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UNFPA's View On Population: An Economic Analysis

Alejandro Cid¹

Abstract

Recently, the United Nations Population Fund (UNFPA) published "State of World Population 2002" which holds a Malthusian view on demography: population growth harms economic development. Based on that assumption, the UNFPA directs funds to reduce the fertility of Third World women.

The purpose of this paper is to question the arguments and the underlying assumptions of the UNFPA perspective on demography. The critiques of the Malthusian view, from an economic point of view, include: a) statistical data have not confirmed the Malthusians' predictions; b) the difference between causation and correlation is misunderstood; c) a fixed level of resources is assumed; d) it underestimates the value of human capital; e) the problem of aging population is ignored.

Since nowadays not only UNFPA but also many other institutions spent large amounts of money on reducing fertility rates and controlling population growth in the Third World, understanding the relationship between population and economic growth could help improve policies. The conclusion of this paper is that there's no strong evidence, neither empirical nor theoretical, that population controls would solve poverty and contribute to development. Moreover, some evidence suggest just the contrary.

JEL Classification: J11

Key words: demographic economics, poverty, economic development, development planning and policy, resource economics.

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I. Introduction

Some months ago, United Nations (UNFPA) published “State of World Population 2002” (SWP shortened). One of the points that it holds, is that the demographic growth harms economic development. Precisely, I will focus mi paper on that statement. Why is it important to devote time on this? Because UNFPA not only holds this Malthusian thesis but also directs huge amounts of money to population control: “...since 1969, the United Nations Population Fund (UNFPA) has been the largest multilateral source of population assistance, providing some 6 billion dollars for population programs” (SWP, 2002, 8). “It is necessary to realize that policies have costs. These costs include the direct costs of implementing and monitoring policies and the distortionary costs introduced by policies that may encourage socially inefficient behavior (including rent-seeking by both public and private entities). Often policy-makers focus only on the direct costs and ignore the distortionary costs that may be much greater...” (Behrman, 2003, 384). So, if the Malthusian thesis was wrong, UNFPA could be playing really against economic development.

II. Malthus and Neo-malthusians

UNFPA’s thesis that demographic growth harms economic development is not a new idea in the economic literature. For instance, Frank Furedi (1997)² summarized different points of view that have aroused on this topic (see Kelley, Allen. C. (2003), for another summary):

“The Developmentalist Perspective... rapid population growth represents a major obstacle to development, as valuable resources are diverted from productive expenditure to the feeding of a growing population (...).”

*“ The Redistributionist Perspective...*interprets high fertility as not so much the cause but the effect of poverty. Why? Because poverty, lack of economic security, the high mortality rates of children, the low status of women and other factors force people to have large families. They also believe that population is a problem because it helps intensify the impoverishment of the masses (...).”

“ The Limited Resources Perspective:... population growth has a negative and potentially destructive impact on the environment. Its proponents argue that even if a growing population can be fed, the environment cannot sustain such large numbers, population growth will lead to the explosion of pollution, which will have a catastrophic effect on the environment (...).”

² Furedi, Frank. (1997). *Population and Development: A Critical Introduction* (cited in Wolfgram, Ann F. “Population, Resources & Environment: a Survey of the Debate”, <http://arts-sciences.cua.edu/econ/faculty/aguirre/>)

“ ***The Socio-Biological Perspective***...Its proponents present population growth as a threat not only to the environment but also to a way of life. They regard people as polluters and often define population growth as a pathological problem. In the West, the ruthless application of this variant of Malthusianism leads to demands for immigration control (...)”

“ ***The People-as-a-Source-of-Instability Perspective***... the growth of population has the potential to undermine global stability. Some see the rising expectations of large numbers of frustrated people as the likely source of violent protest and a stimulus for future wars and conflicts (...)”

“***The People-as-Problem-Solvers Perspective***. In contrast to the approaches mentioned so far, this one does not believe that population growth constitutes a problem. On the contrary, its advocates believe that the growth of population has the potential to stimulate economic growth and innovation. From this perspective, more people means more problem solvers, since human creativity has the potential to overcome the limits of nature (...)”.

