John Maynard Keynes’s Theories of Population and the Concept of “Optimum”

By William Petersen

Though Keynes never wrote a long, serious work on demography, his persistent interest in the subject was expressed in a number of articles and in portions of books on other topics. At the time they were written, these rather fugitive pieces had a considerable influence in shaping the development of population theory, so that it is more than Keynes’ general importance as a theorist that makes them of interest today. Immediately after the first World War, Keynes had much to do with the revival of Malthusian thought; and in the 1930’s the contrary, underpopulationist mood was often analysed in terms of his General Theory. The contradiction between these two views, which Keynes himself passed over lightly, has never been satisfactorily resolved; and this fact marks perhaps the central weakness of current demographic theory. Policies with respect to immigration, family subsidies, and a dozen other specific matters are set, explicitly or implicitly, partly in terms of what is taken to be an optimum population; but this optimum ordinarily differs according to whether it is defined in a Malthusian frame of reference or a “Keynesian” one.

Malthus’ principle of population, which had been incorporated into classical economic theory at the beginning of the nineteenth century, lost much of its axiomatic authority by 1914; but it was not so much replaced by a better theory as displaced by empirical data. Malthus had underestimated the importance of the continued industrial development and of the spread of birth control; and these flaws were to become crucial. By 1900 the widespread criticism of Malthus in various countries began to develop into an almost general rejection of his thesis. In 1895 Cannan wrote what later became a very famous article predicting a long-term decline in British fertility. Among others, Brentano did a statistical analysis of trends in several countries to show that since 1870 there had been a marked increase in prosperity combined, particularly among the well-to-do classes, with a decline in fertility.

The March 1912 issue of the Economic Journal, the very first that Keynes edited, contained an article with a contrary emphasis. “The name of Robert Malthus” it began, “far from falling into oblivion in the course of time, is quoted with

1 Edwin Cannan, “The Probability of a Cessation of the Growth of Population in England and Wales during the Next Century”, Economic Journal, vol. v, no. 20 (December, 1895), 505-515. In his projection there were fewer than 35.5 million persons in England and Wales in 1951, but this projected population was better balanced in its age structure than the actual one today.

2 For an English summary and a reference to the longer German original, see Lujo Brentano, “The Doctrine of Malthus and the Increase of Population during the Last Decades”, Economic Journal, vol. xx, 79 (September, 1910), 371-393. A similar study, more in sympathy with Malthus’s views but reaching the same conclusions, was George G. Chisholm, “Malthus and some recent Census Returns”, Scottish Geographic Magazine, vol. xxxix, no. 9 (September, 1913), 453-471.
increasing frequency in latter-day discussions”; for though he was mistaken in certain respects, he raised fundamental problems.1 Whether Keynes commissioned this article or took it over from the backlog of Professor Edgeworth, his predecessor, is not known; but in either case the fact that he printed it indicates that he may have begun to think along Malthusian lines even before 1914.

In The Economic Consequences of the Peace, Keynes introduced his criticism of the economic sanctions under the Versailles Treaty with a short chapter on “Europe before the War”. Before 1870, he wrote, Europe had been substantially self-subsistent; and after this date, with the flow of goods from overseas, “the pressure of population on food became, for the first time in recorded history, definitely reversed”. However, this unprecedented progress may have ended at the turn of the century: “Up to 1900, a unit of labour applied to industry yielded year by year a purchasing power over an increasing quantity of food. It is possible that about the year 1900 this process began to be reversed.” That the change did not become evident immediately was the consequence, for example, of the influx of new commodities from Africa. In short:

Before the eighteenth century, mankind entertained no false hopes. To lay the illusions which grew popular at that age’s latter end, Malthus disclosed a Devil. For half a century, all serious economic writers held that Devil in clear prospect. For the next half century he was chained up and out of sight. Now perhaps we have loosened him again.2

This passage became so famous that a polemical article could be entitled, for example, “A Word for the Devil”.

This analysis was immediately attacked, first of all by Beveridge in an answering article and in his rebuttal to Keynes’ rejoinder.3 Within the narrow limits of their discussion, Beveridge had the best of it. The index that Keynes used to show a major turning point at around 1900 revealed what might well have been only a short-term fluctuation; in any case, the series was defective and, when corrected, it showed no reversal at all. Keynes pointed out that his remarks on overpopulation were intended as no more than obiter dicta, and that “an author may have more to say in support of his general attitude than can be well expressed in a single page of a book on another topic”.4 Beveridge admitted the justice of this (rather generously, for at least the “single page” was an exaggeration), but added that the book had been read by some hundreds of thousands of persons who knew nothing of this issue and were misled by Keynes’s analysis. He did not doubt that there was a Devil abroad, but the Devil was Keynes’s careless statements.


4 In Harrod’s biography of Keynes, the 30-page chapter devoted to The Economic Consequences deals with the question of overpopulation in precisely one sentence: “The precariousness of European prosperity was analysed under three heads—the pressure of population, entailing an abnormally large dependence on overseas supplies; the intense division of labour in Europe which made the surrounding countries peculiarily dependent on German prosperity; and the insecurity of the psychological basis of capitalism” (R. F. Harrod, The Life of John Maynard Keynes, London, 1951, p. 280.)
In 1923, in a short article entitled "Is Britain Overpopulated?" Keynes expressed his resentment of such epithets as "Malthusian moonshine" sprinkled through the polemics of Beveridge's supporters. While it is true that one cannot argue directly from unemployment to overpopulation, he wrote, the "prolongation and intensity" of the current unemployment in Britain made it necessary to seek causes in other than "transitory influences". Although the birth rate in Britain had fallen, there were still twice as many births as deaths. "Is not a country overpopulated when its standards are lower than they would be if its numbers were less?" The failure to answer this question precisely was the principal reason the Keynes-Beveridge exchange remained rather sterile, as Dalton pointed out at the time. In spite of the status of the contenders, the issue was never clearly drawn, and the dispute created more heat than light.

