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Is Population Growth Really a Menace?

We have all heard people say that the present rate of growth of the world population is about 2 per cent per year and that at this growth rate the world population will double in about 35 years, have 4 times its present size in 70 years, 8 times its present size in 105 years and so on. The argument goes on by maintaining that while population grows a number of problems arise, such as increased poverty and unemployment, increased pollution of the sea and the atmosphere etc. Population growth is thus blamed for the lack of rapid economic growth in the poor countries, as well as for all the environmental problems, which arise both in poor and rich countries. The conclusion will be that more or less drastic steps must be taken in order to ensure that the world population stops growing.

It is my ambition to show why this way of attacking the population problem, in my view, is superficial and misleading. The way in which a population grows, the causes and consequences of such a growth and the policy conclusions to be drawn are far too important problems to be attacked by oversimplified, unscientific and emotional thinking.

To start with. I will give some demographic information, which is essential for the understanding of the way in which a population is growing. After that I shall come to conclusions about policy.

My starting point will be *diagram 1* which demonstrates the growth of the world population since 1900. It also gives data up to the year 2000 according to the UN projections. As we are dealing with *relative increases,* I have used a logarithmic scale and as a consequence the increase does not look quite so rapid as it would on an ordinary scale. But no doubt, this diagram also demonstrates that the population increase for the world as a whole is rapid and we can draw the conclusion that a continued increase at the same rate of growth is impossible in the long run.

I am going to make *three assertions:* My *first assertion* is that from the population point of view the one world concept is not valid. We hear so much these days about pollution and other environmental problems being universal that this may sound like an amazing statement. However, we must realize two things, namely:

(a) From the increase point of view there are big differences between the rich countries, which have a population increase of \ or, perhaps in some cases, up to one per cent per

year, and the poor Countries where the annual rate of increase is 2.5 or 3 or, in some cases, even 3.5 per cent per year.

(b) There is no free migration between the countries. I am all for extended migration between countries, but I think that it should be realized that mass migration tends to create serious problems, and in any case, cannot solve the problems of what is called overpopulation.

My *second assertion* is **if mortality goes down in a population, it is impossible to evade a rather long period of rapid population increase-**

Let us assume that we have a population in which there are annually 1000 births and as many deaths. Let us furthermore assume that life expectancy is about 30 years. This means that there will be about 30,000 persons alive at a time. This number will obviously be constant. The population pyramid for such a population looks like the inner part of *diagram 2:*

Let us now assume that the number of children 'born is constant, but that mortality goes down so much that life expectancy increases to twice its former size, i.e. to 60 years. The consequence of this mortality decrease will obviously be that the size of the population will increase to twice its former size i.e. to 460 instead of 230; see the outer part pf the diagram.

This is the direct effect of a mortality decline. But there is also an indirect effect in the form of an increased number of children. If life expectancy is only thirty years, this means that infant and childhood mortality is high and that only half or less of the new-born children survive to the reproductive ages. Families must consequently have 5 to 6 children or even more ; otherwise the population will soon die out.

In a low mortality population the situation is quite different. If mortality is so low as it is now in Sweden, not much more than two children per woman, who passes through the age of reproduction, are required in order to ensure that the population does not die out. Because some women never get married and some are sterile, or are married to sterile husbands, and the family size required for reproduction will amount to about 2.4 or 2.5, i. e. if every second family has two and every other has three children it is about the ideal.

Now, if mortality goes down in a high mortality population, this will have consequences also for the number of babies born. If more children survive, they will, when coming to fertile ages, start giving birth to babies. If the number of children per woman is unchanged, the number of children born will go up drastically. Even with a smaller number of children per woman, the number of babies born may go up, because of the increasing number of woman in the fertile ages. This is what happened in the previous century in the now developed countries and this is what is now happening in the countries of the third world.

The number of children per woman must, of course, sooner or later go down. But even if it goes down rapidly, we will have a rather long period of a rapidly increasing population. This is demonstrated by *diagram 3,* which is based on a theoretical model.

