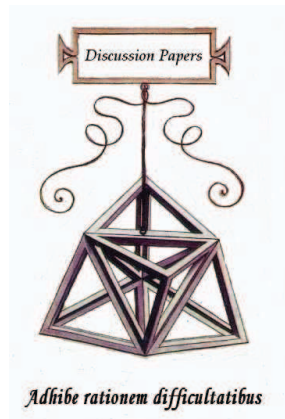




Discussion Papers

Collana di
E-papers del Dipartimento di Scienze Economiche – Università di Pisa



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Poverty, Population, Inequality, and Development in Historical Perspective

Discussion Paper n. 97

2010

Poverty, Population, Inequality, and Development in Historical Perspective

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Revised version 2/6/2010

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 predicaments of the present world (such as poverty, inequality, backwardness) appear in a somewhat different light than in many current discussions, especially by sociologists, radical economists and political scientists. In the present paper 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 connection with the contemporary systems of production and of international relations. Some considerations concerning future possible developments conclude the paper.

JEL Classification: P0, 010, N0.

Keywords: poverty, population, development, distribution, inequality, extraction rate, international relations, globalization, transition, colonialism, slavery, Zen economy, migration, economic consequences of war and peace, atomic warfare.

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1. Introduction and outline

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 basic reason for this is that never have there been so many people around. Indeed, never in the history of the world has the percentage of (absolutely) poor people been so low. Moreover, quite recently even the absolute number of very poor has kept decreasing. The preoccupation with overcoming backwardness and poverty, helping the poor of the world to reach better living standards, has been translated into development assistance and in the search for the best way to help countries to develop. But the results of development assistance have been by and large disappointing. Contrary to the liberal enlightened perspective, no easy recipe for the problem of backwardness, and for the specific one of the fragile states, is in sight. But, if we are looking to the post-war experience, it is fair to say that the continuation and intensification of the globalization process could certainly help. 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 in historical times. 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 exchange. 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, which 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 threatening the 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

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).

² This means all-out wars between major military powers. Of course there was no want of “minor” conflicts (for a list of them and an estimate of their presumed victims see Balint, 1996), but for relative intensity and proportion of victims in the global world population they were apparently of much lesser importance than in other epochs.

potentiality 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 very 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.

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 2005 was estimated as 2.56 billion, more than the entire world population in 1950.⁵ The number of extreme poor consuming less than one dollar a day in 2005 is reckoned to have been higher than 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 the start of its spreading abroad); the number of the extreme poor in previous years is estimated to have been even higher, about 1.9 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).⁶ See the data in the tables 1 and 2:

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.).

⁴ In the text we use the colloquially usual distinction of 1 and 2 dollars a day. Recently the World Bank has updated its definitions following a revised and extended appraisal of PPP exchange rates. The data in the tables 1 and 2 are according to the new definition. We shall deal with these issues in the next section.

⁵ 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 Bhalla (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.

⁶ The data in the fourth row of the two tables below 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.

Table 1. Number of people living with less than 2\$ a day (millions)

Region	1981	2005
East Asia & Pacific	1,278	728
of which China	972	473
Europe & Central Asia ^a	35	41
Latin America & Caribbean	89	94
\Middle East & North Africa	46	51
South Asia	799	1,09
Sub-Saharan Africa	291	555
Total	2538	2560
Excluding China	1,566	2,142

Source: World Bank (2009), table 2.8, P.70.

^a66 in 1999.

Table 2. Number of people living with less than 1.25\$ a day (millions)

Region	1981	2005
East Asia & Pacific	1072	316
China	835	208
Europe & Central Asia ^a	7	17
Latin America & Caribbean	47	45
Middle East & North Africa	14	11
South Asia	548	596
Sub-Saharan Africa	211	388
Total	1,898	1,373
Excluding China	1063	877

Source: as in the table 1.

^a24 in 1999

2.1 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.⁷ The dynamics of the poverty rates is just a manifestation of the overall costs of transition, as borne out by the dynamics of national income and, in the case of the former USSR, of vital statistics (see tables 5, 7 and 9 below). The psychological hardship of the new poor in transition countries could have been made worse “by the drop from earlier achieved levels and expectations, and the loss of security” (Nuti, 2009). But in comparison to the countries where poverty was more permanent and more widespread the new poor in transition countries could benefit of the household goods accumulated in the past and of a better chance to be helped by better off friends and relatives.

⁷ Cf. World Bank (2009), p. 70..

2.2 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 2005, estimated by the World Bank (2009), as well as the estimate of the size of world population in 2005, reported in table 3, the share of world population living in poverty diminishes from 94,4% in 1820 to 39% in 2005, that of those living in extreme poverty from 83,9 in 1820 down to 21% in 2005. In the end, taking into account the fact that in the period the share of the poor has greatly diminished, 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 3.⁸

Table 3 Human population in the course of history (in millions)

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
2010	6,815, April 2010, as projected according to the World population clock

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, 2008, with the exception of 2001, taken from US Census Bureau 2007b.

⁸ 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.

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 till the dawn of the industrial revolution (for which we may conventionally take the year 1750). 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.

2.3 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, 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).⁹ Subjective deprivation may be a function of achieved living standards, and increasing expectations, while relative poverty depends on distribution. Subjective poverty 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. Notwithstanding all these complex qualitative aspects of poverty, without a common quantitative measure one could hardly make intertemporal comparisons. Of course, in making them 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 vital statistics such as in particular life expectancy (see tables 7 and 9 below), which refer to qualitative important aspects of living standards.

How are the poverty benchmarks of the World Bank at 1\$ a day and 2\$ a day determined? Basically the first refers to the average national poverty level of a set of the poorest countries of the world, and the second to the average national poverty level of the developing countries as a whole. Recently the World Bank has revalued the dimension of world poverty, following a new expanded data base of household income and expenditure surveys, and a new comprehensive assessment of PPP (Purchasing Power Parity) exchange rates. In particular the internal price level in a number of poor countries has turned out to be higher than previously understood, and thus the purchasing power of international dollars lower. A reason advanced is that the lower quality of goods consumed by the poor in poorer countries was not sufficiently accounted for.¹⁰ 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\$ of 2005 international purchasing power. According to the new criteria extreme poverty is more widespread than according to the old. However the dynamic

⁹ Kenny emphasizes the negative impact of increasing expectations and new consumer goods on welfare or happiness. But happiness is a rather subjective matter, 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 many caveats, among others of the kind argued by Kenny. On happiness and economic growth see also Easterlin, 1996, pp. 131-144.

¹⁰ Cf. World Bank, 2008, pp. 3,8.

aspect of world poverty has remained qualitatively the same, since even with the new estimates “over 15 years global poverty fell by an average of 1 percentage point a year” (World Bank, 2008, p.1). “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). 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).

3. An unequal world

While a considerable share of 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 development¹¹ (Davis et alii, 2006a), shows the extent of world inequality in the distribution of personal wealth:¹²

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\$)¹³ In 2000 the 1% richest adults owned the 40% of overall private wealth (32% in PPP\$ terms)¹⁴; the richest 10%, 85%; the poorest 50%, 1% (4% in PPP\$ terms).¹⁵ The Gini index of inequality of overall world wealth distribution (calculated using current exchange rates) is given as 89 (80 in

¹¹ World Institute for Development Economics Research: <http://www.wider.unu.edu>.

¹² 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 refer to the year 2000, and are either measured in dollar terms at the current exchange rates or in Purchasing Power Parity dollars (PPP\$; this means that all values are converted in dollars using exchange rates so determined that the purchasing power of the dollar will be more or less the same once transformed in the various world currencies). 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 also be noted that an inquiry such as the one referred to above is based on limited data and fraught with methodological difficulties; it must be therefore stressed that, as always is 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 above source.

¹³ *Ibidem*, Table 8.

¹⁴ “37% reside in the US, 27% in Japan” (Davies et alii, 2006b).

¹⁵ Davies et alii, 2006a, Table 10, and Table 11a.

PPP\$ terms)¹⁶, the same as that of a group of 10, where a single person has 1000, and the remaining nine 1 each.¹⁷

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 world income distribution is around 65% in the contemporary world.¹⁸ To make a comparison, the Gini index of the distribution of family incomes of Italy is reported (in CIA, 2009) as 32, of the USA 45, of Sweden 23. The state where the Gini index appears to be highest is Namibia with 71, but perhaps only because in other, even more unequal less developed countries endowed with plenty or natural resources no statistical data allowing its calculation are available.¹⁹

Table 4. Poverty and income distribution in recent world history

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) ^a	44	18

Data taken from Bourguignon and Morrison (2002, p. 731); the percentages of the two right cells of the last row are calculated from population data in table 3 and World Bank poverty data according to the older 1\$ - 2\$ methodology (which is used by Bourguignon and Morrison). ^aCalculation from 2002 World Income Distribution Database in Milanovic (28/12/2007); the figure between brackets is calculated using the recently revised set of PPP\$ exchange rates.

3.1 Inequality between nations and inequality inside nations

Looking back at history it appears that in the past (before the “great divergence”²⁰) 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 the weight of the inside nations component seems to have somewhat

¹⁶ Ibidem, Table 12..

¹⁷ Davies et alii, 2006b, p. 9.

¹⁸ The paper by Milanovic contains an interesting critical review of the different methodological approaches used to get those values.

¹⁹ Such as Equatorial Guinea that has a per capita income higher than Germany or the UK (CIA 2010), but where the great bulk of the population allegedly lives in desperate conditions (cf. “Playboy waits for his African throne”, *Sunday Times*, 3/9/2006, available at: <http://www.timesonline.co.uk/tol/news/world/article626511.ece>).

²⁰ Cf. Pomeranz, 2000.

increased, but the trend is not uniform in the different regions of the world.²¹ 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 is a factor contributing to the increased inside world 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 50 in 1820 up to the present values (see table 4). 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.²² But it seems plausible that income inequality 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. In a quite recent paper Milanovic (2009) revises the estimates of Bourguignon and Morrison, arriving at some interesting quantitative conclusions: The global Gini coefficient for 1820 is reduced to 43. The Gini coefficient measuring inequality between nations (where individual incomes inside any given nation are taken as equal to the average value) raises from 15 to 32 between 1820 and 1870, increasing up to 55-60 in the after WWII period, showing some reduction in the last twenty years due to the economic progress of China and India, in particular. Between 1820 and the present times, the between countries component of the global world inequality index raises from 35 to 80-85 percent.

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

4.1 Poverty, inequality, maximum potential inequality, and the extraction rate

According to table 4, while world inequality, as measured by the Gini coefficient, has steadily increased since 1820 (an increase of the coefficient between 31% and 40%, according to the two different estimates of the 2001 value), the proportion of paupers in the world has steadily decreased.