Keynes' interest in Malthus' population theory was expressed during this period in a number of incidental ways. He delivered a talk on Malthus to his Cambridge seminar. He wrote a biographical sketch of Malthus, "the first of the Cambridge economists". Since this attempted both to fill in the human figure of Thomas Robert Malthus with details of his life and to comment briefly on all of his important works, the Essay was disposed of in four or five interesting pages. It is a "work of youthful genius", "mainly an a priori work, concerned on the one hand with the refutation of the perfectibilists and on the other with the justification of the methods of the Creator, in spite of appearances to the contrary". Its importance "consisted not in the novelty of his facts but in the smashing emphasis he placed on a simple generalisation arising out of them".

In 1922 Keynes edited a series of twelve issues of the Manchester Guardian Commercial on the theme of "Reconstruction in Europe", and in his short article introducing the section on population he repeated his "obiter dicta" in

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1 J. M. Keynes, "Is Britain Overpopulated?" New Republic, October 31, 1923, pp. 247-248. Cf. J. M. Keynes, "Population and Unemployment," Nation and Athenaeum, October 6, 1923, pp. 9-11, which was another version of essentially the same article.

2 H. Dalton, "The Theory of Population", Economica, vol. viii, no. 22 (March, 1928), pp. 28-50. In a later discussion of the polemics, Thompson made the same point: "If we are thinking of overpopulation as a condition which cannot arise so long as there are conceivable ways in which more people can be employed so as to produce larger real incomes, then apparently Sir William was right, and there is no overpopulation in England or in Europe. . . . On the other hand, if we think of overpopulation as a condition in which there are too many people to be employed at good real wages under the conditions which actually exist and which appear likely to exist for some time to come, it would seem that Professor Keynes was fully justified in saying that England and Europe are overpopulated" (Warren S. Thompson, Population Problems, 2nd edition; New York: McGraw-Hill, 1934, p. 426.)

3 Harrod writes concerning this: "He also dwelt on modern conditions; the Malthusian devil was evidently still with us. In the discussion Mr. Dennis Robertson produced some recent statistics; he was not so sure about the Malthusian devil. Indeed, he hinted that the modern danger might be the opposite one, a decline in numbers. Robertson seemed to know what he was talking about, and I had an uncomfortable feeling that it was he, and not my master, who was in the right on this occasion" (op. cit., p. 328).

4 This was published only in 1933: J. M. Keynes, Essays in Biography, London, 1933, pp. 97-149. The study begins with a modest disclaimer: Keynes had used only readily available sources, and "added such other details as I have come across in miscellaneous reading which has been neither systematic nor exhaustive". Yet the first reference is to a monograph history of the Malthus family, of which 110 copies had been privately printed.

5 Ibid., pp. 117-119.
still more provocative terms. The article is illustrated by a photograph of “Malthus Island”, a barren rock crowded with birds. “The guillemots on these islands off the coast of Northumberland”, the legend reads, “sit shoulder to shoulder on their eggs, covering the entire superficies. If one more egg is laid another egg rolls off into the sea, [and] by this ingenious social custom the population can be maintained in a state of stability.” The text of the article was largely reprinted in a more easily accessible form as the preface to one of the Cambridge Economic Handbooks, a volume by Harold Wright entitled Population. “The most interesting question in the world”, Keynes wrote, “(of those at least which time will bring us an answer) is whether, after a short interval of recovery, material progress will be resumed, or whether on the other hand, the magnificent episode of the nineteenth century is over”. Now it was “a question” whether the population pressure was the consequence of a long-term decline (as, three years earlier, the Keynes of The Economic Consequences had definitely stated it was) or the presumably more remediable effect of the war. The phrase “magnificent episode”, a red flag to all firm believers in Western progress, became almost as much of a shibboleth as “the Devil”.

The text of Population, which Wright wrote under Keynes’s editorial guidance, can be taken as the fullest statement of the latter’s views on population at this time. This “emanation from the seat of Devil-worship”, as Robertson termed it, began with a summary of Malthus’ doctrine, largely in the words of the Essay, and then attempted to substitute for the “fallacious” arithmetical ratio the Law of Diminishing Returns as finally formulated by J. S. Mill, who “adhered firmly to the general teaching of Malthus and Ricardo, which he restated in a more complete and scientific form”. The argument of Malthus’s Essay is relevant to the present day, for while diminishing returns in production (for example, of cotton) are offset to some degree by the tendency to control fertility, they nonetheless result in population pressure. The section on the “Economic Advantages of a Growing Population” does not, as might be supposed, foreshadow Keynes’s later theory, but rather discusses the increased efficiency resulting from mass production. The “way out” of the population problem is to increase productivity and restrict the birth rate.

3 Hayek has made the point that Keynes’s “gift for phrase-making”, his “puckish delight in shocking his contemporaries”, often led him to overstate his case. “Certainly such phrases as the ‘humbug of finance’, ‘the end of laissez-faire’, and ‘in the long run we are all dead’ must often have recoiled against their author when he was in a more conservative mood” (F. A. Hayek, review of Harrod’s biography, Journal of Modern History, vol. xxiv, no. 2 (June, 1952), pp. 195-198).
5 In a review of the book (entitled, with already a certain ennui, “Two More Books on Population”), Dalton remarked, “While the ‘Law of Diminishing Returns’ is treated as a grave menace perpetually overhanging the world, ‘increasing returns’ appear only as an occasional happy incident, without the title of ‘Law’ or even the dignity of capital letters” (Economica, vol. iii, no. 9, November 1923, pp. 224-228.
6 Wright, op. cit., pp. 34 ff.
7 Ibid., pp. 67 ff.
II

There has been a certain tendency to dismiss this Malthusian phase as an unfortunate personal vagary of Keynes—in the words of Schumpeter, for example, "perhaps the least felicitous of all his efforts and indicative of an element of recklessness in his make-up which those who loved him best cannot entirely deny".1 Similarly, in the view of Paul Samuelson, Keynes "unleashed with a flourish the Malthusian bogey of overpopulation at a time when England and the Western European world were undergoing a population revolution in the opposite direction".2 Whether Keynes was right or wrong, however, he was certainly not alone in his views. The battle of words between Cambridge and the London School was perhaps the most prominent feature of the Malthusian revival, but even in England it was not restricted to this. How widespread this revival became can be indicated merely by a chronological listing of some of the more important titles, with an occasional telling quotation:


Siegfried Budge, "Zum Malthus-Problem: Eine Antikritik", Archiv für Sozialwissenschaft und Sozialpolitik, xxxvii (1913), pp. 930–941: The Malthusian law "operated in the past, operates in the present, and, according to our best estimate, will continue to operate in the future".