We have here a population, which in the beginning is stationary. Then a mortality decline sets in, and the population begins to increase. This increase continues long after the mortality decline has stopped in the year which is called number 40. In the year 55 a fertility decline checks the population increase, but it takes a rather long time, before this is really visible on the curve. Even in the year 100, it may very well look as if the population would continue to increase at a constant rate of increase, i.e. according to an exponential curve. We can put it this way : the braking distance is very long indeed. It is like a long and heavy train, going at a high speed. If the engine is turned off and the brakes applied, the train will nevertheless continue for several miles.

This is where my *third assertion* comes in, namely to say that the tendency in the developed countries is that the families are becoming so small that it implies no increase or even a decrease in the long run**.** Not one single country has yet come to the point, where the population is not increasing any more, but for many countries the number of children is already so low that the population increase will automatically come to a stand-still. As an example, let us look at Sweden, see diagram 4.

The lower curve gives the total number of children, which women who were born in different years have given birth to. And the upper curve gives the number oi children, which would have been required in order to ensure long-range stability of the population. The reason why the latter curve has been going down is, of course, lowered mortality. Mortality up to the end of the reproductive period is now so low that we cannot expect this curve to go down any further.

The amazing conclusion of this curve is thus that for a good many years Swedish women have not reproduced themselves. Women who were born around 1905 did not produce more than 1.8 children per woman, whereas at that time 2.6 children would have been required. For women who were born in the 1930's the gap between the curves is narrower, but it has not disappeared and it tends to widen again.

How is it then that the population of Sweden is not already diminishing? The answer is threefold:

1. It always takes a long time before demographic tendencies become manifest.
2. There has been reduced mortality also in the higher ages.
3. During the postwar period immigration has played an important role.

Let us also have a look at the size of Sweden's population and how it has changed *(diagram* 5). It shows a fairly steady increase. The alternative curves show the different development if the direct and indirect effects of emigration in the previous period and immigration more recently is eliminated. However, we can see that there is a bend at the upper end of the curves. Without migration and with the present number of children, the population increase would come to a stop within the next few decades.

But is the situation of Sweden typical for the developed countries? I *think so.* Everywhere in Europe the birth rate has been going down in the postwar period and not in the least during the past decade, and there can be no doubt that in a good many countries the

number of children born are now fewer than required for long-run reproduction. There are only few exceptions to this rule and in these countries also the birth rate is going down. This applies also to the United States of America.

It is my firm belief that in all developed countries the number of children is already so low, or will shortly become so low, that a stationary or perhaps even a diminishing population is on its way. But the stop of the growth will not come until the population size is larger than it is at present, in some cases considerably larger.

But the important problem refers to the poor countries. As I have said before, a mortality decline must lead to a long period of population increase and during this period the population will increase to a size which is several times its original size. There may be some countries which find that population increase is a positive factor for development, and I think that under certain conditions, e.g. when the population is very scarce, a population increase can further economic development. However. I also think that most or all countries should be satisfied if their future population is becoming four or five times the size it had when the mortality decline started. In any case, sooner or later, the population increase must come to a stop. And the only permissible way is through a reduced number of children.

But how can this be achieved? Well, there are two ways :

1. Economic development, which implies that (a) children are no more needed for taking care of the parents when they are old. (b) all children are sent to school and child labour is forbidden, and (c) both parents get paid jobs, and this makes it difficult for them to take care of a great number of children. To bring up many children is no longer the primary aim of life for the women, who have paid jobs outside their homes. This is the way which produces a sound and positive motivation for a reduced number of children. And this is the way which has been chosen by the socialist countries, i.e. by the Soviet Union, by East European countries, by China and by Cuba. It is well known that this policy has given results in the economic and social sphere. But not only that. The number of births has also fallen rapidly. The latest data for China show a dramatic decline, and in Eastern Europe the number of births is now so low that it causes concern.

2. The alternative way is family planning propaganda directed from above, i.e. from the Governments, from the UN and, not in the least, from the developed countries and among them, in particular, the United States.