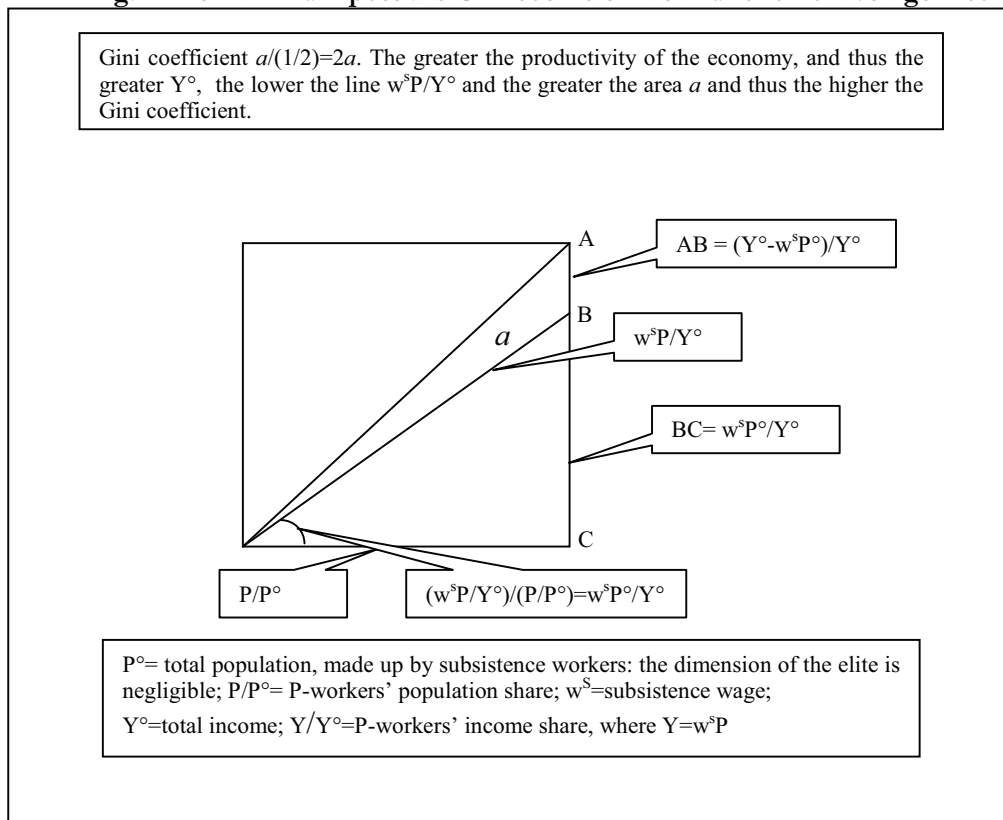
Under primitive conditions, when per capita incomes are close to the subsistence level, the amount of surplus the economy can produce above physical subsistence is limited. This limits the percentage of national income that can be appropriated by the elite, and thus the maximum level of the inequality measure (such as the Gini coefficient or the Theil index) that can be possibly achieved, assuming an elite dimensionally nought in relation to the whole population (see fig. 1). As per capita levels increase, this leads to an increase in the percentage of the national income that could be accounted for as surplus above subsistence, and to an increase in the maximum achievable inequality, as measured, say, by the maximum Gini coefficient compatible with the maintenance of the mass of the

²¹ Cf. Nel, 2006, p. 697I; IMF, 2007a, pp. 138 f.

²² And indeed the methodological approach of the two authors appears to be particularly rough. See on this regard Milanovic, 2009, pp. 2-3; Baten et alii, 2009. On the other hand the results of the latter study, pursued through an alternative, but also rough, methodological approach confirm on the whole Bourguignon and Morrison's results.

population at the physical subsistence level,²³ and thus with the minimal condition ensuring persistence in its actual dimensions of the given society over time.²⁴ Thus we may consider

Fig. 1 The maximum possible Gini coefficient as a function of average income



as a true measure of the extent of inequality achieved by a given society not the inequality index (such as the Gini coefficient) *per se*, but the percentage achieved of the maximum inequality index associated with a given per capita income level. According to the definition in Milanovic (2009) and Milanovic et alii (2007), this is the inequality extraction ratio (from now on: *ier*). With the increase in world per capita income following the industrial revolution the maximum possible inequality index, which may be measured in terms of Gini coefficient or of Theil index, progressively increases. According to Milanovic (2009, p. 18) the maximum possible world Gini coefficient increases from 56 in 1820 to 95 in 2005.

²³ 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."

²⁴ In a Malthusian perspective the population itself can be seen as a function of the part of income that is allocated in supplying subsistences. By given resources and technology, whenever decreasing returns set in there are two conflicting effects of population increase on the size of surplus: 1. by any given per capita surplus, more people bring in more total extractable surplus; 2. but more people decrease per capita surplus produced. If the relationship is perceived, it can affect, in theory at least, the extraction and population policy of the elite, since under pre-industrial circumstances more extraction can bring about a population reduction, less extraction an increase. It can be easily seen in this respect that in the long run the size of the population that allows the maximum surplus extraction is when the marginal productivity of labour is equal to the subsistence wage, while the maximum possible population is when there is no surplus and per capita income is equal to the subsistence wage.

As we have seen from the Bourguignon-Morrison (henceforward BM) data the actual world Gini coefficient has increased, but at a lower rate. Taking the data of table 4 this means that the inequality extraction ratio decreases from $50/56=89\%$ in 1820 to $66/95=70\%$ or $70/95=74\%$ (in case of the higher Gini estimate) in 2005. However, Milanovic (2009) brings down the Gini coefficient in 1820 to the lower level of 43, and this leads to a much lower reduction in the extraction ratio between 1820 and 2005, from $43/56=77\%$ to 74 or 70%. In terms of the Theil index, however, the reduction in *ier* is much more relevant, halving from 70% in 1820 to 35% in 2005 (p. 18). Even the almost invariant Gini extraction rates however hide quite a deep change: while the inequality extraction rate inside nations has on average strongly decreased, the between nations component of inequality, and of the inequality extraction rate, had markedly increased. We may arrive therefore at the conclusion, on the basis of the degree of the decrease of inequality extraction rate inside nations, that on the whole the propensity to inequality has very much decreased, and that the responsibility for the increased world inequality between 1820 and present times is entirely of the “great divergence”, the dramatic increase in the well being of the economically more advanced countries. The overall trend towards the decrease of inequality (and of the extraction ratio) inside nations could have been a consequence of the changed nature of political and economic institutions and of greater economic and social complexity, both causes and consequences of modern economic growth. To some extent the degree of 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 Gini coefficient) without bringing about a reduction of income produced, and of its growth.²⁵ At the same time too much inequality can have a negative impact on income and growth.²⁶ One could then modify 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.²⁷ The extraction rate would then refer to the proportion of the difference between the two, concretely attained by an individual economy. At the same time it is conceivable that the degree of inequality compatible with the attainment of a certain level of per capita income could vary according to the specific institutional characteristics of the economic system.

²⁵ “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.

²⁶ 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 it could be u-shaped (too little as well as too much inequality being adversary to growth) see Cornia et al. (2004).

²⁷ Operationally we could, for instance, take the minimum level of inequality in comparable economies having similar levels of per capita income as a lower bound to the minimum amount of inequality compatible with the sustainable production of the given per capita income., and as an upper bound the maximum level of inequality in comparable economies having similar levels of per capita income.

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). As a consequence one can argue that the income inequalities of the present have lesser relevance than the inequalities of the past, since they could be associated with lower inequalities in terms of welfare. Another relevant consideration is that welfare (what is called welfare in common language) depends on a set of non-economic circumstances, such as degree of inequality in social dignity, degree of inequality in civil rights, feeling of personal security, envy or compassion, etc. Furthermore one should also consider the different subjective cost, or satisfaction, of productive activities (such as discussed in the edonic theory of wages), the value attributed to economic success, the life standards needed for some professionals to “function” as such, the structure of political power, the rule of law, and personal dangers as related to status. But all these kinds of considerations, which are akin to those made before with regard to poverty in section 2.4 would lead us too astray and we shall be content to refer to the basic economic data, taking comfort from the fact that people vote on welfare with their feet, moving from countries where per capita incomes are lower towards countries where per capita incomes are higher. Thus it may be fair to assume that inequalities in income and inequalities in welfare go together.

In the end, seen in an historical context, the extent of present economic 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 abject poverty, but on the fact that on the whole the lot of humans has dramatically, albeit quite unequally, improved.

We could then modify Milanovic’s concept of extraction rate as referring to the additional inequality above the minimum level compatible with the production of at least the given per capita income. How much inequality would be needed to bring about a given production level is not de facto determinable, as it may depend on a number of different circumstances that differ from one country to another, from one period of time to another, such as technology, availability of human and social capital, tradition and mental structures, dimension of a country, social knowledge of possible organizational variants etc. In the end a discourse of this kind could become rather murky, as always is the case with counterfactuals. But it seems plausible that some inequality is needed, if only for incentive and allocative purposes, in order to achieve some given rate of production, even with the most egalitarian approach to social organization. The above notional modification to the concept of surplus extraction, even if not easily quantifiable, may strengthen the conclusion that overall the rate of surplus extraction could be markedly lower nowadays than in the past if one considers that part of the increased in inequality of present times, as measured by Gini coefficient, could be the inevitable by-product of a more complex system of production leading to much higher per capita incomes, while inequality in the past could have been to a greater extent the consequence of an intrinsically exploitative system of social relations.

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.²⁸ 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 of natality).²⁹ 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,³⁰ and the low educational attainments, contribute to explain the tensions and bloody conflicts that have engulfed that unfortunate continent.³¹

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.³² Indeed, it appears that for reducing the plight of the poor more globalization is needed, not less.³³ Globalization improves the welfare of the worst off

²⁸ The extreme poverty rate of less than 1\$ a day 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).

²⁹ The impact of economic growth on the Mortality Revolution, and hence on demographic growth (before fertility controls step in) is downplayed by Easterlin (1996, pp. 69-93).

³⁰ This does not mean that “natural” ethnical state boundaries would have existed anyway, given the patchwork distribution of ethnicities in the African continent. At any rate the complex ethnical structure of many African states appears to be an obstacle to development (cf. Easterly and Levine, 1997). The great success story in Africa, that of Botswana, may not be unrelated to the relatively great (for African standards) ethnic homogeneity of that country (ibidem, p. 1218).

³¹ For a recent in-depth assessment of Africa’s economic predicaments see Collier, 2007a, and more amply, Collier 2007b.

³² For the negative overall impact of protectionism on growth, see the quantitative inquiry in Milanovic (2005a). Cf. also IMF (2007a, p. 157) for the favourable impact of international trade on the relative position of the lower quintiles.

³³ 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 progress in communications and transportation, together with international trade and financial liberalization, have much contributed to all aspects of globalization.

essentially because it is conducive to greater growth³⁴ that spills over to the very poor.³⁵ However not necessarily globalization and growth, considering also the impact of technical progress, lead to an improvement of the worst off in relative terms³⁶ and increased inequality could contribute to offset the positive impact on welfare of the increases in real incomes.³⁷ 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.³⁸ On the other hand economic “globalization” (in the sense of an increase of trade and financial flows,³⁹ 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 anyway⁴⁰) and decrease inequality in the less developed ones (because of the prevailing impact of trade liberalization).⁴¹ 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).

³⁴ 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).

³⁵ “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” (IMF, October 2007a, p. 141).

³⁶ 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.

³⁷ 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.) Finally, migration can be in itself a cumulative process, since successful migrants can finance through their remittances the travel costs of those left behind, and, at the same time, contribute to reduce the other costs of emigration through the “friends and relatives effects”.

³⁸ Cf. IMF (2007a, pp. 139-141).

³⁹ 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).

⁴⁰ 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 (. IMF (2007a, 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).

⁴¹ Cf. IMF, 2007a, ch. 4, pp. 135-170.

