

POPULATION GROWTH, ECONOMIC DEVELOPMENT, AND POPULATION CONTROL PROGRAMS

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INTRODUCTION

In this paper the general pattern of world population growth and the variations by major world region are discussed. Comments on the relationship between population growth and economic development are included, but discussion of the implications of population growth for resource utilization is omitted, since the other papers in this symposium deal with this topic. Finally, the likelihood of short-run fertility declines in the developing nations is discussed, with the suggestion that certain social structural conditions must be present if successful population-control programs are to be enacted by the developing nations.

WORLD POPULATION GROWTH

This September, 1968, there are approximately 3.5 billion humans living on this earth, and, in the next twelve months, we will add about another 70 million. Not only are we living in the period of man's greatest population size, but the rate of human population growth in the world today is the highest in man's history. And this growth rate has been accelerating rapidly in recent years. In 1945 the world's annual population growth rate was estimated to be about 1.0 percent. By the mid 1950's, the rate was about 1.5 percent and currently the annual growth rate figure is about 2 percent per year (Thomlinson, 1967).

Another way to assess the historical trend in human population growth is to note the length of time required to reach each additional billion of population. The world's population first attained the one billion figure around 1820. The second billion was reached 90 years later—1930, and the third billion only 30 years after that—1960. Thus, while it took hundreds of thousands of years for the first billion to be reached, the second billion took only a century, and the third billion only 3 decades. According to current estimates, the fourth billion will be reached in 1975, the fifth billion by 1985, and the sixth billion by 1995. So, by the next turn of the century, there will be over 6 billion humans alive on the earth, claiming resources, necessitating social adjustments, and affecting the quality of human life (Hauser, 1963).

Considered differently, the increasing rate of human population growth can be seen in the amount of time required for the population size to double. The human population doubled between 1650 and 1850—a period of 200 years. It took only 80 years for the population to double again—1850 to 1930. And it will double again in less than 35 years (Thomlinson, 1967, p. 14).

DISTRIBUTION AND REGIONAL PATTERNS

The relatively high rate of world population growth is not shared equally by all nations. Rather, there are considerable variations among countries in their annual rates of growth. The highest growth rates today, and therefore the most formidable and pressing social and economic problems, are faced by the nations least able to deal with them—by the nations characterized as having already high densities, low incomes, poor living levels, and ineffective programs for economic development. The present annual growth rates in such areas of the world generally are in excess of 2 percent and in some cases are over 3 percent. Illustrative of high-growth-rate nations are the following (those countries with annual growth rates over 2 percent):

China (Tiawan)	3.5 percent	Thailand	3.0 percent
Viet-Nam	3.4 "	Turkey	2.9 "
Mexico	3.2 "	Pakistan	2.8 "
Phillipines	3.2 "	Peru	2.8 "
Brazil	3.1 "	India	2.3 "

Countries with moderate growth rates are those with rates between 1 and 2 percent per year:

Canada	2.0 percent	Nigeria	1.4 percent
USSR	1.7 "	France	1.3 "
United States	1.6 "	West Germany	1.3 "
Argentina	1.6 "	Poland	1.3 "

Countries with fairly low rates of population growth are those with rates below 1 percent per year:

Japan	0.9 percent	Czechoslovakia	0.7 percent
Spain	0.8 "	Italy	0.6 "
United Kingdom	0.7 "	Hungary	0.4 "

Another way of grouping the world's nations is in terms of both their present density and their expected rates of growth in the last half of the twentieth century. On the basis of these criteria, United Nations demographers have suggested that there are four major categories of nations (United Nations, 1958):

- (1) *Regions of low density and modest growth* (Anglo-American, temperate Latin America, USSR, and Australia). While such nations have little population pressure, they do experience subtle but important demographic problems, such as the assimilation of rural migrants to their cities.
- (2) *Regions of low density and rapid growth* (Africa, New East, and most of Latin America). These nations are experiencing a surplus of people who must be integrated into their economic system, which is in many cases fairly inelastic.
- (3) *Regions of high density and modest growth* (nearly all of Europe fits here). Even given their low birth rates, maintenance of adequate living standards is a serious problem. England is an example of one such nation.
- (4) *High density and rapid growth* (here would be included most of Asia and, in effect, about half of the world's population). It is in such nations that the pressure on resources is the greatest and where the most severe levels of poverty exist. The problems of such people are the most critical and to date have defied most attempts at their solution.

The major reason for the world's population explosion has been the dramatic reduction in mortality. In the western nations, the death rates have been falling for about 300 years. Generally, the process of industrialization has revolutionized productive, distributive, and medical systems so that one major benefit of technological change has been a reduction in the risk of mortality. In the newly emerging nations, mortality reduction came at a later time, but was no less dramatic than it was in the West. The newly emerging nations did not have to reproduce the industrial revolution themselves for their mortality to decrease, but, rather, they benefited directly from their increasing culture contacts with the already technologically advanced societies. Thus, in a sense, mortality decline diffused from the industrial to the non-industrial societies.