Warren S. Thompson, Population: a Study of Malthusianism (New York, 1915): "For the great majority of the people of the Western world, the pressure on the means of subsistence is the determining factor in the size of the family[!]. . . . [If the rural-urban trend continues] population cannot continue to increase at its present rate without being more and more subjected to actual want of food" (pp. 156 ff).


Paul Mombert, Die Gefahr einer Übervölkerung für Deutschland (Tübingen, 1919): "During the next years and decades [Germany's] most important and most urgent problem will be how much leeway our economy will offer with respect to food production and what consequences this will have on the size of the population and the standard of living".

Edward M. East, Mankind at the Crossroads (New York, 1923): "Manifestly, the only relief for the situation is to call a halt on population growth at a point . . . where there is no intense struggle for mere existence; and the only means of accomplishing this feat which recommends itself to the ethically inclined is conscious, deliberate control of fecundity. . . Enhanced efficiency and prudent conservation of resources are means of bringing about increased happiness only if numbers remain constant" (p. 344).


A. B. Wolfe, "The Optimum Size of Population," Louis I. Dublin (ed.), Population Problems in the United States and Canada (New York, 1926), pp. 63–76; an essential part of the problem "is to get people to see they are confronted with a condition, not a theory. . . . The American farmer will not soon believe that overpopulation is imminent."


JOHN MAYNARD KEYNES’S THEORIES OF POPULATION 233

Edward Alsworth Ross, *Standing Room Only?* (New York, 1927): “Utilising the life-saving means now available, a flourishing and enlightened modern population which welcomed large families might grow from its own loins at a rate which would double it in twenty years” (p. 11).

George H. Knibbs, *The Shadow of the World’s Future: or the Earth’s Population Possibilities and the Consequences of the Present Rate of Increase of the Earth’s Inhabitants* (London, 1928): “For computers it may be of interest to note that an increase of even 1% leads to large numbers. . . . The logarithm of the number of earths necessary to provide bodies, each of 100 lb. weight, for the population from a couple, increasing for ten thousand years continually at the rate of 1% per annum, would be no less than 20.394644, that is, the number is 248,293,000,000,000,000,000,000,000,000,000, and this would be the number of earths required to provide material for their bodies” (p. 49, n. 1).

The international range of Malthusian works in this period is symbolised by one on the population of England, written in French by the dean of Greek statisticians, and published in Italy: A. Andreades, *La population anglaise avant, pendant et après la grande guerre* (Ferrara, 1922). In Germany, a half dozen doctoral dissertations—always an accurate barometer of trends in university thought—were written in reappraisal of Malthus and his period. Even France, the country whose fertility had declined first and farthest—where pro-natalist sentiment was very much in evidence before 1914 and after, say, 1930—fell in with the Malthusian trend of the 1920’s at least negatively. As Wolfe has noted: “Curiously, the French, who before the war were so prolific of popular and propagandistic publications on population, have since the war published relatively little”. At the World Population Conference of 1927, two out of the six sessions were devoted entirely to discussing the relation between population and resources, and the main speakers showed a very heavy preponderance of one or another version of Malthusianism.

When the second edition of Bonar’s classic study of Malthus was published in 1924 (the first edition had appeared in 1885), the author remarked in the introduction that “there are signs that the twentieth century will give [Malthus] a fair hearing”. In 1927, developing this theme, Bonar wrote a whimsical little essay in which Malthus’s shade faces a present-day critic and puts him to rout.

Although Keynes played an important part in developing this climate of opinion, it is too much to say that he “unleashed the Malthusian bogey” through a spirit of “recklessness”. No one man was responsible for the large degree

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of international agreement that this superficial survey indicates. Even the differences between Cambridge and the London School, when they were not exaggerated by polemical enthusiasm, were differences within a common Malthusian framework. Writing in *Economica*, the Journal of Exorcism, Robertson stated:

'Whether our standards were rising slightly or falling slightly between 1900 and 1910, there can be no doubt that they were miserably lower than we should have wished, and equally little doubt, surely, that they would have been higher if there had been fewer of us. To deny that in such circumstances we were suffering from the pressure of population seems to me to be trifling with words'.

Similarly, Cannan's critical review of Thompson's first book began with a flat, uncompromising endorsement of its fundamental thesis. He quoted a long passage to the effect that the economic prerequisites to the unprecedented expansion of the European peoples were disappearing, because, among other reasons, the improvement in transportation and agriculture probably could not be duplicated. "I should like to suggest", Cannan remarked, "that the next bishop who proposes to recommend unreasoning multiplication as a universal rule of human conduct should take this passage from Dr. Thompson's book as his text. The predictions which it contains may be premature, but they cannot be erroneous in any other sense." Similarly, in remonstrating with Wright for his failure to adopt the terminology of the optimum theory, Robbins pointed out that the two views could be adapted to each other: "Nothing in the optimum theory precludes insistence on the dangers of over-population". More fundamentally: "It is one of the great unsolved questions of our modern world whether, with our unprecedented degree of taxation, we can save enough to keep pace with the growth of population". The contrast with the stagnation theory of the following decade could hardly be more marked.

