POVERTY, POPULATION, DEVELOPMENT IN HISTORICAL PERSPECTIVE

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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

The object of the paper is to place the present issues of world poverty, development, demographic change into proper historical perspective, considering the specificities of present times concerning economic and demographic developments, as well as the international relations associated with them. Some speculations concerning possible long run developments conclude the paper.

INTRODUCTION

The aim of the present paper is to consider a number of circumstances that make the period of history in which we are living, this means the epoch that follows the start of the industrial revolution and its gradual spreading all over the world, and specifically the distinctive post World War II sub-epoch, an historical unicum. Some of the relevant circumstances are economic, some are social, others are in the area of demography, others in the nature of international relations. Let us try to give an overall perspective of what we are going to do. First of all our world is a highly unequal world. Since the start of the Industrial Revolution the inequality in the distribution of income and wealth has apparently increased. From historical statistical data it turns out that increased inequality with respect to the pre-industrial periods does not depend on the worse off having worsened their lot, but on the fact that the lot of a substantial share of humanity has dramatically, but unequally, improved. Economic progress has brought about a radical overcoming of the Malthusian trap, which in the long run had greatly dampened the growth of world population, and a massive increase in population and wealth that has greatly accelerated in the post-war period. During the latter economic as well as demographic outcomes have greatly benefited from the absence of large scale "hot" military confrontations, as the global confrontation of the cold war never erupted, as it was feared, in a global war. At the same time never has humanity been so close, possibly, to the brink of almost total destruction. Indeed, aside from localized conflicts, a cold peace prevailed

globally thanks to the atomic bomb. Gradually the bomb has been spreading from the superpowers to regional actors. The almost inevitable spreading of the atomic bomb makes localized conflicts less probable, but also increases the probability of an atomic conflict eventually erupting, with disastrous consequences both on economic progress and on demography.

In the post-war period a broad consensus, perhaps unique in history, prevailed in the international community that wars of conquest were unlawful and that borders should not be changed by violent means. The main challenge to the ensuing setup, analogously to the European setup arising from the Congress of Vienna, have been ethnically motivated liberation and independence wars, including those originating from the breakdown of multiethnic entities, such as notably those following the dissolution of former Yugoslavia.

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 have increased they have done so at a very slow pace, amounting 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 the post-war period has been an historical unicum. Scientifically speaking, taking into consideration the history of mankind, the anomaly to be explained is not backwardness and poverty, but development and wealth.

As we shall better see in what follows the brakes to population growth that in the previous epochs constrained the growth of world population, and which started to slacken with the Industrial Revolution 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

If conventionally (very conventionally, indeed) we define, following the World Bank, as (absolute)[1] poverty a daily consumption of less that two dollars,[2] in 2001 their number was estimated as 2.7 billion,[3] more than the

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[1] Relative poverty depends on distribution. Then there is subjective poverty that depends on habits and aspirations. We shall be concerned only cursory with these issues.

[2] Or rather 2.15 dollars a day at 1993 purchasing power (somewhat less than 800 dollars a year), while 1.08 dollars of 1993 purchasing power a day (somewhat less than 400 dollars a year), according to World Bank definition, characterize extreme poverty. In the text we use the colloquially usual distinction of 1 and 2 dollars a day. (For the definition of the international poverty line see World Bank (2005), table 2.5, "Poverty", http://devdata.worldbank.org/wdi2005/Table2_5.htm#definition.)

[3] Source: Word Bank (2005), table 2.5 "Poverty", at http://devdata.worldbank.org/wdi2005/Table2_5.htm. It should be noted that there has been actually a decrease (estimated to about 400 million) in the number of the extreme poor (less than 1$ a day) during the 20 years from 1981 to 2001, but only because of the reduction of extreme poverty in China. For some recent discussion on

entire world population in 1950.[4] The number of extreme poor consuming less than one dollar a day in 2001 is reported to have been close to 1.1 billion, about the same as the entire world population in 1820 (which may be conventionally taken as the year of the coming of age of the Industrial Revolution in the UK and of its spreading outside the UK); the number of the extreme poor in previous years is estimated to have been even higher, about 1.6 billion around 1980 (before the recent tumultuous growth of the economy of China). Most of them are concentrated in third world countries, but a few millions are living in (and a number of them leaving from) Eastern Europe and Central Asia (the so called transition countries).[5] See the data in the following tables:[6]

Table 1[7]

Number of people living with less than 2$ a day

Region	1981	2001
East Asia & Pacific	1,170	864
of which China	876	594
Europe & Central Asia	20	93 (113 in 1999)
Latin America & Caribbean	99	128
Middle East & North Africa	52	70
South Asia	821	1,064
Sub-Saharan Africa	288	516
Total	2,450	2,735
Excluding China	1,574	2,142

world poverty estimates and some updating, see Chen and Ravaillon (2004) and (2007) and Ravaillon, Chen and Sangraula (2007). Taking into account the overall number of the world poor, one can appreciate the enormous migration potential into the more prosperous (or even the less poor; for the extent of South-South migrations see for instance Hujo and Piper, 2007) countries in a shrinking world, with potential far-reaching social and political consequences (for more on this point see Chilosi, 2002). Countries of emigration to richer countries can at the same time become countries of immigration from poorer ones, such as notably in the case of Eastern Europe as a whole.

[4] See Table 1.

[5] The above date 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 former Soviet Union.

[6] The figures are expressed in millions, the data are extracted from World Bank, 2005, table 2.5.

[7] Source: Word Bank (2005), table 2.5 "Poverty", at http://devdata.worldbank.org/wdi2005/Table2_5.htm.

Table 2[8]

Number of people living with less than 1$ a day

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

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 hardships engendered by the transition process during the nineties, but since then has started to decrease. The same applies to the percentage of the poor in the population, increasing, according to World Bank data, from 0.4 in 1987 to a peak of 6.3 in 1999, decreasing to 3.6 in 2001 (for those living with less than 1$ a day); increasing from 3.3 in 1987 to a peak of 23.8 in 1999, decreasing to 19.7 in 2001 (for those living with less than 2$ a day).[9]

Table 1E
Percentage of the poor in Eastern Europe
in 2002, respectively below 1 and 2 $ a day

- Slovenia   <2   <2
- Cz. Rep.   <2   <2
- Hungary   <2   <2
- Estonia   <2   5.2
- Poland   <2   <2
- Slovakia   <2   2.9
- Croatia   <2   <2
- Lithuania   <2   6.9
- Latvia   <2   8.3
-

- Russia   <2   7.5
- Belarus   <2   <2
- Bulgaria   4.7   16.2
- Romania   <2   14
- Maced.   <2   4
- Bosnia   nd
- Ser. Mon.   nd
- Albania   <2   11.8
- Ukraine   2.9   45.7
- Moldova   22   63.7

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[8] Source: ibidem.

