt to drive through the 1948 Jordan River border to the Israeli center. Both countries seemed not to violate Israel proper and avoided triggering one of the unstated Israeli reasons to employ nuclear weapons” (Ibidem):

unproductive for the foreseeable future,¹⁴² and the wealth of the defeated would be destroyed with their physical destruction, not to speak of the losses of the victor. Until now this entirely rational consideration (as well as the fear for the enormous losses of a nuclear war) has prevented wars between nuclear powers. But some kind of miscalculation as to the opponent's response could precipitate a nuclear conflict. And unfortunately hate, which may be totally destructive, can provide a stronger motivation than greed.¹⁴³ Moreover the return to the old days when the balance of power was ensuring a precarious equilibrium between "conservative" and "revisionist" powers¹⁴⁴ would entail enormous dangers: an international equilibrium based on the balance of powers, rather than on basic commonly shared values, may lead to war whenever the balance is altered, or seen in the process of being altered. Moreover, the future may bring about the impossibility of having a balance of military power because of the net economic and military dominance of some large and assertive, potentially "revisionist", and expansionist, actors. Poison pills by weaker powers, such as the potential of derailing a conventional war into a nuclear war, with terrible consequences for the stronger aggressor, even in case the weaker is defeated (what we may call the "Samson strategy"), could in the future restrain military aggression by dominant powers, albeit not some kind of suicidal attacks by those motivated by hate and unrestrained by the prospects of their own destruction. But also stronger powers could be tricked in gambling from their position of strength, and their delusion could bring about untold consequences on economic and demographic progress.

13. Conclusion

Our generation has had the privilege of living in a very special period in the history of mankind. Never in history have material conditions progressed at the rate to which we have become used to in the post-war years, never have the different parts of the globe and the different populations become so close, and world population increased at a faster rate. Never have overall life statistics improved in such a substantial way. Still, an important part of humanity lives precarious lives under appalling conditions of absolute poverty, but its relative share, and in more recent times even its absolute numbers, have steadily decreased. In the continuation, and possibly the intensification, of this process may lie the hope to eventually overcome world poverty (at least in absolute terms). At the basis of those achievements there has been a system of production and of organization (whatever its specific variations in the different countries and the different times) that has put to the fore the systematic pursuit of technical progress, and its utilization in all aspects of economic life, while providing the drive and the incentives to do so. A contributing factor has been the intensification and acceleration of world economic and non-economic exchanges ("globalization"). But this same system has also brought about the utilization of technical progress for making increasingly more

¹⁴² But the above does not apply to the neutron bomb!

¹⁴³ Indeed, the object of hate is in damaging or destroying the other, while greed amounts to benefiting oneself irrespective of the welfare of the others, but it does not necessarily imply their destruction. Sometimes it may even imply caring for the welfare of the others, if their survival or collaboration is to the advantage of the greedy.

¹⁴⁴ Such as seemingly aimed for presently by Russia, striving to build up a security alliance with China against the West.

destructive the technology of warfare. For the first time in history mankind has produced the military technology that has the potential to lead to its own demise. The danger of global thermonuclear warfare has kept the world by and large at relative peace for more than sixty years, quite an unprecedented achievement that has presumably very much contributed to the overall positive results. But even if the danger appears to have decreased with the end of the Cold War, the potential for large scale destruction remains, and may increase with the spreading of nuclear technology in presence of persisting or even increasing nationalistic drives, such as by resurging old imperial powers. As always has been the case in history, prosperity and economic progress are by no means foregone conclusions.