If the term Neo-Malthusianism had not already been appropriated by the advocates of birth control, it would be an apt designation of the school (whether that in England or its Continental analogue) that developed the concept of population optimum. Certainly, neither Malthus nor Cannan would have found this a happy link, but then Malthus was also a firm and principled opponent of birth control; in either sense, "Neo-Malthusianism" denotes not a continuation of Malthus's ideas but their projection to a new level.

At best, Malthus's principle could be called no more than a first approximation: population tends to increase by a geometrical ratio and food by an arithmetical
JOHN MAYNARD KEYNES'S THEORIES OF POPULATION

ratio; therefore, population tends to press against the means of subsistence. Like all other economists of his day, Malthus was describing the workings of a "natural law"; but even he introduced a vague notion of policy when, in the second edition of the Essay, he added "moral restraint" to the "positive" (that is, non-deliberate) checks on population growth. Supposedly, this line of thought might have continued in the direction of specifying the point at which the pressure of population on the means of subsistence becomes critical—that is, toward a first statement of population optimum. But this step had to await a fundamental change in the climate of opinion. Once the function of economic analysis was no longer viewed as solely to describe but also in part to prescribe, the extension of Malthus's theory in this sense was inevitable. In what Robbins termed the "most penetrating and comprehensive" statement of the theory of optimum population, in Chapter 3 of Wealth, Cannan built the argument parallel to the development of his own thought on the subject, from Elementary Political Economy (1888) to the first edition of Wealth (1914). The chapter begins with a rejection of Malthus's "misleading mathematical jingles" and continues by amending the law of diminishing returns in agriculture to include both expanding and diminishing returns in both agriculture and the rest of the economy. That is, the polemics against the specific crudities of Malthus's theory overlaid a general agreement with its fundament.

More generally, the dominance of Malthusian ideas in this period can be demonstrated by showing how they permeated certain of the works of other avowed opponents. Reuter, for example, termed the first edition of the Essay "a brief, ephemeral political tract". After its success "had somewhat unduly inflated the author's self-esteem", Malthus wrote his second edition, a "labored statistical and historical after-thought". In spite of his low estimate of Malthus, however, Reuter accepted Malthusianism virtually in toto. The principal arguments he cited against it were that conservatives welcomed it as a weapon against social reform (but this use of the doctrine had nothing to do with its validity) and that it was a truism. A population might double in twenty-five years if it were not for the "checks to population increase" that make this rate impossible. In former times, population increase was checked by famines, "but the limitation of population by shortages of food, if less spectacular, is no less real".

Similarly, in his Population Problem, Carr-Saunders combined a curt rejection of Malthus with an essentially Malthusian analysis. The central argument of the book is that the power of human reproductivity is "very great. . . Nearly all discussions of questions of quantity [tend] to underestimate the power of increase." The results of this "huge" human fecundity are kept in check by

3 "It was perhaps always a matter of universal knowledge that the number of people is likely to increase in the presence of sufficient food to support increased numbers [!] . . . Little, if anything, more than a solemn statement of the obvious. . .?" (Reuter, op. cit., pp. 61, 69).
4 Ibid., pp. 115-125.
war and disease and, since these are not generally sufficient, by conscious restrictions—delayed marriage, abstention from intercourse, abortion, infanticide, birth control. Not only European culture but all primitive cultures include customs whose primary function is to restrict population increase.¹

By 1934, the hundredth anniversary of Malthus's death, the revival was over. In commemorative articles, Bonar retained all his life-long enthusiasm for his master; but Keynes wrote, "Malthus's name has been immortalized by his Principle of Population, and the brilliant intuitions of his more far-reaching Principle of Effective Demand have been forgotten".² Another commemorative article combined the hope that "there should be no overpopulation" with one that the "increase of population should not be on too low a scale".³

III

Keynes's influence on the underpopulationist theory of the 1930's, though less direct than the part he played in the Malthusian revival a decade earlier, was perhaps more important; for in the new Keynesian framework the relation of population growth to capitalist development is so direct that it hardly needed underlining. That Keynes developed his theory during a period of sharply declining birth rates was not accidental, for both were in part the product of the world-wide depression. It was somewhat fortuitous, however, that an economic theory emphasizing the theoretical and practical importance of continued population growth should have been presented concomitantly with new demographic techniques that systematically exaggerated this declining fertility. Thus, the full impact of Keynes's theory with respect to population can be appreciated only against the background of the apocalyptic mood of demographers in the 1930's. This mood is exemplified here by the writings of Enid Charles, partly because she spelled out some of the assumptions implicit in others' works, partly because Reddaway, a student of Keynes who wrote a work on The Economics of a Declining Population, largely depended on Charles for his demographic expertise.

So long as the trend in fertility continued uniformly downward, fairly accurate forecasts of future population could be made simply on the basis of mathematics. The fact that we know little of the cultural determinants of fertility did not become relevant, or apparent, until after the trend was reversed and the post-war "baby boom" got under way. In retrospect, the demographers of the 1930's seem to have been playing Cassandras, vying with one another in the display

¹ A. M. Carr-Saunders, The Population Problem: a Study in Human Evolution (Oxford, 1922), p. 291 and passim. A short book published three years later, essentially a popular summary of the earlier work, differed from it in that it resolved this contradiction by acknowledging Carr-Saunders's debt to the Essay, both symbolically, with a photograph of Malthus as the frontispiece, and more fundamentally. In spite of all the contributions that have been made to demographic theory since the Essay, "it is now admitted that, insofar as the essential features of his point of view are concerned, Malthus's view was correct" (A. M. Carr-Saunders, Population, London, 1925, p. 23).
of their brutally realistic pessimism. No estimate of the future population could be accepted as low enough.\(^1\)

Enid Charles’s estimates may be taken as an example of inter-war projections. In her work, she projected the population of England and Wales on the basis of three hypotheses with respect to fertility and mortality and regarded as least “realistic” the most “favourable” and, as it happened, the one closest to the actual trend. The three sets of hypotheses were: (a) that fertility and mortality would continue at the 1933 rate; (b) that fertility and mortality would continue to fall as they had in recent years; and (c) that fertility would rise to the 1931 level, or to about 10% higher than in 1933, while mortality would continue to fall. The third alternative might have seemed reasonable in 1935, when the memorandum was published, for fertility seemed to have passed its low point.\(^2\) However, in Charles’s opinion, the third estimate could not be regarded of more than theoretical interest, unless a considerable social change affecting fertility takes place. There is the further possibility that fertility rates, instead of continuing to fall as they have done in the past, will soon begin to fall very much faster. This is not a wholly unlikely contingency.”\(^3\) In a volume published three years later—that is, three more years after the low point of English fertility—the substance of the memorandum was republished but the estimate based on the third assumption was omitted altogether.