[9] Source of the data in following table: ibidem.

The world poor as a percentage

On the whole the share of the poor in the human population has never been so low.[10]

According to the historical estimates reported in Bourguignon and Morrison (2002, pp. 731-732), and taking into account the number of conventional poor people in 2001, estimated by the World Bank, as well as the estimate of the size of world population in 2001, reported in table 3, the share of world population living in poverty diminishes from 94,4% in 1820 to 44% in 2001, that of those living in extreme poverty from 83,9 in 1820 down to 18% in 2001. In the end, taking into account the fact that in the period the share of the poor has been greatly reduced the fundamental explanation (at least from a statistical viewpoint) of why there are so many poor people in the world is that there are so many people around. 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.

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[10] Of course this depends crucially on the definition of poor. Here we use the World Bank definition, whereby the poor are defined in terms of absolute purchasing power. 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). This is perfectly true, but without a common measure one could hardly make intertemporal comparisons. Of course, in making the latter one should ideally go into detail as to the specific relevant circumstances of the various cases. Here it is enough to note that the trends in average incomes are entirely supported by comparable trends in life statistics (see below).

Table 3[11]
Human population in the course of history[12]
(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
2007	6,641, the 1/1/2008, as projected according to the World population clock

To grasp the extent of the dramatic acceleration of population growth in recent times one may notice that the increase in population in the ten years between 1995 and 2005 (796 million) is more or less the same as that in

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

[12] 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, would have involved such comparatively small numbers of people.

the 10,000 years or so from the start of the agricultural revolution to the dawn of the industrial revolution (for which we may take conventionally the year 1750).

If we concentrate our attention to Eastern Europe and former Soviet Union in the periodization of table 5 below, we can see that the highest rate of population growth in history has taken place in the years 1950-73, slightly less but still remarkable was the rate of growth of population in 1870-1913, while the low rates in the period 1914-1950 were certainly due to the impact of two world wars and their aftermath. The negative rate of growth in the latest period is in both cases a consequence of the social and economic disruptions following the fall of the communist regimes.

AN UNEQUAL WORLD

While a high proportion 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 development[13] (Davis et alii, 2006a), shows the extent of world inequality in the distribution of personal wealth: [14]

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[13] World Institute for Development Economics Research: http://www.wider.unu.edu.

[14] Where personal wealth is defined as "the value of physical and financial assets less liabilities" (Davies et alii, 2006a, p. 1).The data refer to the year 2000. Methodology: "average wealth level: based on household balance sheets and wealth survey data for 38 countries (56% of the world population and 80% of wealth) extended by regression methods to most other countries region-income class averages imputed to remaining countries…**distribution of wealth**: based on distribution data for 20 countries wealth concentration estimated from income distribution for most other countries region-income class averages imputed to remaining countries" (Davies et alii, 2006b). The data considered refer to the year 2000, and are either measured in dollars terms at the current exchange rates or in Purchasing Power Parity dollars (PPP$; this means that all values are converted in dollars using exchange rates such that the purchasing power of the dollar will be more or less the same once transformed in the various world currencies). It must be noted that passing from current dollars to PPP$ 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 be noted that an inquiry such as the one referred to above is based on limited data and fraught with methodological difficulties; therefore one should stress that, as is always the case with statistics, but much more in the present instance, data should be considered to give the order of magnitude rather than be taken at face value. For a detailed explanation of the methods used in the inquiry one may refer to the above source.

World average personal wealth= $ 21,000 (PPP$26,000)[15]

$144,000 in the USA[16]

$181,000 (PPP$ 125,000) in Japan

$1,400 (PPP$ 8000) in Indonesia

$1,100 (PPP$ 6500) in India

$98,000 (PPS$ 120,000) in Italy[17]

East European countries find themselves, as expected, at intermediate values

Table 2E
Personal Wealth in Eastern European Countries
(thousands of PPP$)
On average more or less the world average

The average value of personal wealth is about 4 times that of the poorer 64 countries

and about one sixth of the per capita personal wealth of the 24 richer OECD countries

•	Russia	18		
• Slovenia	37	•	Belarus	15
• Czech Republic	32	•	Bulgaria	15
• Hungary	32	•	Romania	15
• Estonia	26	•	Macedonia	15
• Poland	25	•	Bosnia	12
• Slovakia	24	•	Serbia and Mont.	12
• Croatia	22	•	Albania	11
• Lithuania	22	•	Ukraine	10
• Latvia	19	•	Moldova	8
•				

The 24 richer OECD countries own 83% of world private wealth (64% at PPP$) with only 15% of world population, with 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$)[18]

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[15] Davies et alii, 2006a, Table 8.

[16] Davies et alii, 2006a, Table 1, Appendix V. For the USA the PPP$ and $ values are obviously the same (no exchange rate is involved).

[17] Ibidem.

[18] Ibidem, Table 8.

The Poor, the Rich, and the Superrich

It has been estimated that the 1% the of richest adults owned the 40% of overall private wealth in 2000 (32% in PPP**$** terms**)[19];** the richest 10%, the 85%; the poorest 50%, the 1% (4% in PPP$ terms).[20]

The Gini index of inequality of overall world wealth distribution (calculated using current exchange rates) is given as 89 (80 in PPP$ terms)[21], the same as that of a group of 10, where 1 has 1000€ and 9 1€ each**. [22]**

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.[23] To make a comparison, the Gini index of the distribution of family incomes of Italy is reported as 36, that of the USA 45, that of Sweden 25. The state where the Gini index appears to be highest, among those reported in CIA *Worlfactbook* is Namibia with 71, but probably only because in other, even more unequal, third world countries no statistical data allowing its calculation are available. [24][25]

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[19] "37% reside in the US, 27% in Japan" (Davies et alii, 2006b).

[20] Davies et alii, 2006a, Table 10, and Table 11a.

[21] Ibidem, Table 12. If the exchange rates are calculated according to Purchasing Power Parity the inequality is somewhat lower since the purchasing power in the poorer countries is revalued, but the overall picture does not change.

[22] Davies et alii, 2006b, p. 9.