References

- Angell, Norman, *The Great Illusion: A Study of the Relation of Military Power to National Advantage*. London: William Heinemann, 1913 (reprint in April 1913 of the September 1912 edition). A selection from the author's synopsis and concluding chapter can be downloaded at World War I Document Archive, http://wwi.lib.byu.edu/index.php/Main_Page
- Asimov, Isaac, *Foundation and Earth*. London, Grafton Books, 1986
- Bartlett, Albert A., *The Essential Exponential! For the Future of Our Planet*. Lincoln, Nebraska: Center for Science, Mathematics & Computer Education, University of Nebraska, 2004.
- Bhagwati, Jagdish, *In Defense of Globalization. With a New Afterword* Oxford: Oxford University Press, 2007 [2004].
- Boeri, Tito, Gordon Hanson and Barry McCormick, *Immigration Policy and the Welfare System*. Oxford: Oxford Un. Press, 2002
- Boone, Peter D., "Politics and the Effectiveness of Foreign Aid". NBER Working Paper Series, working paper 5308, October 1995.
- Boserup, Ester, *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure*. London, G. Allen and Unwin, 1965
- Bourguignon, Francois, and Christian Morrisson, "Inequality Among World Citizens: 1820-1992". *American Economic Review*, vol. 92, n.4 (September 2002), pp. 727-744
- Briggs, Asa, "Technology and Economic Development", in Briggs, Asa et alii (1963)
- Briggs, Asa et al., *Technology and Economic Development: A Scientific American Book*. Penguin: Harmondsworth, 1963
- Caldwell, John C. and Bruce K. Caldwell, "Pretransitional Population Control and Equilibrium". *Population Studies*, Vol. 57, n. 2, 2003, pp. 199-21
- Caldwell, John C. and Thomas Schindlmayr, "Historical Population Estimates: Unraveling the Consensus". *Population and Development Review*, Vol. 28, n. 2. (Jun., 2002), pp. 183-204
- Chen, Shaohua and Martin Ravallion, "How Have the World's Poorest Fared Since the Early 1980s?", *World Bank Research Observer*, vol. 19, n° 2 (Fall 2004), accessed at <http://iresearch.worldbank.org/PovcalNet/jsp/Introduction.jsp>
- Chen, Shaohua and Martin Ravallion, "Absolute Poverty Measures for the Developing World, 1981-2004", World Bank, 2007, accessed at <http://iresearch.worldbank.org/PovcalNet/jsp/Introduction.jsp>
- Chilosi, Alberto, "[On the Economics and Politics of Unrestricted Immigration](#)", *Political Quarterly*, n. 4, vol. 73, 2002, pp. 431-436
- Chu, C. Y. Cyrus, *Population Dynamics: A New Economic Approach*. Oxford: Oxford University Press, 1998
- CIA, *World Factbook*, 2007, available at: <https://www.cia.gov/library/publications/download/download-2007/index.html>
- Cipolla, Carlo, *The Economic History of World Population*. 6-th ed. Harmondsworth: Penguin Books, 1974 [1962]
- Clark, Gregory, *A Farewell to Alms: A Brief Economic History of the World*. Princeton: Princeton Un. Press, 2007
- Collier Paul, "Poverty reduction in Africa", *Proc. Natl. Acad. Sci. USA*, 23 October 2007a, vol. 104, n. 43, pp. 16763-16768

- Collier Paul, *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*. New York: Oxford Univ. Press, 2007b
- Collins, Robert O. and James M. Burns, *A History of Sub-Saharan Africa*. Cambridge: Cambridge Un. Press, 2007
- Cornia, Giovanni Andrea (ed.), *Inequality, Growth, and Poverty in an Era of Liberalization and Globalization*. Oxford: Oxford Un. Press, 2004
- Cornia, Giovanni Andrea, "Income Distribution Changes and Their Impact in the Post-Second World War Period", in Cornia (ed.), 2004, pp. 26-54.
- CSIS (Center for Strategic and International Studies), "Kargil: What Does It Mean?", *South Asia Monitor*, n. 12, 19 July 1999.
- Cuffaro, Nadia, *Population, Economic Growth and Agriculture in Less Developed Countries*. London: Routledge, 2001.
- Dhalla, Surjit S., *Imagine There's No Country: Poverty, Inequality and Growth in the Era of Globalisation*. Washington, DC: Institute for International Economics, 2002.
- Davies, James, Susanna Sandström, Anthony Shorrocks and Edward Wolff, "The World Distribution of Household Wealth", 5/12/2006a, <http://www.weourselves.org/reports/wider-wdhw-report-5-12-2006.pdf>
- Davies, James, Susanna Sandström, Anthony Shorrocks and Edward Wolff, "World Distribution of Household Wealth", power point presentation, London, 5/12/2006b <http://www.wider.unu.edu/research/2006-2007/2006-2007-1/wider-wdhw-launch-5-12-2006/wider-wdhw-powerpoint-presentation.pdf>
- Demsetz Harold, 'Information and Efficiency---Another Viewpoint', *Journal of Law and Economics*, 12, (1969), pp. 1--22, reprinted in H. Demsetz, *The Organization of Economic Activity*, Blackwell, Oxford, 1988, volume 2.
- Diamond, Jared, "The Worst Mistake in the History of the Human Race". *Discover Magazine*, May 1987, pp. 64-66
- Diamond, Jared, *Guns, Germs And Steel : A Short History of Everybody for the Last 13,000 Years*. London: Jonathan Cape, 1997
- Djankov, Simeon, García Montalvo, José and Reynal-Querol, Marta, "The Curse of Aid", March 2006. Available at SSRN: <http://ssrn.com/abstract=893558>
- Dollar, David and Aart Kray , "Trade, Growth, and Poverty". *The Economic Journal*, vol. 114 (493), 2004, pp. F22-F49
- Easterlin, Richard A., *Growth Triumphans: The Twenty-first Century in Historical Perspective*. Ann Arbor: The University of Michigan Press, 1996.
- Easterly, William, *The White Man's Burden. Why the West's Efforts to Aid the Rest Have Done so Much Ill and So Little Good*. New York: Penguin Books, 2006 (Penguin paperback edition 2007).
- Easterly, William, "An Ivory Tower Analysis of Real World Poverty", *The Lancet*, Vol. 370 No. 9597 pp 1475-1476 (available from www.thelancet.com)
- Easterly, William, "Author's response to JD Sachs review of my book", n.d., http://www.nyu.edu/fas/institute/dri/Easterly/File/Easterly_response_to_Jeffrey_Sachs_the_Lancet.pdf
- Eloranta, Jari. "Military Spending Patterns in History". EH.Net Encyclopedia, edited by Robert Whaples, September 27, 2005. URL <http://eh.net/encyclopedia/article/eloranta.military>
- Ember, Carol R., "Myths about Hunter-Gatherers". *Ethnology*, Vol. 17, n. 4. (Oct., 1978), pp. 439-448
- Farr, Warner D., "The Third Temple's Holy Of Holies: Israel's Nuclear Weapons". The Counterproliferation Papers Future Warfare Series No. 2 USAF Counterproliferation Center Air War College Air University Maxwell Air Force Base, Alabama, September 1999.. <http://www.au.af.mil/au/awc/awcgate/cpc-pubs/farr.htm>