4.3.2 *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;⁴² 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”⁴³, but with somebody else’s money and resources.⁴⁴ 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.⁴⁵ 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.⁴⁶ Nevertheless the worsening of credit rating, and the consequent reduction in the capability to borrow, of poorer debtors could have some positive side.⁴⁷ Often the debt problem arises from the propensity of populist and/or corrupt governments to over-borrow 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 in 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 debts owed to the International Financial Institutions.⁴⁸

None of the many who deem just and natural that the pharmaceutical industry renounce exploiting the intellectual property of anti-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.⁴⁹ An alternative, more practical, way to

⁴² The schemes that have been proposed in regard, reviewed by Milanovic (November 2007), seem utterly unrealistic.

⁴³ Collier, 2007b, p.4.

⁴⁴ 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).

⁴⁵ For the ambiguous aspects of debt relief, in particular that affecting the International Financial Institutions, see Easterly (2006), pp. 230-236.

⁴⁶ On the other hand the creation of such a special fund would bring about an obvious moral hazard problem.

⁴⁷ On this see Stiglitz, 2007, pp. 216 f.

⁴⁸ 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”.

⁴⁹ 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,

overcome the issue of the excessive cost of patented drugs would be for poorer countries not to 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.⁵⁰ 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.⁵¹ With the Doha Declaration (adopted in Doha, in November 2001 by the WTO Ministerial Conference) the extent of TRIPS has been attenuated, and some further development in this direction could be contemplated in future WTO negotiations.⁵² 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 to the underdeveloped economies (or some subset of them such as the poorest ones) their free utilization.⁵³ 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 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.⁵⁴

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.

⁵⁰ 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 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 a first information and direction on previously uncharted territories.]

⁵¹ On TRIPS and intellectual property issues concerning less developed countries see Stiglitz, 2007, pp. 103-132.

⁵² 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 undertake far-reaching specific import controls, as they do on many commodities in general. 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.

⁵³ There are also other profiles to be accounted for: intellectual production has low material and energy intensity, does not produce goods that must be disposed for at the end of their consumer cycle. Thus to shift from the production of material goods to the production of intellectual goods could have many advantages.

⁵⁴ 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

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 countries, which, in its apparent paradox, may capture a relevant aspect of international aid.⁵⁵ What is sometimes overlooked in popular discussions 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 (“aids goes to governments, not to poor people: much of it benefits relatively well-to-do groups”⁵⁶), and governments in poorer countries are often comparatively more corrupt and inefficient.⁵⁷ There is the damaging possibility that aid be simply wasted away and siphoned off by corrupt regimes, or, even worse, spent in armaments, feeding third world wars.⁵⁸ 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.⁵⁹ 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.⁶⁰ Theoretically speaking aid could aid reform and better governance through ex-ante conditionality, but, besides

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 of rents for **past** production of intellectual goods, to the advantage of some who were not involved in their creation, reducing their diffusion and enjoyment, not to an incentive for future production,

⁵⁵ 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.

⁵⁶ Bauer, 1976b, p. 397. According to Milanovic (2005b, pp. 133-34) even random transfers from the poorest decile of the richest countries with not too skewed income distribution (so this does not apply to rich inegalitarian countries such as the United States) to the richest decile of the poorest countries would make the international distribution of incomes less unequal, taking into account the relative positions in the international income distribution. But aid transfers are not random, and as long as they directly benefit the ruling political class in poor countries, whose revenues could be well above those of the upper decile, and they may turn out to make the international income distribution more unequal, rather than equal.

⁵⁷ 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).

⁵⁸ According to Collier (2007b, p. 103) “something around 40 percent of Africa’s military spending is inadvertently financed by aid”.

⁵⁹ 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.”

⁶⁰ See Djankov et alii (2006).

being strongly resented as a violation of sovereignty, and sometimes as a plot of richer countries to the detriment of aid receivers, smacking of paternalism, neo-colonialism, or even imperialism, ex-ante conditionality apparently does not work in practice, at least with respect to the poorer countries with worse governance.⁶¹ 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.⁶² According to Boone (1995) “Aid does not significantly increase investment and growth, nor benefit the poor”.⁶³ There is presently a vast opinion on the negative aspects of aid, as exposed also in some recent bestsellers, but one may remind that many considerations that have become popular in recent times were voiced by Peter Bauer in times when they were considered politically incorrect and contrary to common opinion.⁶⁴ Some more optimistic assessment could be reserved to specific forms of aid directly aiming to remove some kind of barrier to development, such as the aid-for-trade scheme, which is mired to remove the administrative and physical constraints to international trade.⁶⁵ But here too there is the problem of assessing, aside from the intentions and the means, the effective destination and implementation of the aid effort. A much more effective and less complicated way, but perhaps hardly politically feasible, way to help the poorer countries to trade would be eliminate the restrictions on their imports in the markets of the richer countries, extending the system of generalized preferences to the areas where they are effectively competitive, such as “simple” manufactured products. On the other hand there is a specific type of aid that the more prosperous countries are giving freely and massively, and mostly unintentionally, which mostly goes unremarked. 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.⁶⁶ The same applies to the example provided by the economic, social and political institutions of more developed 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. Of course ballots serve their purpose if they are credible, this means not fundamentally rigged, otherwise sham democracy is not of much use.

⁶¹ Collier (2007b), pp. 109-110. For a consideration how aid could be tailored to really help the development of “the bottom million”, see Collier’s chapter 7, pp. 99-123.

⁶² 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. For a recent survey of the literature on the effectiveness of aid to enhance the growth prospects of poor countries, and a more positive conclusion, see Arndt et al. (2009). An argument making ethically desirable massive income transfers to the poorer countries of the world that is frequently advanced refers to the twin legacies of slave trade and colonialism. We shall return on this issue later on, in section 5..

⁶³ For the discussion following Boone’s controversial paper, and further interesting contributions on the issue, see Easterly (2006), pp. 45-50. The fact that mere handouts to the governments of more backward countries may not be able to improve their development prospects is borne out by the curse of natural resources, whereby rents from natural resources would not help, but rather hinder successful economic development.

⁶⁴ See for instance Bauer, 1976b, pp. 95 f.

⁶⁵ Cf. Njinkeu and Cameron, 2008.

⁶⁶ See below, tables 5 to 9.

4.3.3 *Changing the basis of the international economic order*

As to changing the basis of the international economic order from free exchange and market to supernational planned allocation and material barter, even aside from the concrete issue of its (in)feasibility, the past 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, alike 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,⁶⁷ 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.⁶⁸ 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, particularly in those with good natural resource endowments, 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,⁶⁹ not to speak of the much higher risk of civil war and instability associated with “dependence upon primary commodity exports”.⁷⁰

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. But for good or for worse

⁶⁷ 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.)

⁶⁸ See Milanovic (2008). Owing to the very high relative premium of changing country in relation to the restricted probabilities of advancement by remaining in a poor country, the pressure to migrate must be very high from poorer countries, especially towards rich countries where income distribution is more egalitarian (supposing the expected destination of the migrants to be mostly in the lower distributional range of the countries of immigration). In turn this may contribute to bring about a lesser egalitarian distribution in the receiving countries, in particular because of lower propensity towards redistribution and interclass solidarity as a consequence of increased ethnic differentiation and the immigration pressure.

⁶⁹ See Nel (2006), pp. 697-698 and the literature quoted there.

⁷⁰ Collier 2007b, p. 21. According to Collier some international charter agreed among all main industrial partners requiring greater transparency in the conditions of 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 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.)

humanity is divided into separate territorial states, and solidarity towards the citizens of other states is usually much weaker than solidarity towards fellow citizens, or, even more, especially where 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.⁷¹ John Lennon's utopia of *Imagine there's no countries Nothing to kill or die for -- And no religion too* is still very far off.⁷²

4.3.3.1 *Breaking the actual international economic order with the violence of the worse off*

We have seen that a suitable alternative to the basic principles of the actual international economic order and to increasing globalization does not seem to exist. As to a general process of income redistribution among the states of the world, this seems utterly unrealistic (and not necessarily productive of a substantial betterment of the situation of the worse off of the world). But let us suppose that redistribution is forced by the less developed countries through violence, analogously to what has often happened in the historical past, when the civilizations of the Middle East, South- East Asia and Europe were invaded or taken at ransom by warlike "barbaric" peoples coming down from the fringes of the civilized centre. Could a forced world redistribution through violence be achieved? Let us suppose that conquest and domination by the less developed could be achieved through the unwillingness of the more developed to resort to the means available to defend themselves (such as for instance the use of atomic power). Could this bring betterment and prosperity to the masses of the poor of the world? This seems hardly a possibility. The idea that an advanced country, whose main wealth is the stock of its human capital could be run through domination and violent coercion to the benefit of some conqueror, much poorer because endowed with much less human capital, does not seem realistic.⁷³ And it seems also unrealistic that under some hypothetic circumstances the ruling elite of the conquering state would exert its exploitation of the conquered to the benefit of the poor of their state rather than of itself. We shall return later on these issues

4.3.4 *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"⁷⁴ (where either internal or external conflicts are often at the

⁷¹ Cf. Neal, 2006, pp.702-703.

⁷² On the other hand to have peoples belonging to different sovereign constituencies ("states") can be optimal if people are clustered in groups with distinct culture and preferences (cf. on this Muller 2005), this means until "globalization" will eventually have unified culture and prevailing preferences all over the world. But even in this case some technical problems of managing very large constituencies could lead to the optimal subdivision of the world into distinct sovereign states.

⁷³ See Simon (1989), p. 175.

⁷⁴ World Bank (2007, pp. 2-3).

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 of 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. 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 of ending the patronizing approach,⁷⁵ leaving 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.⁷⁶ We may just remind the disastrous consequences of Ruanda’s internal conflicts on Congo/Zaire or, quite recently, of Mugabe’s autocratic 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. A paradigmatic case is the massive influx of refugees (estimated at 11 million) from Bangladesh to India after the Pakistan military repression in 1971, amounting to “demographic aggression”, and prompting the Indian intervention in the conflict, resulting in Bangladesh independence.⁷⁷ 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.⁷⁸

4.3.5 Migration

A way to mitigate the plight of the worse off, as well as of remedying the injustice of the strict interrelation between somebody’s place of birth and vastly different life prospects, could be to allow unrestricted immigration from the poorer to the richer

⁷⁵ The latter is exposed and lamented by Easterly, and others (cf. Easterly, 2006, pp. 26-27).

⁷⁶ Cf. Collier, 2007b, p. 31.

⁷⁷ Cf. Marwah, 1979, p. 560.

