

SOME ECONOMIC CONSEQUENCES OF A DECLINING POPULATION*

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I

THE future never resembles the past—as we well know. But, generally speaking, our imagination and our knowledge are too weak to tell us what particular changes to expect. We do not know what the future holds. Nevertheless, as living and moving beings, we are forced to act. Peace and comfort of mind require that we should hide from ourselves how little we foresee. Yet we must be guided by some hypothesis. We tend, therefore, to substitute for the knowledge which is unattainable certain conventions, the chief of which is to assume, contrary to all likelihood, that the future will resemble the past. This is how we act in practice. Though it was, I think, an ingredient in the complacency of the nineteenth century that, in their philosophical reflections on human behaviour, they accepted an extraordinary contraption of the Benthamite School, by which all possible consequences of alternative courses of action were supposed to have attached to them, first a number expressing their comparative advantage, and secondly another number expressing the probability of their following from the course of action in question; so that multiplying together the numbers attached to all the possible consequences of a given action and adding the results, we could discover what to do. In this way a mythical system of probable knowledge was employed to reduce the future to the same calculable status as the present. No one has ever acted on this theory. But even to-day I believe that our thought is sometimes influenced by some such pseudo-rationalistic notions.

Now I emphasize to-night the importance of this convention by which we assume the

future to be much more like the past than is reasonable—a convention of behaviour which none of us could possibly do without—because, as I think, it continues to influence our minds even in those cases where we do have good reason to expect a definite change. And, perhaps, the most outstanding example of a case where we in fact have a considerable power of seeing into the future is the prospective trend of population. We know much more securely than we know almost any other social or economic factor relating to the future that, in the place of the steady and indeed steeply rising level of population which we have experienced for a great number of decades, we shall be faced in a very short time with a stationary or a declining level. The rate of decline is doubtful, but it is virtually certain that the change-over, compared with what we have been used to, will be substantial. We have this unusual degree of knowledge concerning the future because of the long but definite time-lag in the effects of vital statistics. Nevertheless the idea of the future being different from the present is so repugnant to our conventional modes of thought and behaviour that we, most of us, offer a great resistance to acting on it in practice. There are, indeed, several important social consequences already predictable as a result of a rise in population being changed into a decline. But my object this evening is to deal, in particular, with one outstanding economic consequence of this impending change; if, that is to say, I can, for a moment, persuade you sufficiently to depart from the established conventions of your mind as to accept the idea that the future will differ from the past.

II

An increasing population has a very important influence on the demand for capital. Not only does the demand for capital—

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apart from technical changes and an improved standard of life—increase more or less in proportion to population. But, business expectations being based much more on present than on prospective demand, an era of increasing population tends to promote optimism, since demand will in general tend to exceed, rather than fall short of, what was hoped for. Moreover a mistake, resulting in a particular type of capital being in temporary over-supply, is in such conditions rapidly corrected. But in an era of declining population the opposite is true. Demand tends to be below what was expected, and a state of over-supply is less easily corrected. Thus a pessimistic atmosphere may ensue; and, although at long last pessimism may tend to correct itself through its effect on supply, the first result to prosperity of a change-over from an increasing to a declining population may be very disastrous.

In assessing the causes of the enormous increase in capital during the nineteenth century and since, too little importance, I think, has been given to the influence of an increasing population as distinct from other influences. The demand for capital depends, of course, on three factors: on population, on the standard of life, and on capital technique. By capital technique I mean the relative importance of long processes as an efficient method of procuring what is currently consumed, the factor I have in mind being conveniently described as the period of production, which is, roughly speaking, a weighted average of the interval which elapses between the work done and the consumption of the product. In other words the demand for capital depends on the number of consumers, the average level of consumption, and the average period of production.

Now it is necessarily the case that an increase in population increases proportionately the demand for capital; and the progress of invention may be relied on to raise the standard of life. But the effect of invention on the period of production depends on the type of invention which is characteristic of the age. It may have been true of the nineteenth century that improvements in

transport, standards of housing and public services were of such a character that they did tend somewhat to increase the period of consumption. It is well known that highly durable objects were characteristic of the Victorian civilization. But it is not equally clear that the same thing is true to-day. Many modern inventions are directed towards finding ways of reducing the amount of capital investment necessary to produce a given result; and partly as the result of our experience as to the rapidity of change in tastes and technique, our preference is decidedly directed towards those types of capital goods which are not too durable. I do not believe, therefore, that we can rely on current changes of technique being of the kind which tend of themselves to increase materially the average period of production. It may even be the case that, apart from the effect of possible changes in the rate of interest, the average period may be tending to diminish. Moreover an improving average level of consumption may conceivably have, in itself, the effect of diminishing the average period of production. For as we get richer, our consumption tends to be directed towards those articles of consumption, particularly the services of other people, which have a relatively short average period of production.