- Federico, Giovanni, "Review of Ester Boserup, *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure*." EH.Net Economic History Services, Apr 16 2001.URL: <http://eh.net/bookreviews/library/federico>
- Federico, Giovanni, "The World Economy 0–2000 AD: A Review Article". *European Review of Economic History*, 6 (2002), pp. 111–120
- Federico, Giovanni, *Feeding the World: An Economic History of Agriculture, 1800-2000*. Princeton: Princeton Un. Press, 2005
- Friedman, David, "Laissez-Faire in Population: the Least Bad Solution". An Occasional Paper of the Population Council., 1972. Available at http://davidfriedman.com/Academic/Laissez-Faire_In_Popn/L_F_in_Population.html
- Giddens, Anthony, and Christopher Pierson, *Conversations with Anthony Giddens: Making Sense of Modernity*. Stanford: Stanford Un. Press, 1998
- Haub, Carl, "How Many People Have Ever Lived on Earth?" *Population Today*, February, 1995.
- Hellie, Richard, "Slavery"; *Encyclopaedia Britannica's Guide to Black History*, 2007, accessed at <http://www.britannica.com/blackhistory/article-9109538>
- Hujo, Katja and Nicola Piper, "South–South Migration: Challenges for Development and Social Policy". *Development*, 2007, 50(4), pp. 19–25
- Huxley, Julian, *Essays of a Humanist*. London: Chatto & Windus, 1964
- IMF, *World Economic Outlook: Globalization and Inequality*. IMF, October 2007a
- IMF, *Regional Economic Outlook: Sub-Saharan Africa*, October 2007b
- Kenny, Charles, "Were People in the Past Poor and Miserable?". *KYKLOS*, Vol. 59, 2006, n. 2, pp. 275–306
- Knack, Stephen, "Aid Dependence and the Quality of Governance: A Cross-Country Empirical Analysis", November 1999. World Bank Policy Research Working Paper No. 2396, November 1999. Available at SSRN: <http://ssrn.com/abstract=630769> (revised 2005).
- Kremer, Michael, "Population Growth and Technological Change: One Million B.C. To 1990". *Quarterly Journal of Economics*, August 1993, pp. 681-716
- Lieberman, Peter, *Does Conquest Pay? The Exploitation of Occupied Industrial Societies*. Princeton: Princeton Un. Press, 1996
- Gilpin, Robert, *War and Change in World Politics*. Cambridge: Cambridge University Press, 1981
- Maddison, Angus, *The World Economy*. Paris: OECD, 2006
- Malthus, Thomas, *An Essay on the Principle of Population*. London: John Murray. Sixth ed. 1826 [first ed. 1798], electronic version at the *Library of Economics and Liberty*, <http://www.econlib.org/library/Malthus/malPlong.html>
- Marx, Karl, "Critique of the Gotha Programme". Translation of the original German text in 1875. Available at: <http://www.marxists.org/archive/marx/works/1875/gotha/>
- McEvedy, Colin and Richard Jones, *Atlas of World Population History*. New York: Penguin, 1978
- Milanovic, Branko, "Can We Discern the Effect of Globalization on Income Distribution? Evidence from Household Budget Surveys". World Bank Policy Research Working Paper 2876, August 2002
- Milanovic, Branko, "The Two Faces of Globalization: Against Globalization as We Know It". *World Development* Vol. 31, 2003, n. 4, pp. 667–683
- Milanovic, Branko, "An Estimate of Average Income and Inequality in Byzantium Around Year 1000", December 2004. Available at SSRN: <http://ssrn.com/abstract=647764>
- Milanovic, Branko, "The Modern World: The effect of democracy, colonialism and war on economic growth 1820-2000", August 2005, Available at SSRN: <http://ssrn.com/abstract=812144>
- Milanovic, Branko, "Global Income Inequality: What It Is And Why It Matters?", DESA Working Paper n. 26, August 2006, at http://www.un.org/esa/desa/papers/2006/wp26_2006.pdf