⁷⁸ 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).

countries. Indeed, “controlling for country of birth, country of education, years of education, work experience, sex, and rural-urban residence” the real wage an average migrant worker receives in his home country is only a fraction of what he may receive in the United States,⁷⁹ or indeed in almost any OECD country. So long as the wage differences reflect differences in productivity this also implies an obvious massive inefficiency in the world allocation of manpower. For the average worker of a poor country the difference is enhanced by the much lower probability that somebody born in a poor country could achieve the same degree of education as one born in an affluent one. Considering the huge differences in per capita incomes and living standards, and that the prospect of improving one’s lot in a poorer country is bound to be much greater through emigration than through internal advancement⁸⁰ we may easily understand why the pressure towards immigration in the richer countries appears almost irresistible. 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. Countries of emigration become at the same time countries of immigration from even poorer countries, such as notably in the case of Eastern Europe as a whole, or of North Africa.⁸¹ In the usual model of international trade free migration leads to greater efficiency (in the sense at least of the principle of compensation: those who are gaining gain more than what others are losing), but the political and social consequences of unrestricted migration in the immigration countries, which could deeply affect the social fabric, and thus the conditions of production, investment, and exchange, are not considered. At present those who succeed in reaching the heaven of a richer country have at least a heaven where to turn on. If present world heavens were reduced to hell, reproducing the illnesses of the countries from which people are flying, there would be no heaven anymore. Indeed, in case the obstacles to immigration were drastically reduced by abolishing the administrative constraints, as seemingly advocated by Bhagwati,⁸² and more or less explicitly by many others,⁸³ the logical consequence would be an intensification of migration flows, up to the point where the worse off in the better off countries are about as good off, or rather as bad off, as the worse off in the worst off countries. In theory, following massive migration the lot of the inhabitants of the worse-off countries could improve, because of lower pressure on national resources, and reduced labour supply, to the point of stamping off further massive migratory pressures. O’Rourke (2004), considering the experience of the great migratory flows out of Europe in the nineteenth and early twentieth centuries arrives at the conclusion that “emigration is a self-limiting process”, since it brings about a reduction in the gap between the wage levels of the source and of the receiving countries. This cannot be generalized to the present situation, however, because of the huge gap in living standards, much higher than during the historical period of the great transatlantic migration, the present great differences in demographic potential, the lower relevance in the present world of the population pressure on agricultural resources as an inducement to

⁷⁹ Clemens et al. (2008).

⁸⁰ See above p. 20.

⁸¹ On South-South migrations see Hujo and Piper, 2007.

⁸² Bhagwati, 2007, pp. 217-218.

⁸³ Quite often whatever limitation to immigration flows is blamed for its unsavoury (and to some extent inevitable) humanitarian consequences, without explicitly advocating free immigration. But to criticize **any** limitation to immigration flows logically amounts to the advocacy of unrestricted immigration.

emigration. In the times of the great transatlantic migrations the main economic activity was agriculture, and migratory flows were directed towards territories that were sparsely populated and endowed with plentiful natural resources, from countries where the density of population was much greater. Moreover there were probably no significant differences in human capital between the inhabitants of the European Offshoots and the European migrants. As a consequence migration served the development of overseas territories (at the expense of the original inhabitants), while acting toward wage reduction there, and resulted in a betterment of living conditions and in an increase of wage rates, as well as in a dramatic reduction in inequality at home, so that emigration acted as “a self limiting process” (O’Rourke, 2004, pp. 9-10). Present conditions are quite different. Often migration is from less densely populated to more densely populated countries (such as from Africa to Europe, or from CIS countries towards central and western Europe). Agriculture, and especially small scale agriculture, where decreasing returns are particularly important, does not have the relevance nowadays that it had in the previous centuries. The scarce resources that hold down development are not in general natural resources,⁸⁴ but rather human and social capital, and this scarcity is not cured by emigration to more advanced countries. Some relief could be derived by the degree of migration that the richer countries are ready to accept. But the consequences of migration for those left in the poorer countries are by no means straightforward. On the one hand there are the advantages of the remittals, and the lower demographic pressure on scarce natural resources and the environment, on the other potentially huge losses of human capital. The latter however could be partially compensated by the brain gain of return immigrants⁸⁵ and the transfer of knowledge and ideas that some systematic contact with migrants abroad, favoured by the extraordinary development of communication networks, can conjure.⁸⁶

In practice, under the present circumstances the consequences in the richer countries of a sustained period of unrestricted immigration could be disastrous for equality and social cohesion, possibly leading to the same degree of ethnic violence plaguing the most unfortunate of the developing countries, with negative economic consequences, which could reverberate disastrously on the poorer countries themselves, since trade and other interaction opportunities would be negatively affected.⁸⁷ In this sense unrestricted immigration could bring about an instance of the “tragedy of the commons”, by which the value of having better off countries where to be able to migrate, to trade with, and from which be able to import public goods, such as technical and social innovations, would all

⁸⁴ Indeed abundant natural resources have been long believed (see Mun, 1664), and are believed now too, to act as a potential drag to development, increasing the tendency towards corruption and rent seeking.

⁸⁵ Cf. Mayr and Peri, 2008.

⁸⁶ “The emigration of skilled labor may not be negative for the sending country. In the first place, emigration of talent may provide a positive signal that motivates others in the sending country to acquire more education, thereby raising human capital and possibly promoting growth. Second, emigrants may, in due course, return or, through networks and resource repatriation (such as through remittances), provide essential inputs to new businesses and activities in the sending country. Third, emigration may actively promote a more effective flow of knowledge and information. Fourth, the changing nature of mobility—in part due to major advances in communications technology—may be limiting the extent to which skills are actually lost “ (Commander et al., 2004, p. 236). On the other hand “studies of return migration suggest that those who return may be those that have performed relatively poorly when abroad; the best migrants tend to stay” (ibidem, p. 259).

⁸⁷ For a discussion of the issue of what the overall consequences of unrestricted immigration could be, see Chilosi, 2002.

but destroyed.⁸⁸ But such an outcome is rather theoretical, since at a certain stage of the process the tensions of sudden massive immigration would lead to the introduction of measures for its further containment. After all, no country in the world does admit free immigration. As Bhagwati himself reminds us (2007, p. 218) “immigration restrictions are the flip side of sovereignty”.

Even if the potential for migration lies in the huge differences in per capita incomes between the rich and the poor countries, it not really true that a lessening of migratory pressure could derive from some increase in the living standards of the latter. Up to a certain point the contrary could well be true. Emigration, in particular illegal emigration can be very expensive in relation to the living standards of the poorer countries. If those standards increase, the resources available for financing immigration increase too. As a consequence migration pressures may increase rather than decrease. In the end the relation between relative living standard and emigration can have the usual shape of a inverted U curve, so that in order to be able to dampen immigration pressures the increase in the living standards of the poorer countries needs to be substantial. Looking back at history, this is compatible with the fact that in the nineteenth century “mass emigration started earlier in the richer countries of north-west Europe than in the poorer countries of southern and eastern Europe” (O’Rourke, 2004, p. 9). In particular, during the Irish famine emigration from Ireland to the New World was stronger from the richer than from the poorer counties (*ibidem*). The increasing immigration pressures of recent times could be a manifestation, not only of the great distress that a number of countries of emigration are facing, or of increasing “globalization”, or of the remittances and support of previous migrants reducing migration costs, but also of the overall economic progress of the underdeveloped world, especially during the past two decades.⁸⁹

5. Soul-searching and self-bashing

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.⁹⁰ On the one hand it has played with greater efficacy, owing to its recent technological and organizational superiority, the same deadly games played by most of humanity for most of the time. On the other it has spread modern social and technological innovations, with dramatic long-run 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.⁹¹ But in the historical

⁸⁸ For a kind of “tragedy of the commons” of excessive immigration, destroying the value of citizenship in the immigration country, see Pejovich, 2010.

⁸⁹ The absolute level of per capita incomes in the developing world as a whole has kept increasing even in the “lost decade” of the eighties, and growth has accelerated in the nineties, reaching quite respectable levels in the first decade of the new millennium. The performance has been quite unequal, and the aggregate indicators have been disproportionately affected by the strong performance of China and India (both strong emigration countries with great demographic potential; see White and Subedi, 2008). But per capita incomes in all the areas of the less developed world have on the whole kept increasing, together with its population, another source of immigration pressure, albeit at quite unequal speed (cf. the “Key Development Data & Statistics” at the World Bank internet site: <http://www.worldbank.org/>). On the progressive intensification of migratory processes and their quantitative assessment see Oecd (2009) and Oecd (2008).

⁹⁰ For a concise assessment of the mixed impact of the West on the Rest, cf. Woodruff, 1983 [1966], the “Epilogue”, pp. 335-341.

⁹¹ See Woodruff, 1983 [1966], p. 340; Diamond (1997).

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.

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?

5.1 Colonialism

Branko Milanovic has recently produced an interesting inquiry into the first issue (Milanovic, 2005a). 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. 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).⁹² One must also consider that the advantages of empire, the exploitation of the colonies to the benefit of the metropolis, must be balanced with the costs of empire, military, human, administrative, and of infrastructural investment. At the same time colonies were usually long term beneficiaries, albeit in different measure according the type of colonial domination, of infrastructural investment and of the importation of modern technological and administrative innovations, and could benefit from the opening to the international economy.⁹³ In particular the colonial status did not hinder the fast development of the European Offshoots. Milanovic study confirms Bairoch’s view concerning the lack of noticeable positive consequences of colonial empires on the economic development of the metropolis. Indeed, as Bairoch remarks (p. 673), if one looks at the growth performance of European countries in the nineteenth and twentieth centuries those who grew the most were the countries without colonies, and this applies even more to the USA (p. 674). As far as colonies are concerned, Milanovic’s inquiry considers the growth performance of former colonies before and after independence, in relation to that of the rest of the world, and no particular change is detected after independence.⁹⁴ But an interpretation could be that on average an exploitative structure is substituted to another. Thus one is left then with the question whether the responsibility for accommodating the country along an exploitative path could be attributed to the colonial rule itself. According to Bairoch (p. 665) the economic development of the colonies was damaged by an exploitative “colonial pact” to the benefit of the metropolis (pp. 665-668). One is however somewhat puzzled by the fact that this

⁹² Cf. also Bairoch, 1997, pp. 675-678.

⁹³ On this see Bauer, 1969, pp. 53-55.

⁹⁴ Even more, as shown by Milanovic (2005b, pp. 61-81) an overwhelming number of former colonies, in particular the African ones, fared quite badly after independence, much worse than under colonial rules, with dismal economic consequences.

“pact”, hindering the development of manufacturing industry in the colonies, applied also to the colonies of European settlement (p. 667): it does not seem that the development of the “Western Offshoots” did suffer because of this in the long-run, as purportedly happened to the third world colonies. In a sense this is an issue of counterfactuals: what would have happened if there had been no colonial rule. There are some reason to suppose that the persistence of pre-colonial regimes would not have led to greater economic progress.⁹⁵ Perhaps the only way to answer this question is to look at the different performance of countries and territories that were not subjected to colonial rule vs. those that were subjected. Unfortunately the sample of the latter is rather limited. It could be enriched including those territories that were independent since long (say Haiti or Liberia) to be compared with those that achieved independence since the 1960s. Perhaps the only obvious conclusion that can be reached is that the colonial territories that were subjected to massive population transfers from Europe (the “Western Offshoots”) fared even better than the metropolis, while those populations that, because of remoteness or inhospitable territories, were immune to the colonial encroachment continued their ancient modes of living, with all its advantages and disadvantages. Some additional casual remarks may be in place: Thailand, that remained independent, fared rather well in the long run, but no better than their previously colonized neighbours, such as South Korea or Taiwan or Malaysia. Japan, that underwent the near-colonial shock of Commodore Perry’s intrusion in 1853 fared very well and became a powerful industrial country, part itself since 1895 of the world of colonizers. Haiti, which was independent since the beginning of the nineteenth century, fared badly, much worse than other Caribbean nations which gained independence more recently. Of course, even in the more favourable cases, colonization, aside from the distasteful aspects of foreign domination, leads to a deep intrusion in the very identity of the colonized peoples. But to the same analogous intrusion and estrangement from their traditional heritage leads the globalization of our times. When one refers to the responsibility of colonialism one has to deal with this kind of questions for which it is not easy to produce a plausible answer: would have the countries colonized fared any better without colonial conquest? Would the alternative to colonization by western powers have been peaceful progress rather than continuous backwardness, persistent violence and frequent wars? As far as the impact of colonizers on the latter issue is concerned colonial domination brought in general some kind of colonial peace, whereby the frequent murderous pre-colonial wars were restricted and some kind of order maintained by the colonial power, even if the imposed order on the colonized peoples was of quite different nature according to the quality of the colonial rule.⁹⁶

⁹⁵ See Bauer, 1969, pp. 56 f.