Now, if the number of consumers is falling off and we cannot rely on any significant technical lengthening of the period of production, the demand for a net increase of capital goods is thrown back into being wholly dependent on an improvement in the average level of consumption or on a fall in the rate of interest. I will attempt to give a few very rough figures to illustrate the order of magnitude of the different factors involved.

Let us consider the period of just over fifty years from 1860 to 1913. I find no evidence of any important change in the length of the technical period of production. Statistics of quantity of real capital present special difficulties. But those which we have do not suggest that there have been large changes in the amount of capital employed to produce a unit of output. Two of the most

highly capitalized services, those of housing and of agriculture, are old-established. Agriculture has diminished in relative importance. Only if people were to spend a decidedly increased proportion of their incomes on housing, as to which there is indeed a certain amount of evidence for the post-war period, should I expect a significant lengthening of the technical period of production. For the fifty years before the war, during which the long-period average of the rate of interest was fairly constant, I feel some confidence that the period was not lengthened by much more than 10 per cent., if as much.

Now during the same period the British population increased by about 50 per cent., and the population which British industry and investment was serving by a much higher figure. And I suppose that the standard of life must have risen by somewhere about 60 per cent. Thus the increased demand for capital was primarily attributable to the increasing population and to the rising standard of life, and only in a minor degree to technical changes of a kind which called for an increasing capitalization per unit of consumption. To sum up, the population figures, which are reliable, indicate that about half the increase in capital was required to serve the increasing population. Perhaps the figures were about as follows, though I would emphasize that these conclusions are very rough and to be regarded only as broad pointers to what was going on :

	1860	1913
Real capital ...	100	270
Population ...	100	150
Standard of life ...	100	160
Period of Production	100	110

It follows that a stationary population with the same improvement in the standard of life and the same lengthening of the period of production would have required an increase in the stock of capital of only a little more than half of the increase which actually occurred. Moreover, whilst nearly half of the home investment was required by the increase in population, probably a substantially higher proportion of the foreign

investment of that period was attributable to this cause.

On the other hand it is possible that the increase in average incomes, the decline in the size of families, and a number of other institutional and social influences may have raised the proportion of the national income which tends to be saved in conditions of full employment. I do not feel confident about this, since there are other factors, notably the taxation of the very rich, which tend in the opposite direction. But I think we can safely say—and this is sufficient for my argument—that the proportion of the national income which would be saved to-day in conditions of full employment lies somewhere between 8 per cent. and 15 per cent. of the income of each year. What annual percentage increase in the stock of capital would this rate of saving involve? To answer this we have to estimate how many years of our national income the existing stock of capital represents. This is not a figure which we know accurately, but it is possible to indicate an order of magnitude. You will probably find when I tell you the answer that it differs a good deal from what you expect. The existing national stock of capital is equal to about four times a year's national income. That is to say, if our annual income is in the neighbourhood of £4,000 millions, our stock of capital is perhaps £15,000 millions. (I am not here including foreign investment, which would raise the figure to, say, four and a half times.) It follows that new investment at a rate of somewhere between 8 per cent and 15 per cent. of a year's income means a cumulative increment in the stock of capital of somewhere between 2 per cent. and 4 per cent. per annum.

Let me recapitulate the argument. Please take note that I have been making so far two tacit assumptions—namely that there is no drastic change in the distribution of wealth or in any other factor affecting the proportion of income that is saved ; and further, that there is no large change in the rate of interest sufficient to modify substantially the length of the average period of production. To the removal of these two assumptions

we shall return later. On these assumptions, however, with our existing organization, and in conditions of prosperity and full employment, we shall have to discover a demand for net additions to our stock of capital amounting to somewhere between 2 per cent. and 4 per cent. annually. And this will have to continue year after year indefinitely. Let us in what follows take the lower estimate—namely 2 per cent.—since if this is too low the argument will be *a fortiori*.

Hitherto the demand for new capital has come from two sources, each of about equal strength: a little less than half of it to meet the demands of a growing population; a little more than half of it to meet the demands of inventions and improvements which increase output per head and permit a higher standard of life.

Now past experience shows that a greater cumulative increment than 1 per cent. per annum in the standard of life has seldom proved practicable. Even if the fertility of invention would permit more, we cannot easily adjust ourselves to a greater rate of change than this involves. There may have been one or two decades in this country during the past hundred years when improvement has proceeded at the rate of 1 per cent. per annum. But generally speaking the rate of improvement seems to have been somewhat less than 1 per cent. per annum cumulative.