- Milanovic, Branko, "Rules of Redistribution and Foreign Aid: A Proposal for a Change in the Rules governing Eligibility for Foreign Aid". October 2007, at <http://siteresources.worldbank.org/INTDECINEQ/Resources/Rules.pdf>
- Milanovic, Branko, "Ethical case and economic feasibility of global transfers". November 2007, at <http://siteresources.worldbank.org/INTDECINEQ/Resources/Ethical.pdf>
- Milanovic, Branko, "An Even Higher Global Inequality than Previously Thought: A Note on Global Inequality Calculations Using the 2005 ICP Results" (December 28, 2007). World Bank Policy Research Working Paper Series Available at SSRN: <http://ssrn.com/abstract=1081970>
- Milanovic, Branko, "Where In The World Are You? Assessing The Importance Of Circumstance And Effort In A World of Different Mean Country Incomes and (Almost) no Migration". World Bank Policy Research Working Paper 4493, January 2008
- Milanovic, Branko, Peter H. Lindert, Jeffrey G. Williamson, "Measuring Ancient Inequality". World Bank Policy Research Working Paper 4412, November 2007.
- Nel, Philip, "The Return of Inequality", *Third World Quarterly*, Vol. 27, No. 4, pp 689 – 706, 2006, available at: <http://www.ecineq.org/milano/WP/ECINEQ2006-44.pdf>
- Norberg, Johan, *In Defense of Global Capitalism*. Washington: Cato Institute, 2003.
- Peng Xizhe, "Demographic Consequences of the Great Leap Forward in China's Provinces," *Population and Development Review* 13, n. 4 (1987), 639-70
- Petri, Elio, *The 10th Victim* (original Italian title: *La Decima Vittima*), 1965 movie (based on Robert Sheckley's 1953 short story "The Seventh Victim")
- PRB (Population Reference Bureau), *World Population Data Sheet 2007*; at http://www.prb.org/pdf07/07WPDS_Eng.pdf
- Ravallion, Martin, Shaohua Chen and Prem Sangraula, "New Evidence on the Urbanization of Global Poverty". World Bank Policy Research Working Paper 4199, April 2007
- Sachs, Jeffrey, Review of Easterly (2006). *Lancet*, vol 367 April 22, 2006, pp. 1309-1310
- Simon, Julian. *The Ultimate Resource*. Princeton: Princeton University Press, 1981.
- Stiglitz, Joseph E., *Making Globalization Work*. London: Penguin Books, 2007 [2006]
- United Nations, "Annex II - Methods of Aggregation" *Handbook of the International Comparison Programme*. New York: ONU, 1992, accessed at <http://unstats.un.org/unsd/methods/icp/ipc7.htm.htm>
- United Nations, "The World at Six Billion", 1999, at <http://www.un.org/esa/population/publications/sixbillion/sixbillion.htm>.
- United Nations, "World Population Prospects: The 2006 Revision Population Database", 2006, <http://esa.un.org/unpp/p2k0data.asp>
- UNDP (United Nations Development Programme), *Human Development Report 2007-2008*. New York: Palgrave MacMillan, 2007. Downloadable at <http://hdr.undp.org/en/>
- US Census Bureau, "Historical Estimates of World Population", 13 July 2007a, at <http://www.census.gov/ipc/www/worldhis.html>
- US Census Bureau, "World Population Information", 18 July 2007b, at <http://www.census.gov/ipc/www/idb/worldpopinfo.html>
- WHO (World Health Organization), *World Health Statistics, 2007*. downloaded at <http://www.who.int/entity/whosis/whostat2007.pdf>
- WHO, *National Burden of Disease Studies: A Practical Guide*. Geneva; WHO, 2001
- World Bank, *World Development Indicators*, 2005
- World Bank, *Global Monitoring Report*, 2007