\(\ldots (a)\) is a conservative estimate of the immediate prospect of a declining population, and \(\ldots (b)\) represents a more reasonable forecast of the trend of population, if no new social agencies intervene to check declining fertility. \(\ldots\) an actual decline in numbers of the population of England and Wales will ensue in 1943 according to estimate \((a)\), and in 1939 according to \((b)\). \(\ldots\) In England and Wales the future fall will be rapid on any assumption which would seem plausible in the light of present experience. According to estimate \((a)\) the population will be halved a century from now. According to \((b)\) it will be reduced to one-tenth of its present size.\(^4\)

In 1939, as we shall see, Reddaway still agreed that Charles had been correct to discard her third alternative, even though by then the actual population was larger than the upper limit set in Charles’s paper.\(^5\)

If the population forecasts of the 1930’s were generally given more credence than they deserved, they were none the less recognised as forecasts, that is, as

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1 For a caustic review of some of the less happy attempts see Harold F. Dorn, “Pitfalls in Population Forecasts and Projections,” *Journal of the American Statistical Association*, vol. XLV, no. 251 (September, 1940), pp. 311–314.

2 The crude birth rates and net reproduction rates for England and Wales during the period were as follows:

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<tr>
<th>Year</th>
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<td>1932</td>
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fallible; and towards the end of the decade their authors' protestations that they were intended as no more than extrapolations were at last taken seriously. The forecasts, half-disguised as fertility measures, however, were usually interpreted by non-professional readers as what they seemed to be: summations of the current population trend. Those who had not read the several books of Kuczynski in which the net reproduction rate was developed must have found this index particularly confusing; for many of the other works that used it neglected to point out that constant age-specific birth and death rates were assumed.

The mood of demographers in the 1930's may be exemplified especially by Dr. Charles's book, The Menace of Under-population.¹ Though designed as a popularisation, it was written by a professional demographer of high reputation and was given serious and favourable reviews by other demographers.² The fundamental thesis of the book, in Dr. Charles's own words, was as follows:

The menace of under-population . . . unfolds the spectacle of a society which has lost the power to reproduce itself, is losing that power more and more, and must continue to dwindle unless a fundamental readjustment occurs within the human ecological unit. It is a situation so serious as to provoke from one of the leading authorities on population problems the pronouncement that “it would require nothing short of a religious revolution to bring about a change in attitude, to undo what has already happened” (p. 36).

In parts of Europe and America the population has already ceased to be capable of maintaining its numbers. It cannot be too clearly emphasised that this statement is not a prediction of future events based upon extrapolation from a series of statistics but a description of what is actually happening at the moment (p. 104).

We have directed attention to a state of population growth which seems likely to lead to a rapidly diminishing population, and possibly to extinction in some of the leading civilised communities of the modern world (pp. 192–193).

These statements were based on the “new statistical approach”, as Dr. Charles termed the net reproduction rate. They implied that the rate was a satisfactory index of the level of replacement and also that the given fertility and mortality conditions in the period to which the rate related would persist in the future. It was in particular because of the latter assumption that Dr. Charles concluded that the trend is “possibly to the extinction [of] some of the leading civilized communities of the modern world”.

This was the theory of the 1930's, of the depression decade. A five-page bibliography of works on the decline in fertility published between 1914 and 1933 included only a few scattered titles that had appeared before 1928.³ In 1946, when Charles wrote a preliminary review of the rise in fertility during the war, she gave it as her “most plausible guess that . . . some further decline may be expected” in British reproduction rates, though at a slower rate than during

² See, for example, the reviews by Louis Dublin (Survey Graphic, vol. xxiii, no. 12 (September, 1934), p. 626) and A. M. Carr-Saunders (Economic Journal, vol. XLV, pt. 1, March, 1935, pp. 164–167).
³ Horst Wagenführer, “Klassifikation der Theorien über die Ursachen des Geburtenrückganges,” Corrado Gini (ed.), Proceedings of the International Congress for Studies on Population (Rome, 1933), vol. viii, pp. 425–436. The contrast between this work and the proceedings of the earlier population congress indicates how a shift in the climate of opinion took place between 1927 and 1933 . . . or, as given on the title page, Anno xi of the Fascist millenium. Corrado Gini's opening speech that Malthusian premises had formed the base of discussion of population problems “for too long” set a motif that recurred again and again.
the 1930's. The crucial question in analysing the rise in fertility was whether it was the result of a higher marriage rate or a larger average family size. On the basis of the inadequate data then available, Charles concluded that it was the first.¹ But with more comprehensive analyses at our disposal today, we know that the answer is more complex—that there is also the question of the postponement and making-up of births within marriage and, in addition, of some genuine increase in family size. Without the "religious revolution" that Dublin had previously thought necessary, family size in many parts of the world ceased to fall and even showed signs of increasing in a number of countries. These unpredicted facts played havoc with the pre-war population projections and have brought about a widespread reconsideration both of the methods by which they were elaborated and of the techniques of analysing fertility movements.