[23] The paper by Milanovic contains an interesting critical review of the different methodological approaches used to get those values. From the historical viewpoint it is believed that in the past income differences inside nations were relatively more relevant than nowadays in the determination of the global result. 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). According to the data reported in Bourguignon and Morrison (2002, p. 731) there has been an increase through time in the world Gini coefficient, from 0,50 in 1820 up to the present values (see table 4). On the other hand 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.

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

[25] The Gini coefficients above are taken from CIA (2007).

Table 4
Poverty and income distribution in recent world history[26]

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		44	18

What is the source of the present high inequalities

According to the previous table, while inequality, as measured by the Gini coefficient, has steadily increased since 1820, the proportion of paupers in the world has steadily decreased. Thus, seen in an historical context, present inequality appears not to depend on the paupers of the world being worse off, since an increasing proportion of the worse off are lifted from their state of absolute poverty, but on the fact that on the whole the lot of humans has dramatically, albeit unequally, improved (and this has contributed to enormously multiply their numbers). The rate of growth of world population has never been so high as after WWII (see Table 5). Among the regions of the world the highest growth rate has been that of Africa, the poorest region. This, together with the composite ethnic structure of the artificial political divisions left over from colonial times, replicated in the post-colonial state boundaries, and the low educational attainments, contributes to explain the tensions and bloody conflicts that engulf that unfortunate continent. As to the concretely implementable measures for bringing about a more equal distribution, which would not affect the unique engine of growth and welfare that has been running in the last sixty years of world history, there is no much clarity of thought. As

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[26] Data taken from Bourguignon and Morrison, p.731; the data of the last row are calculated from population data in table 3 and Word Bank poverty data.

usual is the case what appears at first sight is not what really is, if one looks rationally at the implications. For instance the various proposals for limiting the extent of the liberalization of the world market, such as advocated by the various anti-WTO movements, would probably hamper one of the main sources of growth and economic improvement of the enterprising poor, and an engine leading to increasing worldwide equality rather than inequality. As to transfers, it is hardly possible that transfers of the size 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. In general, the propensity to aid the poor people of the world is quite widespread, but with somebody else's money.[27] Moreover there is the issue of the lasting effects of the culture of dependency, and the old maxim that international aid amounts taking away from the poor of the giving countries in order to give to the rich of the receiving countries, which, in its apparent paradox, may capture a relevant aspect of international aid. As to changing the basis of the international economic order from free exchange and market to planned allocation and material barters, even aside the concrete issue of its (in)feasibility, the Comecon experience of planned material exchanges is not really enticing. To some extent distribution is internationally as well as inside nations a consequence of the institutions that regulate and affect production and exchange. The institutions that may favour high levels of productivity and growth have some distributional consequences that only partially can be mitigated without affecting economic outcomes.

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[27] Such as in the movement for international debt remission, 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 not necessarily is in the interest of poorer countries. 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, thus presumably eliminating, or reducing, the debt without worsening the credit rating of poorer countries.

Table 5
Yearly average rates of population growth 1-2007[28] (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
Italy	0.03	0.15	0.20	0.65	0.68	0.64	0.66	0.19	0,09
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[29]	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[30]	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

The population explosion

In a secular (or rather millennial) perspective, before the Industrial Revolution population growth was held in check by high mortality rates, accompanied by high birth rates.[31] Still, following the improvement of agricultural

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[28] 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.

[29] USA, Canada, New Zealand, Australia.

[30] One may puzzled by the acceleration of the demographic development of Africa in a period of massive slave transatlantic trade. The answer seems to lie in the fact that "although some areas of Africa were depleted by slave raiding, on balance the African population grew after the establishment of the transatlantic slave trade because of new food crops introduced from the New World, particularly manioc, corn (maize), and possibly peanuts" (Hellie, 2007).

[31] 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. 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 of poor living, childbearing and childrearing conditions. Second, possible neglect of the elders, the disabled and the infirm. Third the spread of epidemic diseases (which was favoured by overcrowding and poor living conditions in the cities of agricultural societies). Then, endemic warfare, between tribes, nations or individuals, leading to direct deaths, as well as to misdirection and destruction of the resources otherwise available for survival. According to Ember (1978) about 60% of the societies of hunter gatherers of which there is documentation were recorded to be at war at least once every two years. As to pre-industrial civilizations it is enough to recall world and European history (for instance, considering European history immediately preceding the Industrial Revolution, in the 16th century 95% of the time there were wars involving the major European powers, 94% in the 17th and 78% in the 18th century; cf. Eloranta, 2005). For the issue of population control in pre-industrial societies, with a survey of the relevant literature, see Caldwell and Caldwell (2003).

technology in particular, there was some population growth at a very slow pace, slightly accelerating in time, as shown in table 5. [32] Later on, with the spread of the Industrial Revolution the decrease in mortality rates led to a much faster population growth, while the demographic consequences of two world wars and related upheavals in some areas is shown in a temporary decrease in growth rates. The post World War II period has seen an unprecedented population explosion, with some signs of abating however following increasing living standards and progresses in the technology of birth control, spreading from the more advanced countries to the lesser developed areas of the world.

What have been the causes of the post World War II world population explosion? Essentially the reduction in mortality rates and the increase in life expectancy (see the tables in the Statistical Appendix at the end). The birth rate has on the whole decreased in the post-war period, but the increase in life expectancy has been stronger; in the world as a whole 17 years between 1950 to 1999, 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 of life expectancy,[33] while the present inequality in average life expectancy between the different areas (about 50% between the highest, Western Europe, and the lowest, Africa), is much lower than that in wealth or income (see the Statistical Appendix).[34] (With respect to some other life statistics however the picture is more extreme.) One of the reasons of the population explosion in the post WWII period lies in the impact of the "green" revolution in third world countries such as Mexico and India and the strong growth of agricultural production, as well as the improvements in transportation.[35] Moreover there was no major demographic catastrophe, of the kind that in the old times were blocking demographic advance in a secular perspective.[36] For some relevant demographic data we may refer to the statistical appendix at the end.

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[32] The relation between population growth and agricultural technology was stressed by Boserup (1965) even if in Boserup's work the causal relation was supposed to act in the contrary sense than the one implied above; the crucial element being the density of population affecting the length of fallows. However this could be the case if a complete blueprint of alternative agricultural techniques were to exist at any given time, not if alternative agricultural techniques had to be discovered, or rediscovered, in a lengthy historical process. For a critical assessment of Boserup's work, see Federico (2001).

[33] Cf. tables 4 and 5.

[34] 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" (Milanovic et alii, 2007, p. 29).