An examination of current death rates (that is, the number of deaths per 1,000 population per year) shows the following variations for the world's regions:

Total World	16	South America	16
Africa	23	Europe	10
Asia	20	North America	9

The relatively recent decline in death rates for the newly emerging areas can be seen in the figures for Mexico and Singapore:

	<i>Death Rates</i>		
	<u>1940</u>	<u>1950</u>	<u>1960</u>
Mexico.....	23.2	16.2	11.4
Singapore.....	20.9	12.0	6.3

In both of these areas the death rates have been cut more than half in only 20 years.

Reasons for the major mortality decline in the world are: the increasing efficiency in the production, storage, and transportation of agricultural goods; the breakdown in the isolation of local community groups; the emergence of industry and the transformation of the labor force; the widening base of the distribution of societal products, as reflected in rising levels of living; and the advances in curative and preventive medicine, especially in regard to control of the highly contagious diseases.

While mortality has dropped dramatically the world over, fertility has not experienced the same decline; in fact, in some areas of the world, it is maintaining its very high rate. Only in the mature industrial nations do fairly low fertility levels occur. While the number of live births per 1,000 population members per year for the total world is 36, the values are different in other parts of the world:

Africa.....	46
South America.....	42
Asia.....	38
North America.....	22
Europe.....	19

In the industrialized nations, fertility decline has accompanied the shift from an agricultural to an industrial economy. Illustrative of this trend is the United States. The crude birth rates for this country during its recent period of industrialization are:

1909.....	30.0	1940.....	19.4
1910.....	30.0	1950.....	24.1
1920.....	27.7	1960.....	23.7
1930.....	21.3	1965.....	19.4

Thus in 66 years, the birth rate of the United States has been reduced by about one-third. This decline has been matched by declines in the other industrial nations. Current birth rates for some of the western European nations are:

France.....	18.1	Hungary.....	13.1
West Germany.....	18.5	Poland.....	18.1
United Kingdom....	18.8	Italy.....	20.0
		Spain.....	22.2

At this point two questions may be posed: why has a decline in the birth rate accompanied industrialization in the West? Will this trend likely characterize the newly emerging nations in the near future?

Several reasons can be given for the fertility decline that accompanied industrialization in the west (Stockwell, 1968).

- (1) The emergence of the factory system brought about an alteration of the production system, so that manufacturing was removed from the home. This meant that a sharp separation between place of residence and place of work was created. This had a negative impact upon fertility, since it meant that women who wanted to supplement the family income and had many young children to care for in the home could do so only with difficulty.

- (2) Fertility decline was also influenced by the growth in productivity that accompanied industrialization. Increased productivity meant that less human labor was required to produce a given amount of agricultural or industrial goods.
- (3) The process of urbanization (or the shift of the population from rural to urban areas) was also a factor in fertility decline. Historically, cities have had the lowest levels of fertility. There are two reasons for this. First, children are less likely to be an economic asset in the city than on the farm, so that the urban child played only a limited role in family productivity. Second, the extensive overcrowding and generally unsanitary living conditions characteristic of the early industrial city did not encourage people to achieve high fertility levels.
- (4) The gradual decline in the death rate also stimulated fertility decline. A lower mortality rate among infants and children meant that a larger proportion survived to adulthood. Thus it was no longer necessary for a couple to have a large number of children to be assured of having some survive to help them in their old age. Also, the lengthening of adult life meant that offspring who had to wait for their inheritance before they were in a position to assume responsibilities had to wait longer. Ireland is illustrative of this pattern. Obviously, by delaying marriage until later in life, the number of years for the production of children is reduced.
- (5) Industrialization also brought about a basic value change in Western society that had a depressive effect upon fertility. The *small family norm* emerged and it was largely associated with the decline of the family as a unit of economic production. Thus children were no longer viewed as an economic asset and became to be viewed as co-consumers, with their parents, of the income generated by the adults. It had become clear, in the process of industrialization, that, at a given income level, there was an inverse relationship between number of children in the family and the level of living.
- (6) The increasing technology of birth limitation devices also of course contributed to fertility decline. The condom, the pessary, the diaphragm, the contraceptive pill, and the inter-uterine device—each have played an important role in aiding in the reduction of fertility among users desiring fertility reduction.