⁹⁶ See for instance the difference between the much better order imposed by the Canadian government that tended to respect the treaties struck with the indigenous tribes, “by regularly delivering the commodities and cash annuities promised and by preventing white encroachment”, from that in the United States, where Indian treaties were not respected and where “if funds were available, they were often skimmed by corrupt officials and traders” and where “grazing or squatting on Indian land was ignored or even encouraged”. “By and large, Canadian justice was even handed; both white and Indian malefactors were caught and punished”, while “in the U.S. and Mexican realms, crimes committed against Indians went unpunished or were punished less severely than similar offenses against whites” (Keeley, 1996, pp. 154-155). There is no need however to remind the genocidal “pacifications” of local populations, either involuntary through germs, or voluntarily through mass murder and eradication (such as in the notorious case of German Namibia).

Moreover colonialism has a long history, much before western colonization: indeed, “colonization is a constant feature of the history of mankind.”⁹⁷ All the empires of antiquity, up to the more recent Arab or Ottoman empires were colonizers before western colonialism, partaking with the latter the following features (singled out by Bairoch) 1. the imposition of the civilization of the colonizers; 2. the subordination of the colonies to the interest of the metropolis; 3. ethnical and religious discrimination.⁹⁸

However repulsive for our modern sensibility is the imperialist idea to conquer a militarily weaker territory and rule it by force in the interest of the conqueror, the countries that were conquered and subjected to colonial domination 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 recently has been relinquished and declared illegal by greatest part of humanity.⁹⁹ In the history of humanity evil has always been banal, or, even more, what we moderns consider evil was often not seen as such, or was simply cloaked under false pretensions, such as saving through conversion the souls of the infidels, as in the 1455 Papal Bull *Romanus Pontifex*, legitimizing the slave trade¹⁰⁰, or King Leopold’s pretence to administer Congo for exclusive humanitarian purposes. The history of mankind is a dense collection of actions of the kind that nowadays are defined as crimes against humanity; even genocides can be extolled in sacred books as acts of pious obedience to God.¹⁰¹ 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, are subsequently perceived as crimes.

5.2 Slavery

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.¹⁰² Trans-Saharan slave trade in particular was practised to a large scale before the encroachment of the Europeans, but slave trade towards Asia was also substantial.¹⁰³ 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

⁹⁷ “La colonisation est une constante de l’histoire de l’humanité. L’histoire de la colonisation se confond presque avec l’histoire universelle.” (Bairoch, 1997), p. 548.

⁹⁸ Bairoch, 1997, p. 549

⁹⁹ For the overall world picture see in particular Ringrose (2001). For an outline of the history of African autochthonous kingdoms and empires and of their wars, see Collins and Burns (2007). As to South America there is no need to remind the extreme violence characterizing the autochthonous pre-Colombian empires. For the usual bellicosity and extreme violence of the “peoples without history” on which colonialism encroached, see Keeley (1996).

¹⁰⁰ Maddison, 2006, p 60.

¹⁰¹ Such as in the story of Saul and the Amalekites in the Bible.

¹⁰² The oldest documentation of slavery in Africa dates back to 2900 BC (Collins and Burns, p. 202).

¹⁰³ Cf. Collins and Burns, 2007, pp. 202-247; Maddison, 2006, pp. 574-575. Hellie, 2007.

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 eventually to an end a time immemorial historical tradition of legal slavery and legal slave trade.¹⁰⁴

Table 5. Yearly average rates of population growth 1-2007 (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^{a)}	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	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

Source of the data of the last column: U.S. Census Bureau, International Data Base, at <http://www.census.gov/cgi-bin/ipc/agggen>; the remaining data are taken from Maddison (2006), p. 637. ^{a)}USA, Canada, New Zealand, Australia.

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.¹⁰⁵ 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 consequences of neglect and

¹⁰⁴ Notable were in particular the British 1807 "Act for the Abolition of the Slave Trade" and the 1833 "Slavery Abolition Act". But sporadic measures for the abolition of slavery and or/slave trade were taken even before, such as the abolition of slave trade by Denmark in 1792, effective in 1803. In ancient times Cyrus the Great decreed the abolition of slavery in the Persian Empire in 539 BC, and the Chinese emperor Wang Mang in China at the beginning of the Christian Era. For a more comprehensive picture see Hellie (2007) or *Wikipedia's* entry "Abolition of Slavery Timeline" (as of 14/9/09); for the long path leading to the legal abolition of slavery in the twentieth century, see Miers, 2003, Bairoch, 738-740, 778-782. The last countries where slavery was legally abolished were the Arab countries: Saudi Arabia in 1962, Mauritania in 1981. Illegal or semi-legal slavery unfortunately still exists in many countries (besides Miers' authoritative volume, see Bales, 2004, and *Wikipedia's* entry "Slavery in Modern Africa"(as of 14/9/09)). For the persistence of slavery in Mauritania see Amnesty International, 2002. For the place of slavery in Islam and some contemporary authoritative opinions by Islamic scholars legitimizing slavery see the entry "Islam and Slavery" of *Wikipedia* (accessed 14/9/2009) and the sources quoted there.

¹⁰⁵ 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.

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).

Table 6. Average Life Expectancy for Groups A and B, 1000–1999 (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

Source: Maddison (2006), p. 33. Group A: Western Europe, Western Offshoots (USA, Canada, Australia and New Zealand), and Japan. Group B is the rest of the world.

Then, endemic warfare, between tribes, nations or individuals, leading to direct deaths, spread of disease¹⁰⁶, as well as to misdirection and destruction of the resources otherwise available for survival.¹⁰⁷ Still, following the improvements of agricultural technology in particular, as well the development of the trade economy and “Smithian” growth, there was some population growth at a very slow pace, slightly accelerating in time, as shown in table 5.¹⁰⁸ Later on, especially since the middle 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”¹⁰⁹ and has been the direct consequence of medical discoveries, and of the diffusion of medical knowledge, as well as hygiene, that has followed with some delay the Industrial Revolution) has led to a much faster population growth. At the same time the demographic consequences of two world wars and related upheavals are shown in a temporary decrease of population growth rates. The post World War II period has seen an unprecedented population explosion, indeed the rate of growth of world population has never been so high as after WWII. There are some signs of abating however following increasing living standards and progresses in the technology of birth

¹⁰⁶ Such as most famously in the case of the European Black Death of the half of the 14-th century, originating allegedly from the siege by the Mongol army (where the plague was endemic) of the Genovese trade city of Caffa in Crimea in 1447.

¹⁰⁷ 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. Even more drastic is the picture traced by Keeley (1996) concerning the propensity to war and violence of ancient and modern pre-historical societies (pre-historical in the sense of “people without written history”). As to pre-industrial civilizations it is enough to recall European and world 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 a broad picture of the frequency of warfare in state and non-state societies see Keeley, cit., pp. 32-33, and the literature quoted there. For the issue of population control in pre-industrial societies, with a survey of the relevant literature, see Caldwell and Caldwell (2003).

¹⁰⁸ 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 really 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.).

¹⁰⁹ Easterlin, 1996, p. 1.

control, spreading from the more advanced countries to the lesser developed areas of the world, leading to a forecast of a peak of about 9.2 billion around the year 2050.¹¹⁰

Table 7. Life expectancy at birth¹¹¹

	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>

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 tables 6 and 7). The birth rate has on the whole decreased in the post-war period (see table 8), 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.¹¹² 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”, and “over the past century, the life span gap between poor and rich countries has narrowed dramatically” (Milanovic et alii, 2007, p. 28 and p. 24). Yet, if one looks at more comprehensive data of vital statistics the differences between the different regions of the world is still staggering (see table 9). It is interesting to note, in order to understand what has been accomplished in the course of the very short historical span of about two centuries, that the worst off in terms of life expectancy, the “Africans south of the Sahara survive a bit longer today ... (even including the impact of AIDS), than did the English in

¹¹⁰ Cf. United Nations, 2008.

¹¹¹ The data concerning life expectancy in pre-modern and modern backward societies are affected 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 births per woman) of 7.5, life expectancy was 18, but life expectancy at 20 was 48, while in another instance, 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).

¹¹² Cf. tables 4A and 5A.

the early nineteenth century when they had the world's longest life spans" (ibidem, p. 26). 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. As to the population explosion in the post WWII period, one of the reasons lies in the impact of the Green Revolution in third world countries, such as Mexico and India, leading to a strong growth of agricultural production, adequate to feed a fast increasing world population.¹¹³ But also the improvements in transportation have contributed to avoid major demographic catastrophes due to starvation that would have negatively impacted on global population growth.¹¹⁴

Table 8 Yearly births per 100 population¹¹⁵

	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 ^{a)}
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

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

¹¹³ 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 of others through their effect on world prices, anyhow.

¹¹⁴ 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 billion. For other estimates one could refer to the literature quoted by Yao, in particular Peng Xizhe (1987).

¹¹⁵ 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.

Table 9. Some vital statistics from WHO, year 2005¹¹⁶

	Life expectancy at birth		Healthy life expectancy at birth		Adult mortality rate ^{a)}		Under 5 mortality rate ^{b)}	Infant mortality rate ^{c)}	Neonatal mortality rate ^{d)}	Maternal mortality rate ^{e)}
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 Union	76	82						5		

Source: WHO, 2007; the last row from CIA (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. ^{a)}Probability of dying aged 15–60 years per 1000 population. ^{b)}Probability of dying aged < 5 years per 1000 live births. ^{c)}Per 1 000 live births. Mortality in the first year of life. ^{d)}Per 1 000 live births. Mortality in the first 28 days of life. ^{e)}Per 100,000 live births.

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 unprecedented performance) since the spreading to the whole world of the present mode of production that followed the industrial revolution (see table 10). 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 reduced to 2,36% lately; cf. Table 5).

According to Maddison's statistical account (somewhat daring, owing to the length of the historical period covered), per capita income has declined in Western Europe during the first 1000 years of our era, from 450 PPP\$ to 400 (where 400 stays for the physical subsistence level), reaching a nadir around 600 AD, and then starting a very slow recovery.¹¹⁷ In that period the rest of the world fared slightly better, per capita incomes being throughout the period somewhat higher in Africa (430 at 1AD, 425 at 1000AD), and

¹¹⁶ 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 (Swaziland¹¹⁶)--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).

¹¹⁷ 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 between 800 and 900 1990-PPP\$ (p. 23) as the average per capita income of the Roman empire at the times of Augustus.

in Asia (450 in both years), while the remaining regions 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.¹¹⁸

Table 10. World Per Capita GDP, Regional Averages, 1-2001 AD (1990 international Geary-Khamis dollars)¹¹⁹

	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

Source: Maddison, 2006, p. 642.

Since 1870 economic growth has been accompanied, wherever data are available, by a great reduction, in many cases almost a halving 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). 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.¹²⁰ 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

¹¹⁸ For the detailed country data one is referred to Maddison (2006, p. 639).