[35] With the "green revolution" modern agricultural techniques and high productivity seeds were imported from the developed world to developing countries through organized efforts spurred first by the Rockefeller Foundation (in Mexico since 1944) to which the Ford Foundation later joined forces. "Across the world agricultural production, including meat production, doubled between 1820 and 1920, doubled again between 1920 and 1950, again between 1950 and 1965, yet again between 1965 and 1975, and continues to grow exponentially" (Scully, 2002, p. 29).

[36] Such as in the case of the Black Death. The only globally relevant demographic catastrophe in the after War II period could have been the deficit of an undetermined (and undeterminable) few tens of millions Chinese as a consequence of the famine following

MADDISON'S STATISTICAL SUMMING-UP OF WORLD ECONOMIC GROWTH

Even in the poorest of continents, this means Africa, per capita income has strongly increased since when the present mode of production that followed the industrial revolution has spread to the whole world (see Table 6). This has taken place notwithstanding the rapid population growth, which in the post World War II years has become the highest in the world (2.69% yearly in the period 1973-2001, somewhat decreased to 2,36% in the last six years; see Table 5).

According to Maddison's statistical account (somewhat daring, owing to the length of the historical period covered), per capita income has decreased in Western Europe during the first 1000 years of our era, from 450PP$ to 400 (where 400 stays for the physical subsistence level), reaching a nadir around 600 AD, and then starting a very slow recovery.[37] In that period the rest of the world fared somewhat better, per capita incomes being throughout the period somewhat higher in Africa (430 at 1AD, 425 at 1000AD), and in Asia (450 in both years), while the remaining areas were still at low subsistence level (400). 500 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$, but was stagnating until the Industrial Revolution (1820). What were to become the Western Offshoots were the poorest at 400, Africa had somewhat declined at 414, stagnating until the colonial conquests of the nineteenth century, China had progressed from 450 to 600, staying at that level until 1820 and declining afterwards, down to 439 in 1950, Japan also progressed reaching 737 in 1820. At the threshold of the Industrial Revolution, in 1700, the richest world country were the Netherlands with 2130, Western Europe was somewhat lower than 1000PPP$ on average.[38]

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_, http://www.census.gov/ipc/www/idb/worldpopinfo.html). 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).

[37] The data for the year 1 in Western Europe and Asia are considered implausibly low by Federico (2002, p. 115).

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

Table 6
World Per Capita GDP, Regional Averages, 1-2001 AD[39]
(1990 international Geary-Khamis dollars)[40]

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

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

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[39] Maddison, p. 642.

[40] For the definition of Geary-Khamis dollars cf. United Nations, 1992. Perusing the above data it results 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 was right in downplaying the issue of distribution as such (cf. Marx, 1875). Distribution may be important in the short-run for allowing some of the worse-off to improve their lot. In the long run it is more important for the worse off the relation between distribution, technical improvements, production and accumulation.

Table 7[41]
Growth of Per Capita GDP by Major Regions, 0–1998
(annual average compound growth rate)

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

Table 8[42]
Growth of Per Capita GDP by Major Region, 1820-2001
(annual average compound growth rate)

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

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[41] Sources: Maddison (2006, pp. 30; 643).

[42] Data taken from Maddison (2006, p. 643).

THE VERY LONG PERSPECTIVE OF THE WORLD ECONOMIC HISTORY ACCORDING TO THE MALTHUSIAN VIEWPOINT
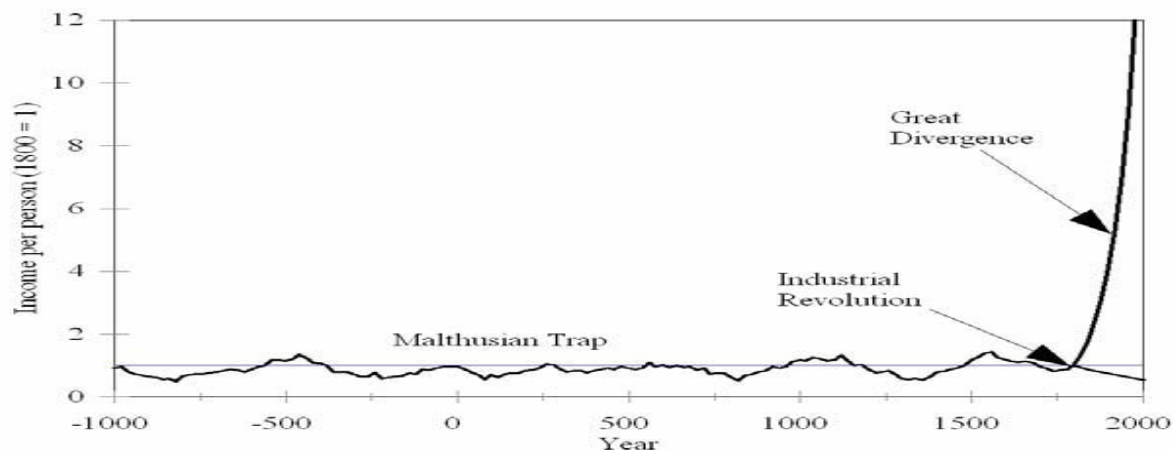

Fig. 1 The Malthusian trap ("world economic history in one picture"), according to Gregory Clark[43]

A possible interpretation of available historical evidence is the Malthusian one. Up to the dawn of industrial revolution the great majority of humans was on the brink of physical survival. In a very long perspective there was by and large a Malthusian equilibrium between population and resources, with a very weak long run growth, amounting to near stagnation, of world population.[44] In the light of this interpretation distribution of income and wealth in the long run affects the size of the population (because it uses up resources that could allow a larger population to subsist), not the living standards of the masses. 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 poor 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).[45] 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

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[43] Fig. 1.1 in Clark (2007).

[44] For a recent book representing this point of view see Clark (2007).