World Bank, *Poverty Data: A Supplement to World Development Indicators 2008*. Washington: The World Bank, December 2008.

<http://siteresources.worldbank.org/DATASTATISTICS/Resources/WDI08supplement1216.pdf>

Yao, Shujie, "A Note on the Causal Factors of China's Famine in 1959–1961", *The Journal of Political Economy*, Vol. 107, n. 6, Part 1. (Dec., 1999), pp. 1365-1369

Zolo, Danilo, *Globalisation : An Overview*. Colchester : ECPR press, 2007

STATISTICAL APPENDIX: LIFE STATISTICS

Table 1A¹⁴⁵ Yearly births per 100 population

	1820	1900	1950	1999	2007
Italy	3.9	3.3	1.94	0.93	0.85
West European Average	3.74	3.08	1.83	1	1(EU)
East European Average					0.99 ¹⁴⁶
United States	5.52	3.23	2.4	1.44	1.42
Japan	2.62	3.24	2.81	0.95	0.81
Russia	4.13	4.8	2.65	0.88	1.09
Latin American Average			4.19	2.51	
China		4.12	3.7	1.6	1.75
India		4.58	4.5	2.8	2.27
Asian Average (without Japan)			4.28	2.3	
African Average			4.92	3.9	3.8
World			3.74	2.3	2.02

Table 2A. Average Life Expectancy for Groups A and B, 1000–1999¹⁴⁷ (years at birth; average for both sexes)

	1000	1820	1900	1950	1999
Group A	24	36	46	66	78
Group B	24	24	26	44	64
World	24	26	31	49	66

¹⁴⁵ Source: Maddison, p. 32 (some of the values refer to slightly different years: see the notes in the source); for the year 2007: CIA (2007), and, for the African average, PRB (2007). The data reported in the World Factbook for 2007 range from 0.73 (Hong-Kong) to 5.0. It is notable that among the 223 countries whose data are reported, 9 of the first 10 positions belong to African countries.

¹⁴⁶ Simple average of 17 East-European countries, with values ranging from 8.8 (Bosnia) to 1.2 (Macedonia).

¹⁴⁷ Source: Maddison, p. 33. Group A: Western Europe, Western Offshoots (USA, Canada, Australia and New Zealand), and Japan, Group B is the rest of the world.

Table 3A.¹⁴⁸ Life expectancy at birth

	1820	1900	1950	2007
Italy	30	43	66	79.9
Western Europe	36	46	67	79.5
Eastern Europe				74.5
Russia	28	32	65	65.9
United States	39	47	68	78
Japan	34	44	61	82
Latin America	27	35	51	72.8
China	na	24	41	72,9
India	21	24	32	68.6
Asia	23	24	40	69
Africa	23	24	38	52,2
World	26	31	49	65.8
More developed countries				76.7
Less developed countries				64.6

Sources: Maddison, 2006, p. 32; for 2007 U.S. Census Bureau, International Data Base, at <http://www.census.gov/cgi-bin/ipc/idbagg>.

¹⁴⁸ In order to understand the implication of the data one should consider that the data concerning life expectancy are affected for pre-modern and modern backward societies by very high child mortality rates, while adult life expectancy can be much higher. For instance in a demographic regime such as in the Mopti district of Mali in 1957-58 with a total fertility rate (average number of live birth per woman) of 7.5, life expectancy was 18, but life expectancy at 20 was 48, while in another one, corresponding more or less to the demographic regime of 1650-1750 England, with fertility rate 4 life expectancy was 33, but life expectancy at 20 was 55 (Caldwell and Caldwell, 2003, p. 210).