Malthus, Thomas Robert (1798) *Essay on the Principle of Population* is the emblematic work in this topic. In the *Essay*..., he argues that the population growth rate is higher than the food growth one. Why? Food supply is constraint by land scarcity and by the existence of the law of diminishing returns. But just history has shown that Malthusian prophecies have not been right: “technological developments, agricultural developments, changes in societal organization, and changes in governmental policies, among other things, enabled humanity to avoid a situation where the number of people was greater than the capacity to sustain them” (Wolfgram, 2000).

“...the World Bank devoted a segment of its Development Report to refer to the Green Revolution as a ‘paradigm’ for development and knowledge-sharing. It is through human ingenuity, the World Bank argues, that food production has stayed ahead of population growth; indeed, productivity gains in cereals such as rice, maize and wheat have been dramatic” (Wolfgram, 2000).

In the term 1970-1980, Malthus’ thesis was revived in the popular debate. Within this neo-Malthusian trend, we could find people such as Paul Elrich and his *Population Bomb* (1968), Garrett Hardin and his *Tragedy of the Commons* (1968), Lester Brown... These neo-Malthusians argue that the population growth not only will exceed food growth rate but also will overcome mineral resources, oil, cultivable land, water and environment. “With complete but unfounded confidence, Paul Ehrlich could claim in 1968 that ‘hundreds of millions’ of people would die of starvation by the 1970s, that 65 million Americans would starve, that the population of the U.S. would decline by 22.6 million persons, and that England would cease to exist by 2000. More recently, Mr. Ehrlich, writing with Anne Ehrlich, renewed his prediction in *The Population Explosion* (1990)” (Wolfgram, 2000).

UNFPA’s “State of World Population 2002” seems to belong to this neo-Malthusian trend. Let us cite some paragraphs as examples:

- “Population age structures have an impact on development: a high proportion of young dependents holds back economic growth” (SWP, 2002, 7).
- “Slower population growth has encouraged overall economic growth in developing countries” (SWP, 2002, 7).
- “Between 2000 and 2015 nearly 1.5 billion young men and women will join the 20-24 age group. They, and hundreds of millions of teenagers, will be looking for work. If they have jobs they will drive economic growth; if not they will fuel political instability” (SWP, 2002, 9).

Who have criticized the neo-Malthusians’ prophecies? Firstly, let the statistical data talk for itself.

III. Statistical data have not confirmed the Malthusians’ predictions

“...the famines, shortages and ecological disasters widely predicted in the 1960s have not occurred, despite extraordinarily rapid population growth - world population has approximately doubled from three to six billion. Rather, quality of life has generally improved and per capita food production has increased. According to the 1998 *Human Development Report*, infant mortality has decreased more than 50% since 1960, malnutrition has been reduced by more than 25%, and the number of children receiving vaccination has increased by 80%. Alphabetization among adults has increased from 48% to 70% between 1970 and 1995. Primary education has increased from 48% to 77% while secondary education has moved from 35% to 47% during the same period. According to the 1999 *Human Development Report* “food production per capita increased by nearly 25% during 1990-1997. The per capita daily supply of calories rose from less than 2500 to 2750 and that of protein from 71 grams to 76” (Aguirre *et al*, 2000, b).

FAO, in *Agriculture to 2010* affirms that “it is technically possible to feed the billions of inhabitants forecasted” (Cachán, 1995, 17). See also Pierre Le Roy (2003) on agricultural production perspectives, who confirms this statement.

“Roger Revelle, Harvard Center for Population Studies ex-director, points out that the current agricultural technologies would allow to feed 40.000 millions people, seven times the world population of today”(Cachán, 1995, 24).

Ramón Llamas (2003), vice-president of Hydric Resources International Association, states that the world does not face a problem of scarcity of water: the real problem is its poor management.

“Simon Kuznets have collected data from 21 countries of Asia and Africa and 19 from Latin-America. The results of his research does not find negative correlation between population and income per capita (...). Jean Claude Chesnais and Alfred Sauvy

arrived to the same conclusions in their research taking 76 developing countries during 1960-1970” (Cachán, 1995, 55).