[45] According to Kenny (2006), and the empirical enquires reported by him, economic and social inequalities can have a powerful negative effect on subjective measures of poverty and deprivation, so their impact in the past, when they were associated with even greater differences in status and rights than in the present, could have been even more devastating than nowadays. Kenny also underlines the negative impact of increasing expectations and new consumer goods on welfare or happiness. But happiness is a rather subjective matter, as is well expressed by the Italian poet Metastasio: "Se a ciascun l'interno affanno si leggesse in fronte scritto, quanti mai, che invidia fanno, ci farebbero pietà!" As economists, we may content ourselves with per capita incomes, but with a lot of caveats, of the kind argued by Kenny.

the slave society of ancient Rome slaves had some degree of hope to be liberated and even to become affluent or, in Christian times, to earn after death, alike their rich masters, and ever more than they, the Kingdom of Heaven. Moreover the existence of some strata that were able to enjoy a surplus over subsistence could have been an engine (however very inefficient) of progress in living patterns, and an instrument for providing the resources for some to devote themselves to art, technology and science, with eventual long run benefits to average living standards, as well as cultural benefits for mankind. Other utilizations of surplus were for collective purposes, such as building cathedrals or waging wars, the latter being in itself one of the principal instruments, through their disruptive consequences, of population control. The working of the limiting factors on the growth of population could have affected economic progress negatively, pushing living standards down; however greater population density would have lead to more advanced production techniques and modes of organization, in particular through the division of labour and increasing returns to scale.[46] Moreover, even if the Malthusian trap had worked in the very long-run, in the shorter run there may have been long periods when population growth was compatible with some improvements in living standards. Thus in the shorter run how wealth (land ownership in past agricultural societies in particular) was distributed could have made to a great deal of difference for the well being of the bulk of the population.

HISTORY AND THE PROBLEM OF UNDERDEVELOPMENT

From our historical excursus it appears that for almost the totality of human history poverty and starvation have been the rule, wealth and affluence a tiny exception in a sea of misery and precarious lives. So the real historical singularity that must be explained is not poverty and backwardness, but development and wealth. If the issue of relative poverty and underdevelopment arises from the economic development of the countries that have become well off rather than from some countries having made worse off in an absolute sense ("exploitation") it is to the development of poorer countries that one should turn for getting rid of the issue, as well as for reducing, and one day perhaps eliminating, absolute poverty. In a number of countries, particularly in Asia, the take-off has succeeded, in others, particularly in Africa, seems to have failed.

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[46] In the development of agriculture this is stressed by Boserup (1965).

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

The gigantic increase in population and wealth in the last two centuries, and the very rapid (historically speaking) decrease in the proportion of the poor have been the outcome of a mode of production characterized by the systematic application to production of scientific principles, and the systematic and organized pursuit of scientific and technological progress, dramatically improving the living prospects of billions of men and women. According to conventional wisdom its ultimate sources may be found in the Renaissance and the Enlightenment, tied together by the Reformation's critical discussion of traditional received faith. Until the Soviet Revolution this mode took the organizational form and vehicle of transmission of the internal and international capitalist market.[47] Real socialism can be seen just 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. Eventually this daring experiment has encountered a bitter dead end, but in the process it has partaken both of the increase in population as of the increase in aggregate production. Its failure has been a comparative failure, but still its achievements in aggregate economic and life statistical terms may be seen as substantial in relation to pre-industrial epochs. If we are willing to indulge a little bit in counterfactuals, suppose that real socialism had prevailed throughout the world by way of revolution and/or military conquest, destroying the international market system in the process. Probably, after the initial disruptive consequences of the change of system, it would have continued the process of increasing world wealth and population. Would it have been enough to argue that no better system is possible and to ascribe to the very nature of real socialism the productive outcomes? In this respect two viewpoints seem to be equally objectionable: that a really existing, and therefore highly imperfect, system of production has to be rejected because it did not do enough and another abstractly implementable system (soviet-type socialism vs. capitalism) should do better; as well the opposite contention that no better (in our case capitalism vs. soviet-type socialism) system of organization is possible.[48]

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[47] This does not detract anything from the role performed by the state, but the basic principle of economic functioning was voluntary exchange.

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

POST-WAR DEVELOPMENT AND THE MALTHUSIAN TRAP

Looking at the overall historical picture, a most remarkable fact is that the world has never grown so fast, as to population and wealth, as in the post World War II period. The possible causes have already been mentioned: globalization (the great intensification of international trade and investment),[49] technical progress (and the progress of medicine), originating in the European countries and Anglo-European offshoots; in particular progress in transportation and agriculture, and the absence of devastating conflicts at the global level (the world has been for fifty years on the brink of nuclear global disaster, but it didn't fall into the precipice, yet).

Notwithstanding the above success, for the world as a whole the Malthusian trap is still lurking. But rather than decreasing agricultural returns, as in the classical explanation, it may be here relevant the pressure on scarce natural resources, and in particular the retroaction on development and living standards of the possible "tragedies of the commons", including climate change.[50] The industrial and demographic developments that have accompanied the actual 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 accumulated by the leftovers of hundreds of million of years of life on earth. To this one may add the destruction of forests and pristine habitats, the pollution or air and water, and, last but not least, CO_2 emissions. The plunder has mostly taken place to the advantage of industrialized countries, and of countries disposing of large reserves of raw materials (in particular hydrocarbons), appropriating the rents of their exploitation. On the other hand the balance for poorer and energy poor countries cannot be considered as negative, since in the process their average living standards (considering both per capita income and life statistics) have greatly improved all the same, as a consequence of the diffusion of the technological advances of the West, notwithstanding the colonial domination to which most of them had been subjected in the past. But if more and more countries successfully pursue the type of industrialization and economic development that has made rich the West and better off the emerging economies, the pressure on resources and the enhanced generation of externalities may exert a negative feedback elsewhere, especially on the living standards of the countries deprived of natural resources, with potential destabilizing consequences on the economy and the peace of the world.

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

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[49] On the role of international trade and openness in conjuring development and economic progress see Dollar and Kray (2004) and the literature referred there.

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

accompanying the development of the presently more developed countries, or it may be favoured by public policy; the possible alternatives are the usual ones that have constrained the development of population in history. Once demographic developments are considered an object of policy some delicate philosophical problems present themselves: Is it better in presence of limited resources to have many overlapping generations with short lives, or fewer generations with longer lives? How short or how long, and how many generations? How many people for each generation? Many people with low living standards, or few ones with higher living standards? And how low or how high?[51]

THE LIMITS TO POPULATION GROWTH

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

NATALITY, MORTALITY, AND CATASTROPHES

A correction to the process of world overpopulation could be found in decreasing the birth rate, as a by-product of per capita income growth, and the extension of social security systems to the countries where the survival of the elderly is otherwise dependent on family ties, as well as of the improvement and diffusion of the technology of birth control. But the progress of medical technology leading to a progressive decrease in the mortality rate can have the contrary effect. 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. While we can think of demographic policies affecting the size of a population at the country level (even if a country could represent an important part of the world population, such as China), it seems hardly possible that demographic policies could be devised and implemented at the world level (such as advocated notably by Julian Huxley[52]) in order to take into account the important externalities that individual decisions regarding

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[51] 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.