IV

As has been noted, during this period the focus of Keynes's enthusiasm for Malthus shifted from the Essay to the Principles of Political Economy, from the principle of population to the principle of effective demand.² Various disciples and critics have traced this momentous development in economic theory. In 1929, when Lloyd George promised to reduce unemployment by expenditures on public works, Keynes discussed this pledge wholly within the classical framework. His Treatise on Money, published in 1930, was also in the classical tradition, but it contained one short "isolated insight", as Alan Sweezy has termed it: "The population [of Great Britain] will soon cease to grow. Our habits and our institutions keep us, in spite of all claims to the contrary, a thrifty people saving some 10% of our income. In such conditions one would anticipate with confidence that, if Great Britain were a closed system, the natural rate of interest would fall rapidly."³

In an essay also written in 1930, Keynes rejected the pessimism of his "magnificent episode" as "wildly mistaken":

We are suffering just now from a bad attack of economic pessimism. It is common to hear people say that the epoch of enormous economic progress which characterised the nineteenth century is over; that the rapid improvement in the standard of life is now going to slow down—at any rate in Great Britain; that a decline in prosperity is more likely than an improvement in the decade which lies ahead of us. I believe this is a wildly

¹ E. Charles, "Post-War Demographic Problems in Britain," American Sociological Review, vol. xi, no. 5 (October, 1946), pp. 578-590. Similarly, in The Menace of Under-Population, she had tried to show that the decline in family size had not been based fundamentally on the desire for fewer children, effected through improved contraceptives, but rather on the increased privacy (over the Victorian period) of "so many marriages" (p. 172), "the widespread habit of excessive washing, most common among the prosperous and educated, less common in Catholic countries, in rural communities and among the poorer classes" (pp. 182-185), and similar factors that are interesting at least for their novelty. For an excellent analysis of the increase in fertility in the West, see Bernardo Colombo, La recente inversione nella tendenza della natalità (Padova, 1951).

² For an interesting analysis of Malthus's influence on Keynesian theory, worked out by comparing passages on effective demand in the works of the two men, see James J. O'Leary, "Malthus and Keynes" Journal of Political Economy, vol. l, no. 6 (December, 1942), pp. 901-919.

³ J. M. Keynes, Treatise on Money, p. 188; quoted by Alan Sweezy, "Declining Investment Opportunity," Harris, op. cit., p. 428.
This curious call to optimism thus formed the bridge between his Malthusian pessimism of the 1920's and his underpopulationist pessimism of the 1930's.

The year 1933 seems to have been a crucial one in the development of Keynes's thought, and in 1936 The General Theory appeared. According to classical theory, since every supply elicits its own demand, local crises are checked by the automatic adjustment between supply and demand; thus, a general economic crisis—a general fall of prices to below cost, general overproduction, general unemployment—is impossible by the very nature of the economic system. The automatic circuit posited by Say's Law, however, is completed according to Keynes's new theory only in the special case when planned savings and planned investments are equal; in all other cases, a portion of the potential purchasing power is siphoned off into idle savings, or "hoards". It is particularly in wealthy countries (that is, in countries with an "incipient decline" in population) that investment tends to be inadequate, for two reasons: because a smaller proportion of the national income is consumed and thus a larger proportion is left to be invested, and because the larger capital stock means that new investment opportunities are more difficult to find. Extended over time, as the stock of capital grows in any one country, the possibilities for new investment are less; or, in Keynes's terms, other things being equal, the marginal efficiency of capital is lower, the greater the existing amount of capital.

Why should this long-term decline in the marginal efficiency of capital not have been operative during the nineteenth century? Because, Keynes wrote, "the growth of population and of invention, the opening-up of new lands, the state of confidence and the frequency of war over the average of (say) each decade seem to have been sufficient". In the twentieth century, however, that is, in countries with more or less adequate capital stocks and populations approaching a stationary level—the incentive to private investment has tended to disappear, and the state has had to take over some of the functions of the entrepreneur.

Almost two years after the publication of The General Theory, in a lecture delivered to the Eugenics Society—thus specially prepared for a Malthusian audience—Keynes attempted to link this theory with his earlier views on population. In an era of declining population, he wrote, the demand for capital tends to be below what is expected, and the pessimistic atmosphere that may result may have "very disastrous" short-term effects. Over the period from 1860 to 1913,
there had been a 270% increase in capital, which was required in roughly equal parts by the rising standard of living and the increasing population; but with a declining population it would be necessary to alter institutions so that a smaller percentage of income would be saved, and to reduce the rate of interest sufficiently to make entrepreneurial activity more attractive.

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 . . . 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.1

Thus, as he stated specifically, Keynes did not reject the essential argument of Malthus's principle of population, but rather opposed it to a contrary principle that must also be considered. Malthus's model was basically correct and still relevant, but too simple. A stationary population (when he analysed the difficulties, it was usually—as in the title of the article—"a declining population") does facilitate a rise in the standard of living, but only on condition that the possible increase in consumption per head takes place. The interesting implications of this point, however, Keynes did not develop, either in this article or elsewhere.

As in The Economic Consequences of the Peace, so in The General Theory, Keynes's primary concern was with another problem; but, again, his few "obiter dicta" on the significance of population trends started a cycle of articles and books more specifically demographic in emphasis. These began with reviews of The General Theory itself. Population, Hicks wrote, is "Mr. Keynes's strongest card", and he continued—

It does become very evident, when one thinks of it, that the expectation of a continually expanding market, made possible by an increasing population, is a fine thing for keeping up the spirits of entrepreneurs. With increasing population, investment can go roaring ahead, even if invention is rather stupid; increasing population is therefore actually favourable to employment. It is actually easier to employ an expanding population than a contracting one, whatever arithmetic would suggest—at least this is so when expansion or contraction is expected, as we assume generally to be the case.