IV. The difference between causation and correlation is misunderstood

One frequent mistake in the popular debate: two events that happen simultaneously are attributed to the existence of a causal relationship between them. The difference between causation and correlation is misunderstood. Let's take the example of India where two facts turn up simultaneously: poverty and population growth. From these facts, could we conclude that poverty is caused by population growth in India? Could we ignore another simultaneous fact such as the huge inefficiencies and economic distortions that were introduced by different governments along the time, or the problems that were caused by the criteria used for divide the territory when the British empire left India, or the ethnic struggles, or the political instability and corruption, or the assaults to the economic liberty and private property? As the reader could note, it is not so simple to hold that the cause of poverty in India is the demographic expansion: a serious research could not ignore the other factors that have been mentioned.

A recent research of World Bank, *Breaking the Conflict Trap. Civil War and Development Policy* (Collier, 2003) studies the relationship between 52 civil wars and poverty and concludes that both are positive related: another idea to take into account for the researchers on the real causes of poverty.

Srinivasan (1988)³ argues that “many of the alleged deleterious consequences result more from inappropriate policies and institutions than from rapid population growth”. Take for example the case of Ethiopia and the analysis of Eleni Gabre-Madhin (2003), from the International Food Policy Research Institute. He states that 14 millions of Ethiopians are in danger of famine the current year and this fact is not the result of the population growth (among the causes, he emphasizes: economic agents with asymmetric information, lack of an insurance and legal system that could protect from bad crops and guarantee contracts, poor road infrastructure and telecommunications, difficult access to credit). “The erroneous belief about the population growth has introduced an expensive cost: it has diverted the attention from a central topic in the development of a country: the economic and political system”(Simon, 1993). Julian L. Simon (1989, 325) affirms: “the two variable studies reveal nothing important because they do not indicate a causal connection. In contrast, I argue that because the studies persuasively show an absence of association in these data, they imply the absence of a negative causal relationship. In other words, the other writers point to what the studies do not show, whereas I point to what they do show”.

UNFPA *State of World Population 2002* points out: “Rapid growth of poor rural populations puts enormous stress on local environments”(SWP, 2002, 9). Another issue that makes Malthus disciples worried: degradation of land quality. Let's take an example: Imagine a developing country where take place two facts simultaneously: great degradation of land quality and high demographic growth. Some neo-Malthusians

³ Cited by Kelley, Allen C. 2003. *The Population Debate in Historical Perspective: Revisionism Revised* in “Population Matters. Demographic Change, Economic Growth, and Poverty in the Developing World”, Oxford, Edited by Nancy Birdsall, Allen C. Kelley and Steven W. Sinding, Page 38.

could suggest to impose population controls. But, is population the real cause of degradation of land quality? Once more, isn't it a problem of misunderstanding the difference between causation and correlation? Why not assign resources to teach the inhabitants of that region how to use the land in a more efficient and sustainable form? John Pender (2003) recently made a theoretical and empirical review on the possible causal relationship between rural population growth and natural resource management and concluded that population growth is seldom the principal cause of environmental degradation and seldom if ever the focal point for a solution. "The evidence on these issues is mixed. For example, an often cited study of the Machakos district in Kenya found that between the 1930s and the 1990s, per capita income had increased, erosion was much better controlled, and trees were more prevalent in the landscape, despite a fivefold increase in population...Numerous other studies have also found positive associations between population growth, agricultural intensification, and investments in land improvement and resource conservation... However, many studies have also found population growth to be associated with various aspects of resource degradation, including deforestation, overgrazing, soil erosion, soil nutrient depletion, and other problems..." (Pender, 2003, 326). Pender emphasizes that the results of population growth on natural resources "are strongly conditioned by the nature of technology, infrastructure, institutions, and organizations...Much of the challenge of empirical policy research on these issues is to identify the factors that lead to different pathways of institutional and technological change, and policy interventions that may help more productive, welfare-enhancing and resource-improving pathways to evolve... (...)... the impacts of population pressure, particularly on natural resource conditions, may be very different in different contexts. Thus careful empirical work is required in different contexts before general conclusions can be drawn" (Pender, 2003, 355, 363).