[52] Cf. Julian Huxley (1964). Fictionally, there is far-reaching demographic planning in Aldous Huxley's dystopian novel *Brave New World* (1932).

procreation have for the world as a whole.[53] In the past demographic control avoiding the operation of the Malthusian trap was ensured in many instances 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 increasing adult mortality.[54] 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*,[55] in the more subtle form of denying life supporting medical treatment and, possibly, the economic means of survival, to the elderly.

Of the three factors that have historically contributed to held populations in check through recurrent catastrophes: epidemic diseases, famines, and war, the impact of epidemic diseases has been greatly reduced by the progresses of medicine, and even the definitive cure or prevention through vaccination of the AIDS epidemics appears only question of time. Of course the possibility of the surfacing of some new epidemic disease, such as aviary influenza, is always possible, but only with temporarily limited consequences, until, presumably, medical research comes to grip with it. Mass starvation as a consequence of famine has been largely overcome by progresses in transportation and agricultural technique. Even if at the moment tensions are re-surfacing on the international food market, following the ill-advised subsidization of fuel producing crops, another green revolution is in process through the development of OGMs, which, notwithstanding misgivings and preconceived hostilities, seems essentially a foregone development. All in all the potentially most destructive factor, besides some sudden environmental disaster, could be eventually war, as a consequence of the spreading of atomic technology, and international tensions building up in an increasingly overcrowded and shrinking world.[56]

WAR, PEACE, AND GROWTH

Following the tragedy of the two world wars the international community refuses the model of wars directed to the enlargement of national borders and the acquisition of new territories.[57] In the post war period these have been very limited: Tibet's conquest by Mao's China, Timor-Leste's conquest by Indonesia, Western Sahara's

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[53] 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).

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

[55] Petri (1965).

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

[57] Waging a war of aggression, in particular, has been made an international crime in the charter of the United Nations (art. 39). It is not particularly tranquillizing however that this provision had a precedent in article 10 of the Covenant of the League of Nations

annexation by Morocco, Saddam Hussein's expansionary wars aimed to acquire new territories, in Iran first, and through the annexation of Kuwait later, and the wars of Yugoslav succession, renovating the old bloody Balkan wars. On the other hand rather than, or perhaps more precisely, in addition to, traditional war dangers, other different menaces arise from the conflict between faiths and ethnicities, partly enhanced and conjured by the increased movement of people from the poorer and demographically faster growing countries of the South towards the more affluent and demographically more stagnant countries of the North. Migrations may lead to an increase in inequality in the latter, insofar as migrants are on the whole less skilled than the natives.[58] Thus, enhanced migratory movements could increase the inequality inside countries in relation to the inequality between countries, reversing the previous historical trend in the opposite direction.

The Bomb and the economic consequences of war and peace

The spreading of nuclear armaments brings about a reduction in the propensity to armed regional conflicts. After that India and Pakistan have acquired nuclear status there have been moments of acute tension, but, unlike in the past, none of these tensions has led to open war. Since it has become a nuclear power, Arab countries have ceased to wage open war to Israel. At the same time, in case an open conflict between atomic powers were to erupt, the consequences could be disastrous, and not only for the countries concerned. In the past the natural productive foundations on which to re-start a growth process were largely unaffected by catastrophic events (such as after the black death), as the foundation of wealth and survival was agriculture. Thus a war of conquest had some rationality (as in the present world it could appear to someone a war for controlling territories endowed with natural resources, in particular hydrocarbons). To conquer and enslave rich countries with advanced economies would bring about no advantage but disaster: the prosperity of the advanced countries relies on very delicate social and economic mechanisms. If the balance is destroyed, so is prosperity. A much greater surplus could be enjoyed through voluntary exchange than through conquest and enslavement. The game humanity played in the past, when conquest, plunder, territorial expansion and domination, slavery, torture and mass killings were respectable endeavours and part of the rules of the game, and mass murderers acquired the status of national heroes, still remembered and glorified in monuments and history books, led on the whole to very poor results, as measured at least in terms of population and economic growth. As we have seen, until the modern era the progress of humanity, both in terms of population and of productive achievements, was so slow as to amount, in our present perception of time, more to stagnation than to growth, with long spans of regression. The first millennium of the vulgar era was for Europe a lost millennium: the decadence and fall of the Roman Empire and the dislocations following the barbaric invasions left Europe worse off economically in the year 1000, at the dawn of the new Christian nations, than at the time

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but this did not hinder Nazi Germany and the Soviet Union attacking Poland in September 1939, thus starting the second world war!

[58] With the notable exception of the UK (see Boeri et alii, p. 24).

of the birth of Jesus Christ, with the bottom reached around 600. The real progress, meaning a substantial overcoming of the Malthusian trap (or anyway, whatever the interpretation, of the near stagnation in world population and economy), had to wait until the Industrial Revolution gradually expanded all over the world. But it has been the peace period after the Second World War (localized conflicts notwithstanding) that has led to the greatest acceleration in the speed of demographic and economic progress the world has ever known in its history. In the present world the victory in a nuclear war would be a Pyrrhic one, since conquered or defeated territory would stay contaminated and unproductive for the foreseeable future, [59] and the wealth of the defeated would be destroyed with their physical destruction, not to speak of the losses of the victor. Until now this entirely rational consideration (as well as the fear for the enormous losses of a nuclear war) has prevented wars between nuclear powers. But with the spreading of nuclear technology, together with irrationality and fanaticism, and the tensions originating from the possible increasing scarcity of basic resources, such as fossil fuels or water, how much will this interval of relative, and relatively affluent, tranquillity last? Carlo Cipolla's words in the concluding page of his *Economic History of World Population* (1962, p. 133) still continue to be of great relevance, no less than at the time they were written:

"There is nothing more dangerous than technical knowledge when unaccompanied by respect for human life and human values. The introduction of modern techniques in environments that are still dominated by intolerance and aggressiveness is a most alarming development…Ethical progress has to accompany technical and economic development. While teaching techniques, we have to teach also respect for the dignity and worth and indeed the sanctity of human personality."