But if this propaganda is applied to countries which are not really developing, it will fail, because there is no real motivation for a reduced number of children, at least not for a reduction, which goes far enough. Already to-day it can be clearly seen that it does fail. And in this situation the family planning propagandists become more and more desperate and suggest measures, which discriminate against families with children : enforced sterilisation, extra taxes on families with many children etc. Measures of this kind are inhuman; they hurt the poor very hard and they can very'easily develop in a fascist direction, e.g., selection of the families which are considered best suited to give birth to children, etc.

It also implies that man is deprived of one of his fundamental rights, which is to give birth to as many, or as few, children as he or she wants. A very deeprooted need, as fundamental as the sexual instinct.

But can the world and the separate countries manage the population growth, which will in any case, come during the next century? Yes, I think it can, provided only that the mad expansion in the rich countries is stopped.

Literature

This paper is based on a lecture given at the Environment Forum, which was held in Stockholm in June 1972 at the same time as the United Nations Conference on the Human Environment (UNCHE). Consequently, no specified references have been given. Below some papers are mentioned which, in a more systematic way. deal with problems of the kind discussed above.

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The World Population Situation in 1970. Population Studies, No. 49, United Nations, New York, 1971.

WORLD POPULATION

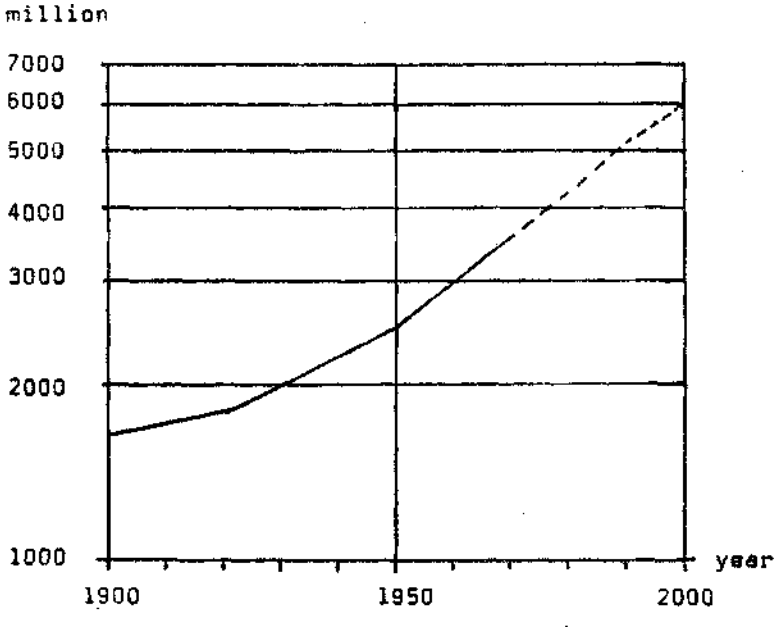
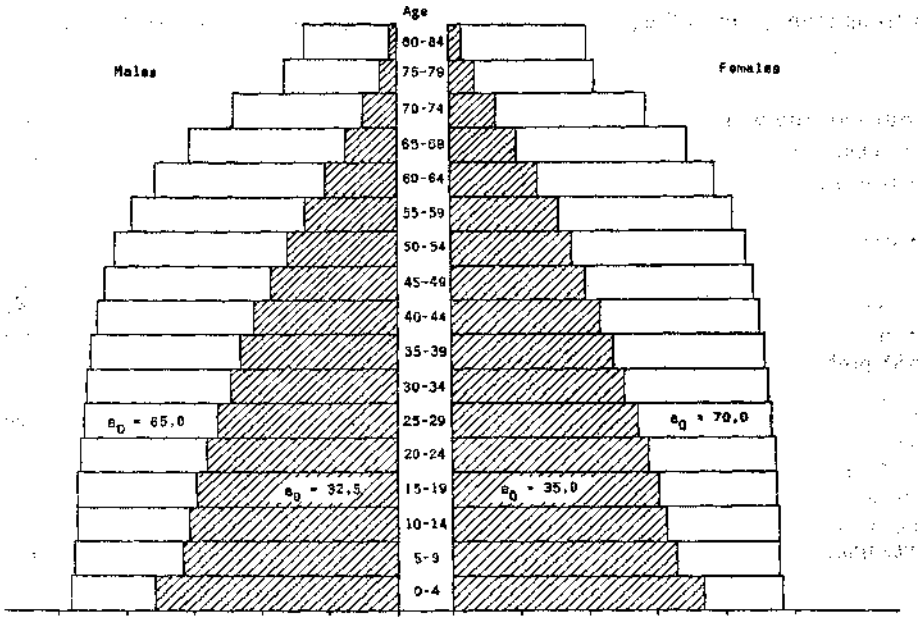
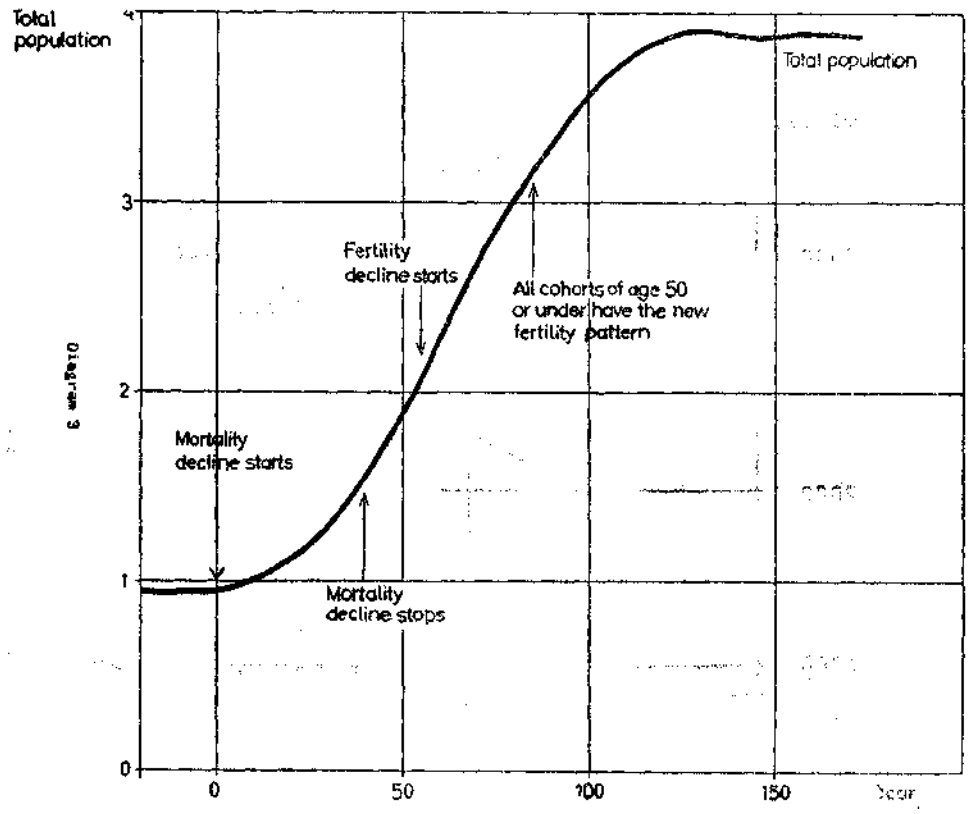
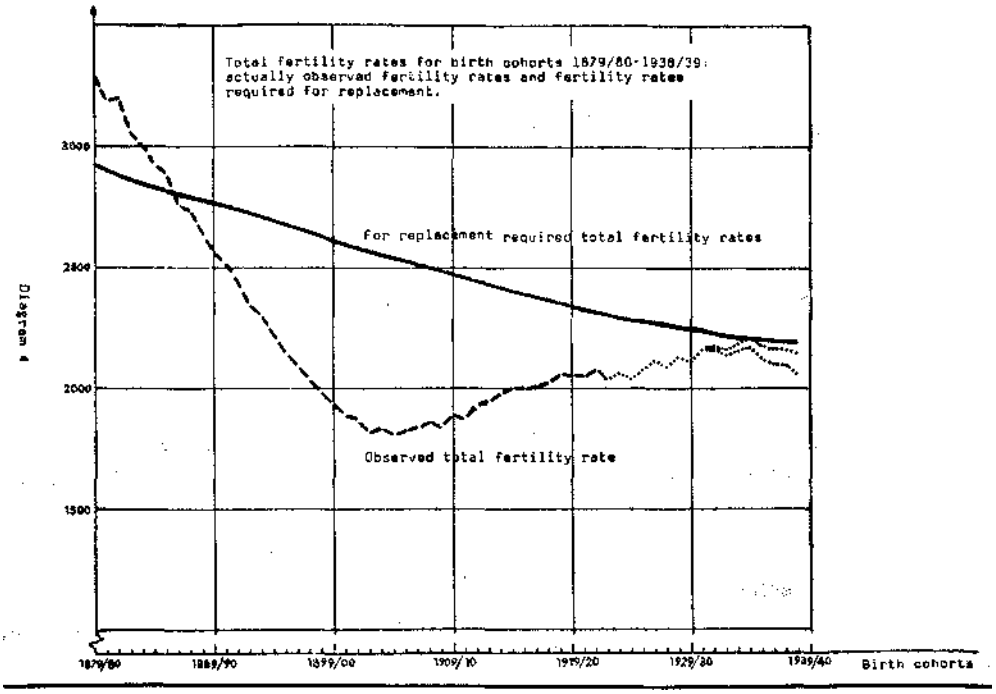