V. Malthusians seems to underestimate the value of human capital

Another fallacy that is used to be in underlying assumptions of the followers of Malthus: *If my country produces two apples and there is only one inhabitant, then this inhabitant would be able to eat two apples. If my country still produces two apples but the population has grown and now there are two inhabitants, then each person could eat only one apple. So, demographic growth has caused famine.* This fallacy (Buckley, 1982, 206) seems to be in the arguments of the *State of World Population 2002* and consists in identify one more person with only an additional stomach to feed. It is forgotten that each person has hands and intelligence. Each human being is an inexhaustible resource which includes: knowledge, imagination, insatiability. This is precisely the foundation of the title selected for his book by the Maryland University professor Julian L. Simon: *The Ultimate Resource* (1981) who holds that, eventually, the real important resource is: the human being (Harvard professor, Gregory Mankiw, also supports⁴ this thesis). Simon was influenced by the works of Gary Becker which make emphasis on the roll of human capital in the economic development. Each person is a source of invention, with the ability of overcome intellectual, scientific and vital challenges. For instance, technological developments could help greater efficiency in the use of resources. Moreover, these innovations could mean a less dependence on some resources, causing a demand change. "I point out how the copper that we mine is less and less rich per ton year after year, but despite this our inventive capacities have

⁴ *Expansión*, 25th. April 2003, cited by ACEPRENSA 66/03.

been greater –that is, they have dominated the decreasing richness and the increasing difficulty in getting this stuff out” (Buckley, 1982, 207).

In 1968, Garrett Hardin, in his *Tragedy of the Commons*, argued that the consumers of a common resource (water, land, air) would end destroying that resource. However, Hardin did not take into account the existence of human creativity which would allow to invent new, better and sustainable ways to use those common resources, in benefit of both human beings and environment. In this sense, Elinor Ostrom *et al* (1999) argue:

“Although tragedies have undoubtedly occurred, it is also obvious that for thousands of years people have self-organized to manage common-pool resources, and users often do devise long-term, sustainable institutions for governing these resources. It is time for a reassessment of the generality of the theory that has grown out of Hardin’s original paper. ... An important lesson from the empirical studies of sustainable resources is that more solutions exist than Hardin proposed”.⁵

Also, Julian L. Simon (1996) argues:

“Trends in energy costs and scarcity have been downward over the entire period for which we have data. And such trends are usually the most reliable bases for forecasts. From these data we may conclude with considerable confidence that energy will be less costly and more available in the future than in the past. The reason that the cost of energy has declined in the long-run is the fundamental process of (1) increased demand due to growth of population and income, which raises prices and hence constitutes opportunity to entrepreneurs and inventors; (2) the search for new ways of supplying the demand for energy; (3) the eventual discovery of methods which leave us better off than if the original problem had not appeared”⁶.

VI. A fixed level of resources assumed

The report of the UNFPA *State of World Population 2002* affirms: “Large families dilute the assets of poorer households. Unwanted births deepen household poverty. Smaller families allow more investment in each child’s health and education” (SWP, 2002, 9). What are the underlying assumptions of that statement?. The classical Malthusian theories are usually based on the assumption that the available resources of any society are fixed. Assuming a fixed level of food, money, public services, etc, these

⁵ Elinor Ostrom et al, *Revisiting the Commons: Local Lessons, Global Challenges*, *Science* 284 (9 April 1999): 278-282. (cited in Wolfgram, Ann F. “Population, Resources & Environment: a Survey of the Debate”, <http://arts-sciences.cua.edu/econ/faculty/aguirre/>)