ECONOMIC DEVELOPMENT AND POPULATION GROWTH

At this point it may be asked whether the fertility decline that has accompanied industrialization in the West will also characterize the newly emerging nations in the *near* future? The answer to this question must be a gloomy NO! There are two main reasons for this. First, the type of change required in a society to bring about the alteration of the value system dealing with family life and the place of children in the whole scheme of existence that becomes manifest in a fertility reduction took several generations to evolve in the West and currently there is no reason to believe that such a gigantic normative change in the emerging nations can occur faster. Second, in the West, industrialization created an industrial and occupational structure that transformed the total fabric of society. For the social change to take place, industrialization was the necessary ingredient. In the newly emerging nations today, the process of industrialization is sputtering. The sheer population-size and rate of population growth in these countries are making impossible the scale of industrial development necessary for the type of social structural change that would bring about a fertility reduction. These countries are caught up in the most vicious of vicious circles. They cannot reduce their rate of population growth until they industrialize, and they cannot industrialize until they reduce their rate of population growth. They are over their heads in a morass of economic and demographic problems. They are badly in need of help on both fronts: economic development and fertility control.

The inverse relationship between economic development and national population growth rate has been well illustrated by current research.

Edward Stockwell has attempted to discover if annual percent increase in national population size was related with annual percent increase in per capita income (Stockwell, 1968). Stockwell argues that per capita real income is one of the most significant measures of national economic development. He notes:

The movement of per capita income is highly correlated with other changes in the social and economic welfare of a society, and the direction and speed of this movement is a rough but reliable indicator of the extent to which a society is becoming better or worse off. Thus, by considering the relationship between annual rates of population growth in the underdeveloped countries and corresponding rates of increase in per capita income, it is possible to illustrate the adverse effects of rapid population growth on the economic progress of the so called 'have not' countries of the world (Stockwell, 1968, p. 185).

In using data for the 1950's, Stockwell found that the highest rates in increase in per capita income were achieved by those countries with the lowest rates of increase in population growth and, conversely, the lowest rates of increase in per capita income were for those nations with the highest rates of population growth (Stockwell, 1968). More specifically, for countries with average annual rates of population growth under 1.0 percent, the annual rates of increase in per capita income roughly averaged 6 percent per year. Countries with moderate rates of population increase (that is, between 1 and 2 percent per year) had an average rate of increase in per capita income of 2.5 percent. And those countries with rates of population growth in excess of 2 percent had a very low average rate of annual increase in per capita income of less than 2 percent.

Thus Stockwell concludes and we must agree:

This evidence strongly suggest that economic progress would have been greater if their populations were *not* growing so fast. The implication here is clear: the rate at which the poverty-stricken nations of the world improve their level of social and economic well-being will depend largely on how successful they are in curbing rapid rates of population growth. This in turn means that the future well-being of these underdeveloped countries will be largely determined by the speed with which the diffusion and acceptance of effective methods of birth control bring about substantial reductions in fertility (Stockwell, 1968, p. 187; see also Stockwell, 1962).

POPULATION CONTROL POLICY

At this point one may ask about the probability that national fertility control programs can be sufficiently effective means of lowering birth rates to encourage economic growth. To date such programs have met with only limited success. The reason for this is that the fundamental assumption of the programs has been *wrong*. Past programs have assumed that most people want fewer children and that all that needs to be done is to furnish the people in the underdeveloped nations with birth control devices and a little encouragement, and the people would do the rest. This simplistic assumption has led to failure and frustration among programmatic demographers, human biologists, and medical specialists. This assumption ignores the fact that human behavior is a product of the total social structure and that, for fertility reduction to be brought about, the total social structure must be favorable to the necessary behaviors.

What are the prerequisite social conditions that must obtain for population control programs to be successful? They have been summarized by Stycos and Back (1964) as:

- (1) *Favorable Goals.* There must be a shared social norm that the most desirable number of children is somewhat less than biological capacity. Not only must individuals *want* small families, but they must interact with others in a supportive social milieu.
- (2) *Knowledge of Effective Contraceptive Means.* It is surprising how few women in both the developed and underdeveloped nations have a thorough under-

standing of the most effective means of birth control. Here is a major focus for educational efforts.

- (3) *There must be positive attitudes toward effective contraceptive means.* Here religious values and moral principles come to play. We cannot expect persons to adopt improved contraceptive devices unless the devices are seen by the people as useful, "moral", and non-cumbersome.
 - (4) *There must be physical availability of contraceptive devices.* Knowledges of devices favorable attitudes toward them must be supplemented by easy access to necessary materials.
 - (5) *The role relationship between husband and wife or between mating male and female in the society must be one in which the couple can legitimately discuss their sex life and their plans for contraception with each other.*
- and
- (6) *The small-family goal must be of high salience so that people will strive to achieve it.*

If future population-control programs are to be successful, then serious consideration needs to be given to the total social situation. The hour is late and the challenge is clear; only the question remains as to the willingness of the developed nations to assume the leadership, which is theirs by default.

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