Diagram 1


Age
Males
Females
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
e_0 = 65,0
e_0 = 70,0
e_0 = 32,5
e_0 = 35,0

Digram 2


Total population
Total population
Fertility decline starts
All cohorts of age 50 or under have the new fertility pattern
Mortality decline starts
Mortality decline stops
Diagram 3
0
1
2
3
4
0
50
100
150
Year


Total fertility rates for birth cohorts 1879/80-1938/39: actually observed fertility rates and fertility rates required for replacement.
for replacement required total fertility rates
Observed total fertility rate
Diagram 4
3000
2800
2000
1500
1879/80
1889/90
1899/00
1909/10
1919/20
1929/30
1939/40
Birth cohorts

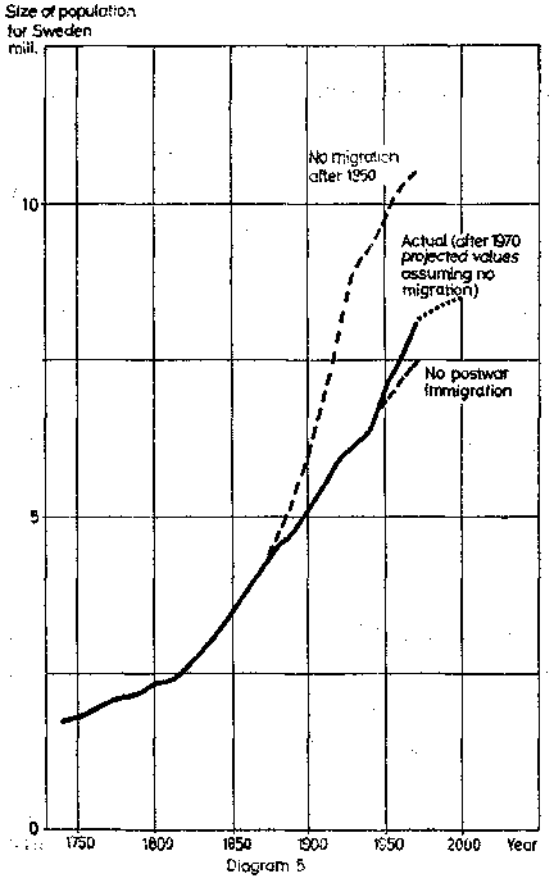

Size of population for Sweden
mill.
No migration after 1950
Actual (after 1970 projected values assuming no migration)
No postwar immigration
10
5
0
1750
1800
1850
1900
1950
2000
Year

Diagram 5