⁶ Simon, J. 1996. *The Ultimate Resource II*. Princeton: Princeton University Press. Pages 107-8. (cited in Wolfgram, Ann F. “Population, Resources & Environment: a Survey of the Debate”, <http://arts-sciences.cua.edu/econ/faculty/aguirre/>)

theories state that: a) more people means more consumers and, then, less consumption per capita; b) from the point of view of the labor market, with a fixed capital, average production per worker will be lower with a larger labor force; c) each new child, from this perspective, make problems deeper because he is one more to eat and does not produce anything; moreover, this fact harms the possible salary of the mother: she would not be able to work outside; d) finally, for all these reasons, population growth will mean less save, investment (also human capital investment) and education per capita. But, the central problem of these Malthusians prophecies is precisely that they are based on the famous assumption known as “ceteris paribus”: in other words, it considers that, while the population grows, all the other variables (education, food, capital,...) remain constant.

Julian L. Simon (1989, 330) states that the conventional conclusions of Malthus and his disciples are untenable when they are scientifically analyzed, both theoretical or empirical. In Wolfgram (2000) there are specific references on the debate about the “problematic” resources such as water, land, minerals, and Malthusian fallacies on this topic.

“It is quite true that the existing empirical studies do not in themselves show that faster population growth in the more developed world as a whole increases the income per person. But this is not inconsistent with the proposition that more people raise the standard of living in the long run. As I noted above, the studies mentioned do not refer to the very long run, but rather usually cover only a quarter of a century, or a century at most. The main negative effects of population growth occur during perhaps the first quarter or half a century so that, if these negative effects are important, the empirical studies referred to should reveal them. These shorter term effects upon the standard of living operate chiefly through capital dilution; they include the public costs of raising children –largely schooling and secondarily health- and the costs of providing production capital for the additional persons in the work force. But the most important positive effects of additional people –improvement of productivity through the contribution of new ideas and the learning-by-doing resulting from increased production volume- happen in the long run and are cumulative” (Simon, 1989, 329). In this way, Julian L. Simon shows that the empirical works that not take the long run into account, have biased results and stress the negative correlation between demographic growth and economic development.

VII. Problems of aging population

It is valuable to remind the economic problems that developed countries are nowadays facing as a consequence of the fertility rate reduction with larger life expectancy– with both trends accentuating⁷ -, meanwhile the mortality rate is declining: “The “silent revolution” that an increasing number of older people (see Appendix) are causing in the world brings with it many economic, cultural, and social issues among others that must be addressed. Not only will this situation exacerbate weaknesses in social security systems, but the suggested solutions to reform the systems will require

⁷ Wolfgang Lutz, Warren Sanderson, and Sergei Scherbov, “World Population Scenarios for the 21st Century,” *The Future Population of the World: What Can We Assume Today?*, ed. Wolfgang Lutz (London: Earthscan, 1996) 382 (cited in Aguirre, Maria Sophia; Dardys, Lynne; Motus, Catherine. 2000. “Putting a Price on Aging Population”).

substantial budgetary changes. In addition, likely social side effects will involve tensions between older generations and the younger generations who must support them..." (Aguirre *et al*, 2000, a, 4), with consequences on public services, health care, social security and fiscal budgets⁸. Two contemporary trends:

a) Increase of life expectancy: "The proportion of elderly in the world increased by only 1 percentage point from 1955 to 1990. Compare this to a 3.5 percent growth in the next three decades, and a 6.3 percent increase in developed countries".⁹ "The dependency ratio (typically defined as the percentage of the population aged 65+ over the population aged 15-64) is expected to increase from an average of 50% in 1995, to an average of 85%-90% by the year 2050" (Aguirre *et al*, 2000, a, 7). Also UNFPA affirms: "The number of people aged 60 and older is projected to more than triple in the next half century, from 593 million to 1.97 billion, increasing the share of older people in the population from 10 to 22 per cent" (SWP, 2002, 10).

b) Fertility rate reduction: Wattenberg (2003) holds that this rate ("total fertility rate": number of children born per women) should be at least 2,1¹⁰ to stabilize the population during the time being. At this rate, the two children could replace their fathers when they finally die (the 0,1 refers to the children that die before they can reach the reproduction age). "In the United Nations' most recent population report, the fertility rate is assumed to be 1.85, not 2.1. This will lead, later in this century, to global population decline. (...) Every developed nation is now below replacement level. In the early 1960's, Europe's fertility rate was 2.6. Today the rate is 1.4, and has been sinking for half a century. In Japan the rate is 1.3. (...) Nations with low fertility rates, meanwhile, will face major fiscal and political problems. In a pay-as-you-go pension system, for example, there will be fewer workers to finance the pensions of retirees; people will either have to pay more in taxes or work longer" (Wattenberg, 2003).