But to teach how? The solution to invade "rogue" countries that house dangerous territorial expansion programmes, with the declared purpose of spreading democracy and human rights (conforming to the German and Japanese model of post-war occupation and re-education) does not seem any near to have attained the declared objective. Even more, it has apparently disturbed wasps' nests of archaic barbarism. Moreover the credential of the West as a teacher of "respect of human life and human values" are rather poor. Only in the last 60 years or so of its very long history has the West unanimously repudiated the wars of conquest that in the past were one of the most popular endeavours of its nations and its rulers. The Fascist wars of the last century have been the continuation, to its extreme consequences, of a tradition of humanity by which war and conquest were a source of glory and pride. Now that the game with us is over we want to persuade the others to renounce to the game themselves. But the success of such an effort of persuasion and assimilation to recently embraced western values of peace and toleration (that has been apparently quite successful in the case of post-war Japan) is vital both for the rest of mankind and for the West alike, owing to the destructive power of modern nuclear warfare, and the fact that eventually the West will not be able anymore, in face of the growth of

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[59] But the above does not apply to the neutron bomb!

the economic and military potential of the Rest (or rather of a subset of it, first of all China), to maintain its economic and military dominance.

DANGERS FOR THE FUTURE

But it will not necessarily succeed. Traditional power politics and dangerous breakmanship may resurface again in a world where the West will have lost its primacy. Possible factors leading to disaster could be, for instance, a revanchist imperially minded Russia, a paranoid future American president, misusing his control of nuclear warfare, an aggressive China willing to use its rapidly increasing military power to bully and submit her neighbours (first of all Taiwan) or even to reverse the unequal treaties with the czarist empire,[60] and claim the immense natural resources of a sparsely populated Russian Asia, the irresponsible action of some rogue nuclear state. Sooner or later we may go back to normality, but with much enhanced capabilities for destruction.

Our world has always been a very dangerous place, and eventually it will be quite unsuitable for human survival, and, more broadly, for animal survival, anyway. In the meantime, after the possible demise of mankind and before the end of the earth, the radioactive left-over of global nuclear warfare could, by favouring mutations, engender the creation of many other strange living species, and the human race may be recalled just as a particularly weird specimen, among the many bizarre animal species that have populated the earth, perhaps the only one so vain to harbour the very strange egocentric anthropocentric thought that the earth, and the whole universe, were created just for its own benefit.

REFERENCES

Asimov, Isaac, *Foundation and Earth*. London, Grafton Books, 1986.

Boeri, Tito, Gordon Hanson and Barry McCormick, *Immigration Policy and the Welfare System*. Oxford: Oxford Un. Press, 2002.

Boserup, Ester, *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure*. London, G. Allen and Unwin, 1965.

Bourguignon, Francois, and Christian Morrisson, "Inequality Among World Citizens: 1820-1992". *American Economic Review*, vol. 92, No.4 (September 2002), pp. 727-744.

Briggs, Asa, "Technology and Economic Development", in Briggs, Asa et alii (1963).

Briggs, Asa et al., *Technology and Economic Development: A Scientific American Book*. Penguin: Harmondsworth, 1963.

Caldwell, John C. and Bruce K. Caldwell, "Pretransitional Population Control and Equilibrium". *Population Studies,* Vol. 57, No. 2, 2003, pp. 199-21.

Caldwell, John C. and Thomas Schindlmayr, "Historical Population Estimates: Unraveling the Consensus". *Population and Development Review*, Vol. 28, No. 2. (Jun., 2002), pp. 183-204.

Chen, Shaohua and Martin Ravaillon, "How Have the World's Poorest Fared Since the Early 1980s?", *Word Bank Research Observer,* vol. 19, n° 2 (Fall 2004), accessed at http://iresearch.worldbank.org/PovcalNet/jsp/Introduction.jsp.

Chen, Shaohua and Martin Ravaillon, "Absolute Poverty Measures for the Developing World, 1981-2004", World Bank, 2007, accessed at http://iresearch.worldbank.org/PovcalNet/jsp/Introduction.jsp

Chilosi, Alberto, "On the Economics and Politics of Unrestricted Immigration", *Political Quarterly*, no. 4, vol. 73, 2002, pp. 431-436.

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[60] The Treaty of Aigun (1858) and Treaty of Peking (1860) leading to the cession to Russia of Outer Manchuria, the only "unequal treaties" of the nineteenth century China has not been able yet to reverse.

Chu, C. Y. Cyrus, *Population Dynamics: A New Economic Approach*. Oxford: Oxford University Press, 1998

Cipolla, Carlo, *The Economic History of World Population*. 6-th ed. Harmondsworth: Penguin Books, 1974 [1962]

CIA, *World Factbook*, 2007, available at: https://www.cia.gov/library/publications/download/download-2007/index.html

Clark, Gregory, *A Farewell to Alms: A Brief Economic History of the World*. Princeton: Princeton Un. Press, 2007

Davies, James, Susanna Sandström, Anthony Shorrocks and Edward Wolff**, "**The World Distribution of Household Wealth", 5/12/2006a, http://www.weourselves.org/reports/wider-wdhw-report-5-12-2006.pdf.

Davies, James, Susanna Sandström, Anthony Shorrocks and Edward Wolff**, "**World Distribution of Household Wealth", power point presentation, London, 5/12/2006b http://www.wider.unu.edu/research/2006-2007/2006-2007-1/wider-wdhw-launch-5-12-2006/wider-wdhw-powerpoint-presentation.pdf

Demsetz Harold, 'Information and Efficiency---Another Viewpoint', *Journal of Law and Economics*, 12, (1969), pp. 1--22, reprinted in H. Demsetz, *The Organization of Economic Activity*, Blackwell, Oxford, 1988, volume 2.

Dollar, David and Aart Kraay , "Trade, Growth, and Poverty". *The Economic Journal*,vol. 114 (493), 2004, pp. F22-F49.

Eloranta, Jari. "Military Spending Patterns in History". EH.Net Encyclopedia, edited by Robert Whaples, September 27, 2005. URL http://eh.net/encyclopedia/article/eloranta.military.

Ember, Carol R., "Myths about Hunter-Gatherers". *Ethnology*, Vol. 17, No. 4. (Oct., 1978), pp. 439-448.

Federico, Giovanni, "Review of Ester Boserup, *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure*." EH.Net Economic History Services, Apr 16 2001.URL: http://eh.net/bookreviews/library/federico.

Federico, Giovanni, "The World Economy 0–2000 AD: A Review Article". *European Review of Economic History*, 6 (2002), pp. 111–120.

Friedman, David, "Laissez-Faire in Population: the Least Bad Solution". An Occasional Paper of the Population Council., 1972. Available at http://daviddfriedman.com/Academic/Laissez-Faire_In_Popn/L_F_in_Population.html

Haslam, Jonathan, "Review: Soviet-German Relations and the Origins of the Second World War: The Jury Is Still Out". *The Journal of Modern History*, Vol. 69, No. 4. (Dec., 1997), pp. 785-797.

Haub, Carl, "How Many People Have Ever Lived on Earth?" *Population Today*, February, 1995.