¹¹⁹ For a definition of Geary-Khamis dollars cf. United Nations, 1992. It should be noted that taking Geary-Khamis dollars enhances the reported incomes in poorer nations because goods and services consumed by them are calculated at the international prices that are closer to those of the richer countries where services are relatively more expensive, and thus understates the income inequality between nations. This depends on the Gerschenkron effect, whereby the national income of a nation is enhanced if calculated at the prices prevailing somewhere else, because in a country relatively more of the goods that are relatively cheaper are consumed. Cf. Dowrick and Akmal, 2005, Milanovic 2005b, p. 125..

¹²⁰ As “it was in general a mistake to make a fuss about so-called distribution and put the principal stress on it.”

worse off it is more important the relation between distribution, technical improvements, production and accumulation

Table 11 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

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

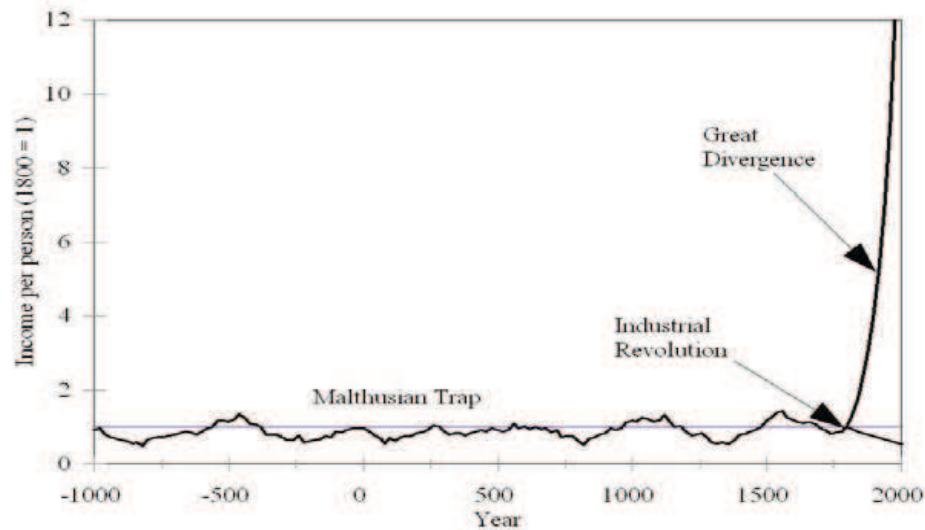
Table 12. Growth of Per Capita GDP by Major Region, 1820–2001 (annual average compound growth rate)

	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	1.81	1.56	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

Source: Maddison (2006, p. 643)

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

Fig. 2. The Malthusian trap (“world economic history in one picture”), according to Gregory Clark¹²¹



A possible interpretation of available historical evidence is the Malthusian view. Up to the dawn of the industrial revolution the great majority of humans were on the brink between physical survival and starvation. 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.¹²² Under such circumstances the distribution of income and wealth determines in the long run not the living standards of the masses but the size of the population: unequal distribution places in the hands of the privileged resources that could allow a larger population to subsist. 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 worst 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, the possible cultural advantages that are mentioned below). Their relative impact may depend, among others, on the 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 could have some 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. The existence of some strata able to enjoy a surplus over subsistence could have been an engine (however 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.¹²³ Moreover if a priori,

¹²¹ Fig. 1.1 in Clark (2007).

¹²² Clark's 2007 book is a recent representation of this viewpoint.

¹²³ Of course the propensity of the elite to dedicate itself to the pursuit of cultural advances, in particular in science and technology, very much depends on the prevailing societal values (which apparently in seventeenth to nineteenth century Britain were particularly favourable). In the modern world instead the

under the veil of ignorance, as in Rawls' paradigm, one had to choose between 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 egalitarian Malthusian subsistence alternative. Aside from nurturing a ruling elite, other surplus utilizations 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, as well as the directly inflicted deaths, 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.¹²⁴ Moreover, even if the Malthusian trap had worked in the very long-run, in the shorter run there were 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 would have made a great deal of difference for the well being of the bulk of the population. At the same time 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.

8.1 The Malthusian mechanism under pre-agricultural conditions

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 from violent deaths (which anyway would have been caused by such a hazardous endeavour as hunting with the available tools of the stone age), and consequent lower pressure on resources, thus allowing higher living adult standards than in later more densely populated agricultural societies.¹²⁵ This could be a reason explaining the apparent paradox of the alleged lower living standards in agricultural in comparison to hunter-gatherers societies.¹²⁶ In the latter people appear on average to be better fed and enjoy much more leisure. This could be easily explained if we consider that in principle in hunter-gathering nomadic societies to hunt and collect more does not help to prevent starvation in

production of cultural goods and of scientific and technical knowledge does not require the existence of a privileged elite identified by birth. It is organized, as any other branch of production, with the employment of professional workers, whose position in society is affected by the embodiment of huge investments in human capital, turning them in their turn in an elite of some sort. It concerns in many cases the production of intrinsic public goods, thus with a strong participation by the state. Thus it is enormously speedier and more efficient than as a by-product of the very existence of elites in older times, and this provides an explanation for the much stronger recent economic growth. It is the product of the endeavour of the economically more advanced countries, but, owing to its intrinsic public good nature, all the world is able to benefit.

¹²⁴ In the development of agriculture this is stressed by Boserup (1965).

¹²⁵ For the propensity to violence and warfare of primitive societies and the consequent high death toll in proportional terms see Keeley (1996), pp. 28-29; 83-112.

¹²⁶ On this see Ember (1978); Diamond (1987); Caldwell and Caldwell (2003).

hard times, since what is above necessities cannot be hoarded. The bottleneck to survival could have been the occasional times of scarcity. In times of abundance there is no point in hunting and foraging more than what is needed for comfortable survival, taking into account the relation between possible yield and effort, where the former is reduced by the habit of sharing. At the same time, if less is hunted or foraged now, some more may be available in the future, especially if the foragers are able to reduce competition through defence of the territory against other groups. Another method to provide for the future as a kind of insurance (because of the expectation of reciprocating) is the practice of the sharing through gifts, probably enhanced by the fact that whenever a good hunt occurs the excess over current consumption cannot be stored, and what can be stored cannot be easily defended if it arises the envy of the lesser fortunate. In turn this in primitive societies may weaken the incentive to work,¹²⁷ but at the same time can reduce the extent of the exploitation of natural resources, avoiding the “tragedy of the commons”. In agricultural societies it pays to labour all year along (even if with different intensity according to the seasons) in order to minimize the occurrence of starvation, since provisions can be carried on in time and improvements can durably increase the productive capabilities of the earth. So the harder and longer is labour the higher the probability of survival. In the end the numbers that a given territory can sustain are much higher with agriculture, but the living stiles are possibly less pleasant. A possible basic Malthusian mechanism for controlling hunter-gatherers populations can be the occurrence of the occasional lack of food bringing about starvation of a usually adequately fed population particularly subjected, because of the lack of carry-over, to the vagaries of environmental conditions.¹²⁸ The greater the population density and the higher the pressure on resources, the higher the probability of occasional starvation to occur. In addition, a reason put forward for explaining the alleged better living standards of hunter-gatherers in relation to agriculturalists is the lower population pressure because of the more limited fertility of the former, associated with their specific mobile life style.¹²⁹ During the Neolithic Demographic Transition, on the contrary, the apparent increase in fertility may be explained by the shift towards the sedentary life stile of agriculturalists from the previous nomadic pattern of hunters gatherers, and possibly by new opportunities for the earlier weaning of infants.¹³⁰

8.2 Hunter-gatherers and the Zen Economy

According to an austere vision of the pre-agricultural societies, hunter-gatherers were in a Zen economy,¹³¹ where, even if people were living in absolute poverty according to our metric, they were quite well off according to another, assumed Zen-like metric, where the defining condition is the abundance of leisure and the satisfaction of limited wants. Interestingly, this corresponds to the condition of foraging animals in the wild (see Winterhalder, 1993); in both cases life can be endowed with leisure but at the same time rather short and precarious. Aside from the issue of absolute poverty, hunter-gatherers

¹²⁷ Cf. Kaplan, 2000, p. 314.

¹²⁸ Cf. Kaplan, 2000, p. 311: “One of the perennial problems confronted by virtually all hunter-gatherers is not only the seasonal variation in resources, but more significantly the periodic failure of all major resources ... Unlike agriculturalists, foragers appear to be unable or unwilling to store resources in the good times to tide them over the bad times.”

¹²⁹ Cf. Bocquet-Appel and Bahr-Yosef, 2008, p. 5.

¹³⁰ See Bocquet-Appel and Naji (2006). Of particular interest is the wide discussion of the whole issue, and of the specific findings of the authors, by other scholars at the end of the article.

¹³¹ Sahlins, 1968, p. 85.

societies could have been on the whole relatively egalitarian, so that in terms of relative poverty they were rich. On the other hand not all the hunter-gatherers societies were egalitarian, for instance there were complex ones where a hierarchical organization and even slavery were present (see Fitzhugh, 2003).

The myth of the "original affluent society" and of the extent of its leisure, as well as of its pretended favourable living conditions seemed very suitable for the 1968 cultural environment where it was conceived, a modern economic version of Rousseau "Noble Savage" utopia. In more recent times a more sober reappraisal has been put forward. Kaplan (2000), in considering the living standards of one of the surviving foraging populations (the !Kung San of Southern Africa), sees rather strange to qualify as affluent "a society with a 50 percent childhood mortality rate and a life expectancy at birth of about thirty years". To this it may be added the particularly high death toll (in relative terms) as a consequence of warfare of primitive societies.¹³² Part of the confusion may derive from the apparent better alimentary and health conditions shown by the bones of pre-historical hunter-gatherers in relation to those of pre-historical agriculturalists.¹³³ The inference of a worsening of material conditions (at least as far as alimentation is concerned) with the passage to agriculture are translated into the atemporal idea of the "original affluent society", echoing the myth of an ancient blissful state of nature.

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. Therefore 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 from the economic development of the countries that have become well off rather than from some countries having been made worse off in an absolute sense, it is to the development of poorer countries that one should turn for addressing 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, it seems to have failed.

The gigantic increase of 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 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."¹³⁴ Its ultimate sources may be found in the Renaissance and the Enlightenment, tied together by the Reformation's critical discussion of traditional received faith.¹³⁵ The previous period of

¹³² See Keeley, 1996, pp. 88-94.

¹³³ Cf. for instance Cohen, 1991.

¹³⁴ Giddens and Pierson, 1998, p. 94.

¹³⁵ The fundamental reasons of the "European miracle" and the precise moment of the European economic take-off from other advanced societies, such as in particular China, is a highly debated historical issue to which many huge tomes have been dedicated, since at least the issue was posed by Needham in the fifties. See for instance Jones (1981), Landes (1998), Pomeranz (2000). For a recent discussion of this issue, and a reference to the various viewpoints and bibliographical sources, see the thorough review article of Darwin (2008) by Adas (2009). Not all answers to the basic questions sound reasonable, in a number of instances

“Smithian” growth based on division of labour, increasing returns and trade could have provided the basic economic and institutional background.¹³⁶

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 functioning of the economy has been voluntary exchange. It is on the system of 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 and protection of property rights, that the success of the Industrial Revolution and its aftermath can be attributed. In this may lie 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 vital 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 to which 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 dysfunctional, and by an international price system easing the difficult task of evaluating economic opportunities.¹³⁷ But let us abstract from the latter point. Would it have been enough to argue, after the suppression of capitalism, that no better

reason, as often is the case, appear to become hostage to the desire to be original at all costs by presenting new alternative interpretations, however queer. In the text I am just hinting briefly to those explanations that seem more reasonable to me.