UNFPA's report holds with proud that the population planning programs accounted for almost one third of the global decline in fertility between 1972 and 1994 and more than two thirds of the decline in Asia (SWP, 2002, 8). However this report does not take into account the problems that this fact has caused (and will cause in the future) in the Asian health and pension systems (Aguirre *et al*, 2000, a, 18).

⁸ *Humanity's Slowing Growth*, 17th march 2003, The New York Times.

⁹ Samuel H. Preston and Linda G. Martin, eds., *Demography of Aging* (Washington, D.C.: National Academy, 1994) 3 (cited in Aguirre, Maria Sophia; Dardys, Lynne; Motus, Catherine. 2000. "Putting a Price on Aging Population").

¹⁰ Bongaarts holds that this replacement fertility equals 2.36 births per woman in the developing world. Bongaarts, John. *Dependency Burdens in the Developing World* in "Population Matters. Demographic Change, Economic Growth, and Poverty in the Developing World", Oxford, 2003, Edited by Nancy Birdsall, Allen C. Kelley and Steven W. Sinding, page 57.

VIII. Conclusions

The purpose of this paper is to question the arguments and the underlying assumptions of the UNFPA perspective on demography which are hold in *State of World Population 2002*. As we can see, there are strong theoretical and empirical arguments that weaken the UNFPA conclusions and its implications on the design of political economy. In the last decades, institutions like UNFPA have spent large amounts of money (Aguirre *et al*, 2000, b, 33-35) in promoting Malthusian recommendations taking for granted that this would encourage economic development, but the consequences could be just the opposite.

The *State of World Population 2002* report points out that “The international community has committed itself to an ambitious goal: cutting in half the number of people living in absolute poverty by 2015”(SWP, 2002, 8). It is obviously a good target. However, UNFPA focusing on the reduction of the fertility rate diverts attention and resources of the real problems.

Instead of pursuing short run results wasting money on putting population controls, why not devote the economic resources, which are scarce, in looking for real solutions in the fundamentals of development: improve and expand education and health, eliminate economic inefficiencies and corruption, guarantee suitable institutions (governments and economic policies, markets, property rights...) ...? It seems to be a too easy solution reducing poverty just by imposing poor women to have less children, without facing the real problems. In this sense, Allen C. Kelley (2003), recounting the history of the population debate, states that the progress of economic research on population has reached a particular approach that: “a) downgrades the relative importance of population growth as a source of economic growth, placing it along with several other factors of equal or greater importance; b) assesses the consequences over a longer period of time; and c) takes indirect feedbacks within economic and political systems into account.”

As we have seen, there’s no strong evidence¹¹, neither empirical nor theoretical, that population controls would solve poverty and contribute to development. Moreover, some scientific evidence suggest just the contrary¹². Then, why does UNFPA insist on reducing fertility rate of third world women? For a later research, many hypothesis could be made to ask this question. Are the laboratories firms, which offer instruments to population control, supporting Malthusians recommendations just for selling more of

¹¹ Another example: Kelley and Schmidt found that “the effect of population growth, which showed little or no effect on economic growth in the 1960s and 1970s, is negative, statistically significant, and large in the 1980s. The coefficient varies with level of economic development –negative in developing countries; positive for many developed countries”. They “also found that population density is consistently positively associated with economic growth across time and across all countries; that population size is positively associated with economic growth during some time periods; and that the net impact of demography over the 1980s was negative”. But pay attention on this!: “The authors urge readers not to make too much of these results; they are based on data and models which are still far from perfect”. From: “Population Matters. Demographic Change, Economic Growth, and Poverty in the Developing World”, Oxford, 2003, Edited by Nancy Birdsall, Allen C. Kelley and Steven W. Sinding, page 65.