Hellie, Richard, "Slavery"; *Encyclopaedia Britannica's Guide to Black History,* 2007, accessed at http://www.britannica.com/blackhistory/article-9109538.

Hu, Timothy, "China marches forward", *Jane's Security News*, 19/4/2007, http://www.janes.com/security/international_security/news/jdw/jdw070419_1_n.shtml

Hujo, Katja and Nicola Piper, "South–South Migration: Challenges for Development and Social Policy". *Development*, 2007, 50(4), pp. 19–25

Huxley, Julian, *Evolutionary Humanism*. New York: Prometheus Books, 1992 (originally published by Penguin Books, in 1964 with the title *Essays of a Humanist*).

Kenny, Charles, "Were People in the Past Poor and Miserable?". *KYKLOS*, Vol. 59, 2006, no. 2, pp. 275–306.

Maddison, Angus, *The World Economy*. Paris: OECD, 2006.

Marx, Karl, "Critique of the Gotha Programme". Translation of the original German text in 1875. Available at: http://www.marxists.org/archive/marx/works/1875/gotha/

McEvedy, Colin and Richard Jones, *Atlas of World Population History*. New York: Penguin, 1978.

Milanovic, Branko, "Global Income Inequality: What It Is And Why It Matters?", DESA Working Paper No. 26, August 2006, at http://www.un.org/esa/desa/papers/2006/wp26_2006.pdf.

Milanovic, Branko, Peter H. Lindert, and Jeffrey G. Williamson, "Measuring Ancient Inequality". World Bank, October 2007. At http://siteresources.worldbank.org/INTDECINEQ/Resources/AncientInequality.pdf

Peng Xizhe, "Demographic Consequences of the Great Leap Forward in China's Provinces," *Population and Development Review* 13, no. 4 (1987), 639-70

Petri,.Elio, *The 10th Victim* (original Italian title: *La Decima Vittima*), 1965 movie (based on Robert Sheckley's 1953 short story "The Seventh Victim").

PRB (Population Reference Bureau), *World Population Data Sheet 2007*; at http://www.prb.org/pdf07/07WPDS_Eng.pdf.

Ravallion, Martin, Shaohua Chen and Prem Sangraula, "New Evidence on the Urbanization of Global Poverty". World Bank Policy Research Working Paper 4199, April 2007.

Scully, Matthew. *Dominion*. New York:: St. Martin's Press, 2002.

United Nations, "The World at Six Billion", 1999, at http://www.un.org/esa/population/publications/sixbillion/sixbillion.htm.

United Nations, "World Population Prospects: The 2006 Revision Population Database", 2006, http://esa.un.org/unpp/p2k0data.asp

United Nations, "Annex II - Methods of Aggregation" *Handbook of the International Comparison Programme*. New York: ONU, 1992, accessed at http://unstats.un.org/unsd/methods/icp/ipc7_htm.htm

US Census Bureau, "Historical Estimates of World Population", 13 July 2007, at http://www.census.gov/ipc/www/worldhis.html.

US Census Bureau, "World Population Information", 18 July 2007, at http://www.census.gov/ipc/www/idb/worldpopinfo.html

WHO (World Health Organization), *World Health Statistics, 2007*. downloaded at http://www.who.int/entity/whosis/whostat2007.pdf

WHO, *National Burden of Disease Studies: A Practical Guide*. Geneva; WHO, 2001

World Bank,*World Development Indicators*, 2005.

Yao, Shujie, "A Note on the Causal Factors of China's Famine in 1959–1961", *The Journal of Political Economy*, Vol. 107, No. 6, Part 1. (Dec., 1999), pp. 1365-1369.

STATISTICAL APPENDIX: LIFE STATISTICS

Table 1A[61]
Yearly births per 100 population

	1820	1900	1950	1999	2007
Italy	3.9	3.3	1.94	0.93	0.85
West European Average	3.74	3.08	1.83	1	1(EU)
East European Average					0.99[62]
United States	5.52	3.23	2.4	1.44	1.42
Japan	2.62	3.24	2.81	0.95	0.81
Russia	4.13	4.8	2.65	0.88	1.09
Latin American Average			4.19	2.51	
China		4.12	3.7	1.6	1.75
India		4.58	4.5	2.8	2.27
Asian Average (without Japan)			4.28	2.3	
African Average			4.92	3.9	3.8
World			3.74	2.3	2.02

Table 2A
Average Life Expectancy for Groups A and B, 1000–1999[63]
(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

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

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

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

Table 3A[64]
Life expectancy at birth

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

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

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

Table 4A
Some life statistics from WHO, year 2005[65]

	Life expectancy at birth		Healthy life expectancy at birth		Adult mortality rate[66]		Under 5 mortality rate[67]	Infant mortality rate[68]	Neonatal mortality rate[69]	Maternal mortality rate[70]
	male	female	male	female	male	female				
Italy	78	84	71	75	89	46	4	4	3	5
USA	75	80	67	71	137	81	8	7	4	14
Japan	79	86	72	78	92	45	4	3	1	10
Russia	59	72	53	64	470	173	14	11	7	65
India	62	64	53	54	280	207	74	56	39	540
Brazil	68	75	57	62	225	118	33	28	13	260
China	71	74	63	65	155	98	27	23	18	56
South-East Asian Region	62	65	54	55	272	207	68	51	35	460
African Region	48	50	40	42	480	438	165	99	40	910
World	64	68	56	59	233	164	74	51	28	400
European Union[71]	76	82						5		

Some interesting extreme values (giving the existing range), from CIA *Factbook* (2007): Birth rate (births/1000) 50 (Niger)- 7,34 (Hong-Kong); death rate (deaths/1000): 30.35 (Swaziland[72])-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) (1.29 Italy; 1.50 EU).

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

[66] Probability of dying aged 15–60 years per 1000 population.

[67] Probability of dying aged < 5 years per 1000 live births.

[68] Per 1 000 live births. Mortality in the first year of life.

[69] Per 1 000 live births. Mortality in the first 28 days of life.

[70] Per 100,000 live births.

[71] From CIA (2007).

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

Table 5A
Some life statistics of Eastern Europe from WHO, year 2005[73]

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

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

[74] Probability of dying aged 15–60 years per 1000 population.

[75] Probability of dying aged < 5 years per 1000 live births.

[76] Per 1 000 live births. Mortality in the first year of life.

[77] Per 1 000 live births. Mortality in the first 28 days of life.

[78] Per 100,000 live births.

[79] From CIA (2007).