¹³⁶ The fundamental reasons of the “European miracle” and the precise moment of the European economic take-off from other relatively advanced societies, such as in particular China, is a highly debated historical issue to which many huge tomes have been dedicated, since at least the issue was posed by Needham in the fifties. See for instance Jones (1981), Landes (1998), Pomeranz (2000). For a recent discussion of this issue, and a reference to the various viewpoints and bibliographical sources, see Wagener, 2009, and the thorough review article of Darwin (2008) by Adas (2009) .

¹³⁷ 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 in particular. The only innovative consumer goods developed in the socialist camp that comes to my mind is Rubik’s cube, in Hungary in the mid seventies. However Soviet type socialism was by all accounts no inferior to western capitalism in the production and development of military hardware. It was much less efficient and much more profligate in its utilization of energy resources and raw materials (see on this Gomulka and Rostowski, 1988).

system than the socialist one is possible and to ascribe to the very nature of real socialism the economic and demographic progresses? 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 than the existing one (socialism vs. capitalism) should do necessarily better; as well the opposite contention that no better system of organization (in our counterfactual example capitalism vs. Soviet-type socialism) is possible.¹³⁸ A further consideration refers to the heavy cost of transition, as borne out by the fall in per capita incomes, and, in the case of the former USSR, by the life statistical data.¹³⁹ 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. 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 has taken place. Of course 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.

10. Post-war development and the Malthusian trap

As we have seen, a most remarkable fact is that world population and wealth have never grown so fast as in the post World War II period.¹⁴⁰ 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; and the absence of devastating conflicts at the global level (the world has been on the brink of a nuclear global disaster, but it has not fallen into the precipice, yet). The progresses in transportation and agriculture have been of particular importance for the provision of the basic means of survival; thanks to those progresses Woodruff's speculation in the sixties that "if we are to be guided simply by statistics, then in AD 2000—i. e. in the lifetime of our children—world population will have doubled and misery and starvation will stare mankind in the face" (Woodruff, 1982[1966], p. 340) turned out to be correct only as far as the doubling of world population was concerned.¹⁴¹

¹³⁸ Following Demsetz (1969) the first of the two views is dubbed as Nirvana fallacy.

¹³⁹ In particular higher mortality rates and decreasing life expectancy, in particular of males.

¹⁴⁰ This is epitomized by the title of Easterlin 1996 book: *Growth Triumphant*.

¹⁴¹ 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.¹⁴² But rather than decreasing agricultural returns, as in the classical explanation, it may here be relevant the pressure on scarce natural resources,¹⁴³ and in particular the threat against development and living standards of the possible “tragedies of the commons”, including climate change consequence of increased production and population.¹⁴⁴ 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.¹⁴⁵ 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 vital statistics) have greatly improved all the same, as a consequence of the diffusion of the technological advances of the West. But as more and more countries successfully pursue the type of industrialization and economic development that has made the West rich and better off the emerging economies, the pressure on world resources and the enhanced generation of obnoxious 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.

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

¹⁴² The extent to which the Malthusian trap is lurking is however controversial. For an optimistic viewpoint see Simon (1981). According to Simon “another birth means another mind that can help think up ways of using resources more efficiently” (Lee, 2008). On the opposite side there is a vast intellectual current renewing the Malthusian tradition, such as by Garret Hardin, Albert A. Bartlett, Paul Ehrlich, and the Club of Rome.

¹⁴³ Downplayed by Simon (1989), who optimistically sees in technological progress favoured by an increasing population the overall dominant factor.

¹⁴⁴ 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.

¹⁴⁵ 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.

with higher living standards? And how low or how high?¹⁴⁶ 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.¹⁴⁷ 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 could also have a dynamic equilibrium à la Jules Simon, 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.¹⁴⁸

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 world's first megawatt-size wind turbine, installed in 1941)¹⁴⁹, 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.”¹⁵⁰

A correction to the demographic process leading to world overpopulation (where obviously the concept of overpopulation is a hazy one and partly depends on values) 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 in the countries where the survival of the elderly is still 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

¹⁴⁶ 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.

¹⁴⁷ Cf. Simon (1981).

¹⁴⁸ On the relation between population growth, technical progress, and per capita incomes see Kremer (1993).

¹⁴⁹ Cf. Wikipedia's entry “Smith-Putnam wind turbine” and the sources there provided.

¹⁵⁰ A more elementary calculation (2 multiplied by 1.01 elevated by 12000) would turn out an astronomical number of humans (1.4 multiplied by 10^{52}). Their annual increment would be a number with only two digits less. As argued by Albert A. Bartlett “the greatest shortcoming of the human race is our inability to understand the exponential function” (cf. <http://www.albartlett.org/>) and thus, in particular, the physical impossibility of exponential population growth in the very long-run..

regarding procreation could differ as a consequence of different cultural traditions in developing countries, and that preferences could change even in the developed world, altering the dynamic demographic balance? Indeed, there are signs that this may be the case and that the long-run relationship between development fertility could be in reality j-shaped.¹⁵¹ Neither preferences nor technology can really be considered as given in the long-run. The forecast of a levelling out of world population around 2050 at something more than 9 billion is at most a reasonable extrapolation of present trends, but of course only those who will be there at the time will be able to judge whether it is an adequate prediction of the future.

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, and more endowed with experience.¹⁵² 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 chunk of the world population, such as China), it seems hardly possible that demographic policies could be devised and implemented on the world level (such as advocated notably by Julian Huxley¹⁵³) in order to take into account the important externalities that individual decisions regarding procreation have for the world as a whole.¹⁵⁴ 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.¹⁵⁵ 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*,¹⁵⁶ in the more subtle form of denying life supporting medical treatment and, possibly, the economic means of survival, to the elderly.

11.1 The three horsemen of the Malthusian apocalypse

Of the three factors that have historically contributed to hold populations in check through recurrent catastrophes: epidemics, famines, and war, the impact of epidemic

¹⁵¹ Cf. Myrskylä et alii, 2009.

¹⁵² 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.

¹⁵³ 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’s Aldous Huxley dystopian novel *Brave New World* (1932).

¹⁵⁴ 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).

¹⁵⁵ For an account of various methods of population control in different historical and anthropological settings, see Caldwell and Caldwell (2003).

¹⁵⁶ Petri (1965).

diseases has been greatly reduced by the progresses of medicine and hygiene. 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 conflicts. Even if at the moment tensions are re-surfacing on the international food market, following increased demand and the ill-advised subsidization of fuel producing crops, another agricultural revolution is in progress through the development of GMOs, which, notwithstanding misgivings and preconceived hostilities, seems essentially a foregone development. The impact of the new agrarian 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 varied environmental conditions.¹⁵⁷ However, like the Green Revolution, and even more than the latter, the GMOs revolution also presents problems of compatibility with 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.¹⁵⁸ 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 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 eventually be war, as a consequence of the spreading of atomic technology and of international tensions building up in an increasingly overcrowded and progressively shrinking world.¹⁵⁹

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

12.1 The economic consequences of war and peace in historical perspective

Relative peace, maintained by the nuclear balance of terror, is seen as a crucial factor for explaining Post-War II economic achievements. “Capitalist peace” whereby countries interact through mutually advantageous voluntary exchanges excluding wars of territorial aggrandizement, which were endemic in the not-distant past, is another.¹⁶⁰ Seen from the perspective of recent achievements, 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

¹⁵⁷ See Cuffaro, 2001, p. 139

¹⁵⁸ Ibidem, pp. 136-144.

¹⁵⁹ 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. That demographic growth could lead to international tensions and open conflicts for getting control of natural resources is denied by Simon (1989). His arguments, pointing to induced technical progress especially in agriculture, are not really persuasive though, because he is simply assuming, extrapolating the past, the offsetting impact of induced technical progress in the future.

¹⁶⁰ On capitalist peace see Weede (1999), Gartzke (2005, 2007).

history books, has led on the whole to very poor results, as measured at least in terms of demographic and economic growth. However the real extent to which wars were contributing to hold in check the progress of humanity is difficult to gauge.¹⁶¹ A strict Malthusian could object that living standards and population would have been held in check by other Malthusian factors anyway. On the other hand as an instrument of population control war was particularly wasteful. It produced destruction of capital, both physical and human (in particular the loss of adult males in their productive prime, whereas mortality from disease or starvation affected first of all the children and the elderly). It required huge resources that could be alternatively used for collective surplus creation (which could be employed for productivity enhancement: for instance irrigation works) or for demographic enlargement. The latter could lead to economic progress, in a Boserupian perspective, or through the cultural mechanisms argued by Julian Simon. Personal trade interrelations and useful personal contacts between the belligerents are disrupted by war, with negative consequences on the economic base, and demographic sustainability, of the parties concerned. According to the social-Darwinist vision, war is seen historically as an engine of natural selection of peoples and civilizations towards the progress of humanity.¹⁶² But the selection provided by war has tended to bring to the fore populations and civilizations notable for their destructive and coercive power rather than for their peaceful civilized achievements. At the same time peaceful achievements could be to some extent dependent on the ability to organize and exert some degree of coercive power: a relatively complex societal organization, such as some ancient or modern empires, could be apt both to successfully wage wars and to peaceful and progressive purposes, as relative to the times. But this does not apply, for instance, to the fierce primitive hordes plundering and destroying ancient civilizations and complexly organized states. Here too the picture could change, once the hordes are settled and organize an empire on a territory that may profit of the relative stability provided by the rulers (such as in the case of the Pax Mongolica), at least until the next run of invasions, massacres and destruction, in an endless Penelopian weaving and destroying the thread of civilization.

Whatever the reasons, until recent times the progress of humanity, both in terms of population and of productive achievements, has been so slow as to amount, in our present perception of time, to stagnation, with long spans of regression.¹⁶³ The first millennium of the vulgar era was for Europe, from the economic viewpoint, a lost millennium: the decadence and fall of the Roman Empire and the dislocations following the barbaric invasions left Europe worse off 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 our modern perspective, in world population and per capita incomes), had to wait until the Industrial Revolution gradually spread all over the

¹⁶¹ For a quantitative assessment of the negative impact of war on growth in modern times, see Milanovic (2005a).

¹⁶² Cf. Mueller, 2009, p. 7.

¹⁶³ An exception could have occurred during the Neolithic Demographic Transition when, according to some, population growth rates of 1% and more could have taken place for a sustained span of time (see Gary Warrick's comment in Bocquet-Appel and Najit, 2006, p. 355; Bellwood, Peter and Marc Oxenham, 2008, p. 22). With no improvement of living standards, however: as we have already mentioned the common opinion is that actually living standard were lower than under the previous pre-agricultural societies, because of longer work hours, less satisfactory nutrition, greater morbidity as a consequence of higher population density.

world. But it has been the peace period after the Second World War (localized conflicts notwithstanding) that has been accompanied by the greatest acceleration in the speed of demographic and economic advance the world has ever known in its history.