¹² Simon, Julian L. 1981. *The Ultimate Resource*; Kelley, Allen C. 1988. “Economic Consequences of Population Change in the Third World” *Journal of Economic Literature*. (all of them cited by Kelley, Allen C. 2003. “The Population Debate in Historical Perspective: Revisionism Revised”, page 36, 38)

their products? Are the developed countries –which are facing fertility rate reduction- worried about the geopolitical, strategic and sociological consequences for them of the greater demographic growth in the Third World? “There are more people living on the earth today than at any previous point in history. At the 6 billion mark, there are twice as many of us as there were in 1960. Family planning has caused the rate of growth to slow, but population is still increasing by about 78 million people annually (O’Malley, 1999). The overwhelming majority of these births (97%) occur in developing countries (O’Malley, 1999). Africa has the most quickly expanding population; the United Nations Population Fund Activities (UNFPA) predicts a doubling of the population there within half a century. As far as total number of births, Asia has by far the most, with nearly 50 million people every year (O’Malley, 1999). “Currently, two out of every five people live in China or India” (Aguirre *et al*, 2000, a) “Still, it is the geopolitical implications of this change that may well be the most important. There is not a one-to-one relationship between population and power. But numbers matter. Big nations, or big groups of nations acting in concert, can become major powers. China and India each have populations of more than a billion; their power and influence will almost surely increase in the decades to come. Europe will shrink and age, absolutely and relatively” (Watttemberg, 2003).

To conclude, I would like to cite a recent paper of Sofía Aguirre (2000, 2), who writes: “the policies used are mistaken ever since it aims at hampering the growth of a key element of economic development: human capital, and thus renders it unsustainable...” (...). “It is time to acknowledge that the problem with development, poverty, and pollution is a consequence of political and economic factors, not of population”.

“Our world does not depend on the amount of resources: It depends on our freedom and imagination to optimize them” (Simon, 1998).

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Wolfgram, Ann F. 2000. *Population, Resources & Environment: a Survey of the Debate*, <http://arts-sciences.cua.edu/econ/faculty/aguirre/>)

Appendix – On Aging Population

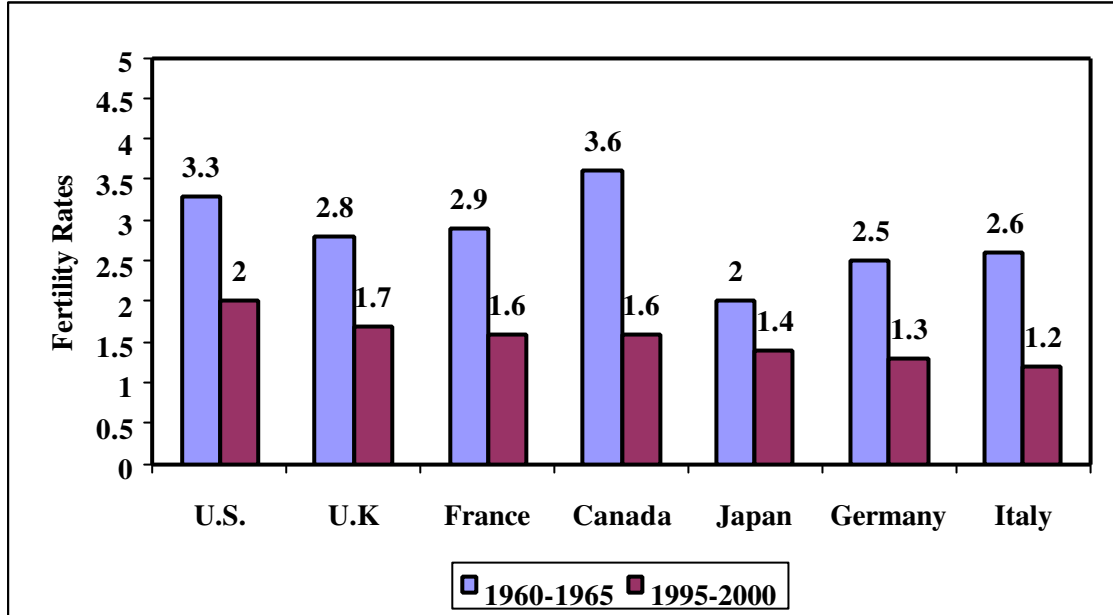
Table I
Countries Projections of Population over the Next Fifty Years
1998-2050
(in Millions)