Table 4A. Some life statistics from WHO, year 2005¹⁴⁹

	Life expectancy at birth		Healthy life expectancy at birth		Adult mortality rate ¹⁵⁰		Under 5 mortality rate ¹⁵¹	Infant mortality rate ¹⁵²	Neonatal mortality rate ¹⁵³	Maternal mortality rate ¹⁵⁴
	male	female	male	female	male	female				
Italy	78	84	71	75	89	46	4	4	3	5
USA	75	80	67	71	137	81	8	7	4	14
Japan	79	86	72	78	92	45	4	3	1	10
Russia	59	72	53	64	470	173	14	11	7	65
India	62	64	53	54	280	207	74	56	39	540
Brazil	68	75	57	62	225	118	33	28	13	260
China	71	74	63	65	155	98	27	23	18	56
South-East Asian Region	62	65	54	55	272	207	68	51	35	460
African Region	48	50	40	42	480	438	165	99	40	910
World	64	68	56	59	233	164	74	51	28	400
European Union¹⁵⁵	76	82						5		

Some interesting extreme values (giving the existing range), from CIA *Factbook* (2007): Birth rate (births/1000) 50 (Niger)--7,34 (Hong-Kong); death rate (deaths/1000): 30.35 (Swaziland¹⁵⁶)--2.16 (United Arab Emirates); Infant Mortality Rate: 184.84 (Angola)--2.3 (Singapore); Life Expectancy at Birth: 83.52 (Andorra)--32.23 (Swaziland); Total Fertility Rate (children born/woman): 7.38 (Mali)---0.98 (Hong-Kong) (1.50 EU).

¹⁴⁹ WHO, 2007. For a definition of the different indicators and the methods used in their assessment, see WHO, *National Burden of Disease Studies: A Practical Guide*. Geneva; WHO, 2001.

¹⁵⁰ Probability of dying aged 15–60 years per 1000 population.

¹⁵¹ Probability of dying aged < 5 years per 1000 live births.

¹⁵² Per 1 000 live births. Mortality in the first year of life.

¹⁵³ Per 1 000 live births. Mortality in the first 28 days of life.

¹⁵⁴ Per 100,000 live births.

¹⁵⁵ From CIA (2007).

¹⁵⁶ In the case of Swaziland the very high mortality rate and the the very low life expectancy can be related to a HIV/AIDS adult prevalence rate of nearly 40% (cf. CIA *Factbook* , 2007)..

Table 5A. Some life statistics of Eastern Europe from WHO, year 2005¹⁵⁷

	Life expectancy at birth		Healthy life expectancy at birth		Adult mortality rate ¹⁵⁸		Under 5 mortality rate ¹⁵⁹	Infant mortality rate ¹⁶⁰	Neonatal mortality rate ¹⁶¹	Maternal mortality rate ¹⁶²
	male	female	male	female	male	female				
Albania	69	73	59	63	167	98	18	16	9	55
Belarus	63	75	57	65	366	133	9	7	3	36
Bosnia	70	77	62	66	186	88	15	13	10	31
Bulgaria	69	76	63	67	213	92	15	12	7	32
Croatia	72	79	64	69	166	65	7	6	5	10
Czech Rep	73	79	66	71	156	70	4	3	2	9
Estonia	67	78	59	69	281	100	7	6	4	38
Hungary	69	77	62	68	256	107	8	6	5	11
Latvia	65	76	58	68	314	114	10	8	6	61
Lithuania	65	77	59	68	326	109	9	7	5	19
Poland ¹⁶³	71	79	63	68	208	79	8	6	5	10
Romania	68	76	61	65	230	102	19	16	10	58
Russia	59	72	53	64	470	173	14	11	7	65
Serbia	70	75	192	98	9	8
Slovakia	70	78	63	69	201	77	9	7	4	10
Slovenia	74	81	67	72	152	67	4	3	2	17
Ukraine	61	73	55	64	403	150	17	13	7	38

¹⁵⁷ *World Health Statistics*, WHO, 2007. For a definition of the different indicators and the methods used in their assessment, see WHO, 2001.

¹⁵⁸ Probability of dying aged 15–60 years per 1000 population.

¹⁵⁹ Probability of dying aged < 5 years per 1000 live births.

¹⁶⁰ Per 1 000 live births. Mortality in the first year of life.

¹⁶¹ Per 1 000 live births. Mortality in the first 28 days of life.

¹⁶² Per 100,000 live births.

¹⁶³ From CIA (2007).