12.2 The illegality of war

Following the tragedy of two world wars the international community refuses the legitimacy of wars of aggression directed to the enlargement of national borders and the acquisition of new territories, which in the past were one of the most popular endeavours of nations and rulers and, if successful, were a source of glory and pride. In the post-war period, in comparison with previous times, expansionary wars have been on the whole very limited, and almost always restricted to less developed countries. In most cases they have been unsuccessful, a moderating factor having been the pressure exerted by the international community.¹⁶⁴ It is not particularly tranquillizing however that the watchdog against wars of aggressions, empowered by the art. 39 of the Charter of the United Nations is a Security Council populated by revisionist powers, as well as powers that have been ready to spread through warlike means their political system (democracy);¹⁶⁵ nor that the provision of art 39 had a precedent in article 10 of the Covenant of the League of Nations but this, as well as the Kellog-Briand pact of 1928 outlawing wars of aggression, did not prevent Nazi Germany and the Soviet Union (both signatories of the pact) attacking Poland in September 1939, thus triggering the Second World War.

12.1.1 *On the economic rationality of war*

In the past 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. Thus a war of conquest had some rationality.¹⁶⁶ (as in the present world it may appear a war for controlling territories endowed with natural resources, such as hydrocarbons, or having a strategic location for their transport and control). This corresponds to the German *Lebensraum* concept, which however came to prominence in a period when agriculture had greatly reduced its relative importance in favour of industry, but which also encompassed the advantageous procurement through territorial expansion, in the mindset of the autarchic economy, of primary resources useful for industrial and military purposes. Under autarchy, territorial expansion could also be seen as a means of market expansion, a costly replacement for free international trade. In older times plunder and enslavement of the conquered could provide further reasonable motivations (obviously looking just at the economic viewpoint), and this historical experience was again not alien to Nazi warlike ideology and programmes. People and land were considered the

¹⁶⁴ Cf. Zacher (2001). For a detailed list of post-War II military events and of their territorial consequences see the table 2, "Interstate territorial aggressions, 1946–2000" (ibidem, pp. 225-228).

¹⁶⁵ Present revisionist powers are obviously Russia (willing to reassert its control of the former Soviet space, and de facto annexing after an act of war Abkhazia and South Ossetia, which theoretically were part of an independent Georgia), and China, keen to annex, possibly even by force of conquest, Taiwan, a de facto independent country, of which territory China lost control in 1895. The willingness of USA and UK to spread democracy by force on Iraq found some kind of justification in the intrinsic expansionistic nature of Saddam Hussein's regime and, possibly, in the conviction (on which we shall return later on) that democracies have a greater tendency to be on peace with their neighbours, so it would be to world peace lasting advantage to impose them by war. Even aside from the rather doubtful (and possibly foolhardy) endeavour of imposing democracy on countries with no democratic tradition, exporting democracy as well as preventing presumed future acts of aggression by force are illegal acts under the present rules of international law.

¹⁶⁶ On this point see Simon (1989, pp. 170-171).

foundations of the power and prosperity of states, of the capability to defend (and to enlarge) themselves and enhance the potentialities of surplus extraction.¹⁶⁷ Things appear differently with the drastic change in the economic basis out of agriculture, and the advances, and increased destructive power, of military technology. The prosperity of industrial and post-industrial countries relies on very delicate social and economic mechanisms, and a much greater surplus may be enjoyed through voluntary exchange than through conquest and enslavement (even disregarding their costs). This was the argument raised by Angell (1913) on the eve of the First World War, declaring its impossibility on rational economic considerations: “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; along the same lines one may refer to Simon, 1989; and Gilpin, 1981, pp. 132-133: “through specialisation and international trade an efficient state can gain more than through territorial expansion and conquests”). A recent contrary view is presented by 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 successful 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 when 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 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 of 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 development, and so the growth of potential surplus, could be hampered by exploitative dominance. Thus exploitative dominance could have some attractive for authoritarian states, much less for democracies. This can be seen

¹⁶⁷ On this see Gilpin pp. 111-112. 170.

as a motive in favour of the idea that democracies are less conflict prone than other regimes. As far as internal conflicts are concerned the ballot seems a more peaceful method of government change than alternative non peaceful methods (such as revolutions, assassinations, or military coups). However the lower propensity of democracies to wage external wars has been recently challenged. According to Gartzke (2005, 2007), who elaborates and empirically tests Angell's argument,¹⁶⁸ it is the international capitalist market, rather than democracy, that works contrary to conflict in "capitalist peace". On the other hand between advanced democracies and prosperous market economies embedded in the international economy there is an obvious overlap.¹⁶⁹

12.1.2 *The economic irrationality of war*

Eventually, the war that Angell decreed as rationally impossible broke out, with 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, and often independent of rational economic considerations. And rational economic considerations may not be really important in waging a war: "In sum, studies of both the direct and the indirect influence of economic factors on the causation of war indicate that they have been much less important than political ambitions, ideological convictions, technological change, legal claims, irrational psychological complexes, ignorance, and unwillingness to maintain conditions of peace in a changing world"¹⁷⁰. Moreover "not the facts, but men's belief about facts, shapes their conduct".¹⁷¹ Once Keynes wrote that practical men are usually the slaves of some defunct economists.¹⁷² We could extend the concept to international politics and war: men (and women) can turn out to be captive of the ideas and the examples, recounted and celebrated by historians, of ancient conquerors and warlike peoples, notwithstanding the change in the economic and political circumstances that should rationally lead to different modes of behaviour. Far from acting as *magistra vitae* history, especially doctored history, may become a time-bomb, to be handled with the utmost care. This may be seen to apply to the case of the wars of Yugoslav succession rekindling historical myths of ancient warlike prowess and incompatible territorial expansions, founded on past historical experience, compressed and actualized to the present times or, more recently, to the renewed imperial ambitions of Putin's post-Soviet Russia. But history presents innumerable cases where the conscience of the heritage of the past brought about present blunders and destruction. A textbook case, not too far away in time, is the Italian Fascists' grotesque striving to revive the past glories of the Roman empire.

12.2 **The economic consequences of the Bomb**¹⁷³

The economic argument against war becomes much more compelling with nuclear technology. The spreading of nuclear armaments brings about a reduction in the propensity

¹⁶⁸ As mentioned by Gartzke (2007, p. 170) a tendency for trade and free commerce to favour peace and be an obstacle to war was already identified by a number of previous authors, such as Montesquieu, Paine, Smith, Cobden and John Stuart Mill. For the concept of "capitalist peace" see Weede, 1999, pp. 66 f-

¹⁶⁹ Gartzke (2007, p. 182).

¹⁷⁰ Wright (1968, p. 463), quoted in Simon (1989, p. 5).

¹⁷¹ Angell, 1913, p. ix.

¹⁷² "Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back" (Keynes, 1936, p. 383).

¹⁷³ For a survey of the debate on the consequences of the Bomb for international relations see Roth, 2007.

towards armed regional conflicts. After India and Pakistan had acquired nuclear status there have been moments of acute tension, but, unlike 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.¹⁷⁴ 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 presumed atomic capability may have weighted heavily on the extent of American support for Israel,¹⁷⁵ and on the restricted aims of the Syrian-Egyptian offensive.¹⁷⁶ Open direct conflicts between nuclear powers have been very rare and localized, such as the Kargil conflict mentioned above, and the Soviet-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 in 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 unproductive,¹⁷⁷ 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 all out 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. 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 their welfare, if their survival or collaboration is to the advantage of the greedy. In this respect we can add hate to the perspective of Simon (1989, p. 179), according to whom "Ironically, all haters of war should pray that humans are very materialistic in their motives, as compared to their devotion to their religious or cultural heritage, or even to aesthetic values, because sound calculation of the economic benefit-cost ratio of war would result in the decision not to begin a war." Historically, intrinsic favourable attitudes towards war and against peace as such were also widespread, based on war being the occasion for displaying moral virtues and for performing heroic deeds, authoritatively represented, among others, in the works of prominent philosophers, from Aristotle to Kant (before writing *Zum Ewigen Frieden*), to Nietzsche (see Mueller, 2009, p. 2). In a sense war was in the past pre-atomic

¹⁷⁴ CSIS, 1999.

¹⁷⁵ Cf. Farr, 1999, and the literature quoted by him.

¹⁷⁶ "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). Even if the possession by Israel of a viable battle-ready nuclear capability was uncertain (see Roth, 2007, p. 379), the mere possibility could have been enough to restrict the scope of the attack, even if not the attack itself.

¹⁷⁷ But the above does not apply to the neutron bomb!

world the most preferred sport for engaging the physical contest of communities and nations, before the invention and world diffusion of football.

12.3 The balance of power and the poison pills of the weak

The return to the old days when the balance of power was ensuring a precarious equilibrium between “conservative” and “revisionist” powers entails enormous dangers: an international equilibrium based on the balance of power, rather than on basic commonly shared values (such as in the “pluralistic security community” of the West to which Russia could have become part if not for the drive towards authoritarian nationalism, or, in its words, “sovereign democracy”), may lead to war whenever the balance is altered, or is seen in the process of being altered.¹⁷⁸ 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, such as could be the case in future with China¹⁷⁹. 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 it may be called the “Samson strategy”), could in the future restrain military aggression, 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 vital 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 of eventually overcoming world poverty (at least in absolute terms). At the basis of

¹⁷⁸ A clear-cut example of the extreme dangers of a perceived process of alteration of the overall strategic balance between nuclear powers is provided to the Cuban missile crisis, which brought the world very close to a global nuclear catastrophe.

¹⁷⁹ China’s status as a dominant power seems inevitable if the actual pace of its economic and military growth is maintained. Its nationalistic-revisionist bias, as revealed by the obsession of annexing Taiwan (since the takeover by the Communists of continental China a de facto independent country that belonged to the Chinese empire until 1895, and then a Japanese colony until 1945) by force if necessary, and the scramble for the contested partition of the oil resources of the China sea, could make its dominance a danger for world peace. According to past experience any time new international actors raise forcefully to the scene of international politics following successful economic growth, some violent adjustments of the power relations are on the agenda (cf. Easterlin, 1996, p. 6). But, optimistically, one could also envisage an alternative path, leading China to become part of a “world security community, a group among whom war is literally unthinkable” (Jervis, 2002, p. 1). The signals that China directs to the outside world are mixed. On the one hand there is the diplomatic approach of “China’s peaceful rise” aiming to create good neighbouring relations with the other South-East Asian countries, aiming to the creation of a comprehensive Free Trade Area, on the other there is the disquieting growth of its military might, whereby military expenditures grow at double digit since the nineties. (See Jamestown Foundation, 2009.)

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 accompanying the greatest increase of population and living standards that the world has historically known has been the intensification and acceleration of world economic and non-economic exchanges (“globalization”). In a world characterized by “capitalist peace” and by the refusal of the autarchic tendencies of a recent past, when autarchy was preparing the ground to a disastrous world war, any country takes advantage of the others through mutually beneficial voluntary exchanges rather than through conquest and exploitation. No alternative better foundation of international economic relations has to date been credibly proposed. But this same system has also brought about the utilization of technical progress for making increasingly more 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, which 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. The increasing perceptions, favoured by globalization, of the inequalities and injustices of the world economic order, together with the disruption of ancient life styles and privileges, and the recurring scourge of nationalism may put in jeopardy the future economic progress, conditioned by the persistence of “the capitalist peace”. Traditional power politics and dangerous brinkmanship may resurface again. Sooner or later we may go back to normality, with nationalism breeding imperialism and wars of aggression, but with much enhanced capabilities for destruction. Large scale nuclear warfare is always a possibility, especially with the inevitable proliferation of nuclear capabilities, with enormous risks for the survival of humanity, even short of Dr. Strangelove’s Doomsday Machine. As always has been the case in history, prosperity and economic progress are by no means foregone conclusions.

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