COUNTRY	1998	2050
Austria	8.1	7.1
Belarus	10.3	8.3
Belgium	10.1	8.9
Bulgaria	8.3	5.7
Croatia	4.5	3.7
Cuba	11.1	11.1
Czech Rep.	10.3	7.8
Denmark	5.3	4.8
Estonia	1.4	0.9
Finland	5.2	4.9
Germany	82.1	73.3
Greece	10.6	8.2
Hungary	10.1	7.5
Italy	57.4	41.2
Japan	126.3	104.9
Latvia	2.4	1.6
Lithuania	3.7	3
Netherlands	15.7	14.2
Poland	38.7	36.3
Portugal	9.9	8.1
Romania	22.5	16.4
Russian Fed.	147.4	121.3
Slovakia	5.4	4.8
Slovenia	2	1.5
Spain	39.6	30.2
Sweden	8.9	8.7
Switzerland	7.3	6.7
Ukraine	50.9	39.3
U.K.	58.6	56.7
Yugoslavia	10.6	10.5
Total	784.8	657.7

Source: United Nations (1998)

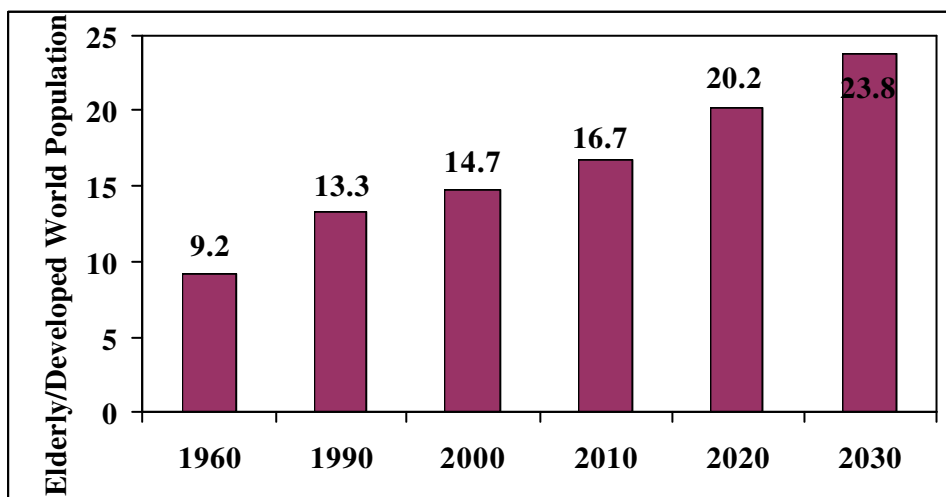
Table extracted from: Aguirre, Maria Sophia; Dardys, Lynne; Motus, Catherine. 2000. "Putting a Price on Aging Population"

Figure I
Fertility Rates in Developed Countries
1960-1965 vs. 1995-2000



Source: United Nations (1998)
 Figure extracted from: Aguirre, Maria Sophia; Dardys, Lynne; Motus, Catherine. 2000. "Putting a Price on Aging Population"

Figure II
Elderly as a Percentage of the Developed World Population
1960-2030



Source: United Nations (1998).
 Figure extracted from: Aguirre, Maria Sophia; Dardys, Lynne; Motus, Catherine. 2000. "Putting a Price on Aging Population"

* Elderly is defined as aged 65 and older