Consider the situation which is likely to arise when the population of this country [Great Britain] is declining, and the population of most of those countries with which she is in close trading connections are stationary or tending to decline. The time will come, so it already seems likely, when this tendency, and its probable future continuance, will not be the secret only of a few economists, but will be fully realised by the mass of the public. In these circumstances the incentive to construct houses, ships, factories, all sorts of capital equipment will be depressed by the anticipation that capital is wearing out and population dying off at convergent rates. Investment will proceed only with great difficulty, and employment will be low, in spite of the fact that population may have already declined in the past . . . This population point is enough in itself to establish the high significance of Mr. Keynes's theory of long-period unemployment.2

As has been noted, the ramifications of this passage can be examined most conveniently in terms of Reddaway's work, which in relation to Keynes is

analogous to Wright’s *Population*. Reddaway began The Economics of a Declining Population with a summary of Charles’s “classic study” of British population trends, which he presented in a refreshingly undogmatic style. For example: “There is no point in recording net reproduction rates to several places of decimals,” for these “tell us what will happen on assumptions that we know to be subject to large errors” (p. 27). Nevertheless, he accepted her basic thesis of a “declining” British population and did so, as has been pointed out, several years more after the low point in British fertility had passed. The reasoning by which he supported this decision is typical enough of the period to be worth citing:

[Charles] treats estimate (a) as setting an upper limit “unless unforeseen social agencies are brought to bear”. Can we accept such a conclusion? For the very near future the answer is clearly No. The recorded number of births has each year been in excess of the estimates, since these assumed no rise in fertility above the 1933 level. . . . However, we must not make too much of this discrepancy. . . . It is small [and] easily . . . shown to be a temporary phenomenon. The explanation is simply that the years in question had the benefit not only of the “normal” number of births, but also of the arrears accumulated during the depression. . . . The significant fact is that even with this temporary aid the fertility-rate rose so little, and did not nearly reach the 1931 level (pp. 32–33).

Reddaway (and with him many other analysts) concluded that it was the making up of the “arrears” that had to be depreciated—because an increase in fertility so based was limited by the number of marriageable couples or childless families. However, if a rise in fertility can be controverted as a consequence of the sharp rise in the marriage rate, should it not follow that the very low fertility during the years that these marriages were being postponed should also be discounted for a long-term analysis? Moreover, the postponement of marriage and of the first child can reasonably be regarded as personally the most onerous of the relevant changes occasioned by the depression. Thus, when natality began to rise because of an increased marriage rate, this might have raised the question whether other causes of the low birth rate might not also soon be mitigated. That is to say, the distinction between the secular trend and its intensification by the depression could not be drawn merely by extrapolation of the pre-depression curve.

Having posited a “declining” population, Reddaway began his analysis of its economic significance with a discussion of unemployment, which he divided into frictional and cyclical. As in Keynes’s system, “it is the rule, rather than the exception, for there to be an appreciable volume of general unemployment” (p. 89). In general, a declining population results in a decline in capital outlays, but (in an important addendum to Keynes’s thesis) this effect is mitigated by the fact that, for such important commodities as homes, the consuming unit is not the individual but the family. Since families are smaller,
their number may continue to rise even after the number of persons has begun to decline. This demand for new housing was an effective one even during the depression, for those with relatively fixed money incomes enjoyed a considerable rise in real income (pp. 101–106). Nevertheless, "unless special measures are taken to maintain it, the volume of capital outlay undertaken on behalf of private interests is likely to fall. Moreover, it will be of a more precarious nature than in the past, more sensitive to falls in the industrial barometer" (p. 110).

The problem is essentially a "man-made" one, which human ingenuity should be capable of solving. Our difficulty is not to overcome the niggardliness of nature, but so to organise ourselves that we can make use of the (relative) abundance which should be available, but seems likely somehow to elude our grasp (p. 119).

The remedies he recommended are the usual ones of underpopulationist theorists, beginning with public works and ending with various modes of distributing income more widely among those who will spend it rather than save it.

While Reddaway was of the opinion that "the economic importance of population change is often grossly exaggerated" (p. 233), others have developed the relation studied in his work to a theory that the economic progress of the modern era has been based largely on its unprecedented increase of population.

One is tempted to a "population interpretation" of modern capitalism. Professor Cannan sensed it. Professor J. R. Hicks now toys with it as he wonders in a footnote at the end of his Value and Capital whether the "whole industrial revolution of the last centuries has been nothing else but a vast secular boom, largely induced by the unparalleled rise in population". Professor Schumpeter has little to say about population, yet perhaps the "first Schumpeter", as Dr. Innis in his review of Schumpeter's recent Business Cycles has playfully christened the long cycle (1787–1929), was mainly conditioned by population growth; and it may prove to be the only "Schumpeter". Modern capitalist free enterprise may prove to have been a boom enterprise, and the modern trend to something like the old mercantilism may be a trend toward institutions appropriate to an era of stationary population.¹

To this list must be added the name of Alvin Hansen, who of all American economists has stressed most the possible consequences of a cessation of population growth.²

One might suppose that just demographic analysis would be relatively unsusceptible to such wide fluctuations as have taken place during the past four decades; for the units ordinarily used, such as the generation or the nation, are large, and often trends can be most meaningfully analysed over as long a span as a century. The population pressure of the 1920's (of which one of the main symptoms, according to Keynes and others, was mass unemployment) did not disappear in the 1930's and the decline in fertility so evident in the 1930's had begun in most countries as early as 1875. To-day, the unforecast rise in the birth rate and the greater importance (in Western thought) of the "underdeveloped areas" have occasioned another Malthusian revival; but, again, the first could

have been forecast, and the Malthusian pressure in China or India was always there to be seen, if one but looked. Typically, Keynes spoke of "the world" only metaphorically, so that when Beveridge challenged his argument, he restricted it again to Western Europe. The Malthusians of the 1920's, with a few honourable exceptions, were provincial, and the underpopulationists of the 1930's much more so. To-day, what Ralph Linton has termed "most of the world" has become too important to be ignored by even the most careful scholar.