I am here distinguishing, you will see, between those inventions which enable a unit of capital to yield a unit of product with the aid of less labour than before, and those which lead to a change in the amount of capital employed *more* than in proportion to the resulting output. I am assuming that the former class of improvements will proceed in the future as in the recent past, and am ready to take as my assumption that they will proceed in the near future up to the best standard we have ever experienced in any previous decade; and I calculate that inventions falling under this head are not likely to absorb much more than half of our savings, assuming conditions of full employment and a stationary population. But in the second category some inventions cut

some way and some the other, and it is not clear—assuming a constant rate of interest—that the net result of invention changes demand for capital per unit of output one way or the other.

It follows, therefore, that to ensure equilibrium conditions of prosperity over a period of years it will be essential, *either* that we alter our institutions and the distribution of wealth in a way which causes a smaller proportion of income to be saved, *or* that we reduce the rate of interest sufficiently to make profitable very large changes in technique or in the direction of consumption which involve a much larger use of capital in proportion to output. Or, of course, as would be wisest, we could pursue both policies to a certain extent.

III

What relation do these views bear to the older Malthusian theory that more capital resources per head (chiefly envisaged by the older writers in the shape of Land) must be of immense benefit to the standard of life, and that the growth of population was disastrous to human standards by retarding this increase? It may seem at first sight that I am contesting this old theory and am arguing, on the contrary, that a phase of declining population will make it immensely more difficult than before to maintain prosperity.

In a sense this is a true interpretation of what I am saying. But if there are any old Malthusians here present let them not suppose that I am rejecting their essential argument. Unquestionably a stationary population does facilitate a rising standard of life; but on one condition only—namely that the increase in resources or in consumption, as the case may be, which the stationariness of population makes possible, does actually take place. For we have now learned that we have another devil at our elbow at least as fierce as the Malthusian—namely the devil of unemployment escaping through the breakdown of effective demand. Perhaps we could call this devil too a Malthusian devil, since it was Malthus

himself who first told us about him. For just as the young Malthus was disturbed by the facts of population as he saw them round him and sought to rationalize that problem, so the older Malthus was no less disturbed by the facts of unemployment as he saw them round him and sought—far less successfully so far as his influence on the rest of the world was concerned—to rationalize that problem too. Now when Malthusian devil P. is chained up, Malthusian devil U. is able to break loose. When devil P. of Population is chained up, we are free of one menace; but we are more exposed to the other devil U. of Unemployed Resources than we were before.

With a stationary population we shall, I argue, be absolutely dependent for the maintenance of prosperity and civil peace on policies of increasing consumption by a more equal distribution of incomes and of forcing down the rate of interest so as to make profitable a substantial change in the length of the period of production. If we do not, of set and determined purpose, pursue these policies, then without question we shall be cheated of the benefits which we stand to gain by the chaining up of one devil, and shall suffer from the perhaps more intolerable depredations of the other.

Yet there will be many social and political forces to oppose the necessary change. It is probable that we cannot make the changes wisely unless we make them gradually. We must foresee what is before us and move to meet it half-way. If capitalist society rejects a more equal distribution of incomes and the forces of banking and finance succeed in maintaining the rate of interest somewhere near the figure which ruled on the average

during the nineteenth century (which was, by the way, a little *lower* than the rate of interest which rules to-day), then a chronic tendency towards the under-employment of resources must in the end sap and destroy that form of society. But if, on the other hand, persuaded and guided by the spirit of the age and such enlightenment as there is, it permits—as I believe it may—a gradual evolution in our attitude towards accumulation, so that it shall be appropriate to the circumstances of a stationary or declining population, we shall be able, perhaps, to get the best of both worlds—to maintain the liberties and independence of our present system, whilst its more signal faults gradually suffer euthanasia as the diminishing importance of capital accumulation and the rewards attaching to it fall into their proper position in the social scheme.

A too rapidly declining population would obviously involve many severe problems, and there are strong reasons lying outside the scope of this evening's discussion why in that event, or in the threat of that event, measures ought to be taken to prevent it. But a stationary or slowly declining population may, if we exercise the necessary strength and wisdom, enable us to raise the standard of life to what it should be, whilst retaining those parts of our traditional scheme of life which we value the more now that we see what happens to those who lose them.

In the final summing up, therefore, I do not depart from the old Malthusian conclusion. I only wish to warn you that the chaining up of the one devil may, if we are careless, only serve to loose another still fiercer and more intractable.