The cycle, that is to say, has been one in opinion—it might even be said, one in mood. While the shift was based on a change in real conditions, the violence of the shift was totally unrelated to the secular development continuing throughout the period. On the basis of everything that we know about social change, the observed trend in the birth rate should have been analysed in terms of an assumed eventual reversal; instead, it was extrapolated to "standing room only" or "the depopulation of Britain". Even if there had been no prior indications of the post-war baby boom, it should have been considered a real possibility; and there were such indications.

One can suppose that, if Keynes had not died in 1946, his interest in demography would have been revived by the post-war developments. If he had tried to reconcile his Malthusian and his under-populationist phases by attempting to define optimum population unambiguously, he would have had to begin by restricting the discussion once again to an economic framework. The very word "optimum" has been an invitation to broaden the concept by introducing such factors as "general welfare", military strength, mean longevity, international trade, and even popular mood. However, even if a narrow economic criterion (real income per head or an approximate equivalent) is retained, one optimum population is not thereby defined. It is true, as Keynes has put it, that "when devil P. of Population is chained up, we are more exposed to devil U. of Unemployed Resources"; it is true, that is to say, that if the population of a country is at its optimum point by one economic criterion, by another it may be too small—or, better, its rate of growth may be too low. Thus, within the economic framework, there are at least two optima, a Malthusian one and a Keynesian one. The first is the population that, in terms of present or prospective technology and institutions, affords the highest standard of living per head. The second is a population growing at the rate that, in terms of... etc. Though it is obvious that these are not the same concept, they are often treated as though they were. Thus, as one example out of many, Forsyth summed up the inter-war period's argument against immigration to Australia in the cogent phrase, "the myth of open spaces": Australia's empty land was largely uninhabitable desert.

1 Thus, according to a League of Nations committee, "overpopulation may be said to exist not so much in actual figures as in the consciousness of the country concerned", so that a country may be overpopulated compared with one neighbour and underpopulated compared with another. Cf. Fergus Chalmers Wright, Population and Peace: A Survey of International Opinion on Claims for Relief from Population Pressure ("International Studies Conference, Peaceful Change"; Paris: International Institute of Intellectual Co-operation, League of Nations, 1939), p. 80.

post-war proponents of immigration have answered this in part within the same framework (by pointing to the potentialities of irrigation, for example), but principally in Keynesian terms: a rapidly growing population makes for a healthy economy.

The Malthusian optimum is concerned with level of population, the Keynesian with the rate of growth of population. The confusion between the two, moreover, is often compounded by the tendency of writers on this subject to extrapolate one, but only one, of the relevant factors. As Kingsley Davis has put it—

A startling fact about the controversy is that both sides agree rather well on what is theoretically possible. The belief of the Mather side that science has the capacity to work miracles of food and industrial production is not seriously challenged by the other side. Indeed, who could challenge it? There is no way to determine any inherent limits to science. On the other hand, the Vogt-Osborn contention that population has the capacity to grow beyond the point of permanent or decent support is also admitted. Indeed, given enough time, any continued rate of population increase, no matter how small, would use up the entire earth's substance, and the current global rate would do it quickly.¹

In addition to these two factors, population and resources-technology, there is a third, institutional structure, which again may or may not be extrapolated to some supposed future state. Thus, the issue between Keynes and Beveridge, as has been noted, was largely terminological; with the actual social conditions, Keynes considered Britain overpopulated, while for Beveridge—with optimum conditions—it was not. On the other hand, Reddaway (following Keynes's lead) contrasted the "man-made" problem of a social system that flourishes only with a growing population with the "niggardliness of nature" that impedes such growth.

The concept of optimum population can be clarified only when those who use it stop trying to weight the definition in order to support their particular views. In an ultimate sense, all of the relevant terms can be viewed as absolutes; in a practical sense, none of them are. Niggardly nature, population growth, and the capitalist economy are all subject to policy decisions; all must be treated as independent variables. The resultant range of ambiguity of the term "optimum population", however, is then rather wide. From the Malthusian and Keynesian frames of reference we get two optima. With either one of them, we may posit either the actual or an optimum technology, and this gives us four optima. With each of these four, again, we may posit either the actual or an optimum institutional structure, and this gives us eight optima.

Principled opponents of birth control, who tend to define the physiological maximum as the optimum rate of population growth, extrapolate the latest scientific advances to the underdeveloped areas of the world. That is, population growth is "natural" and the other factors must be adjusted to it. The century-long dispute between Malthusians and Marxists is based on a similar confusion, though here the emphasis is more on the institutional framework than on technology. Similarly, natives of colonies or semi-colonial areas tend to ascribe their population pressure to the maladministration of the imperial power, so

that, if one assumes an optimum social organisation, even Egypt is not over-
populated. If both the institutional framework and the technology are optimum, 
then—at least according to current Soviet theorists—the optimum population 
presumably is infinitely large. In 1947, at the first session of the United Nations 
Population Commission, Rabishko, the Soviet delegate, asserted “more or 
less the following”:

I would consider it barbaric for the Commission to contemplate a limitation of marriages 
or of legitimate births, and this for any country whatsoever, at any period whatsoever. 
With an adequate social organisation it is possible to face any increase in population.2

The dilemma is not resolved by abandoning, as Myrdal has proposed, the 
concept of optimum population—“one of the most sterile ideas” ever developed 
in economics.3 When Myrdal, as one member of a government population com-
mission, recommended means of increasing Sweden’s birth rate, he did so in 
the belief that the population of the country ought to be larger. Like all moderns, 
he is concerned with policy; that is, he has some vague, implicit notion of 
optimum population. With this name or another, the concept will remain, and 
also the task of clarifying it.

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1 E. Nassif, “L’Égypte est elle surpeuplée?” Population, vol. v, no. 3 (July-September, 1950), 
pp. 513–532. Indian demographers have expressed similar views concerning their country’s population.

2 Cited by Alfred Sauvy, Théorie générale de la population, 1: Économie et population (Paris, 