

DEMOGRAPHIC FACT AND POLICY IN INDIA¹

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WITHOUT the inclusion of India any discussion of worldwide population policy would be incomplete. Not only does India contain almost a fifth of the world's population, but she embodies, on a massive scale, the major problems of all the heavily peopled agricultural countries of the Orient. Also, with her unique civilization and semi-colonial status, she raises some fundamental questions of international population policy. It is fortunate, therefore, that she has the longest series of fairly reliable census statistics in the East — that, in fact, her population data, though far from perfect, are better than those for any other area of equal backwardness.

POPULATION AND DENSITY

At present India has a population of about 403 millions, almost the same as that of Europe exclusive of Russia. This entitles her to a place beside Europe and Eastern Asia as one of the world's three great clusters of people. With an area of over one and a half million square miles, her over-all density is approximately 256 persons per square mile. This, for an agricultural country, is moderately high, though considerably below that of Puerto Rico, Java, and the Philippines. Since, however, large parts of India are dry, a better measure of her position is the density of the farming population on the agricultural land. About 68 per cent of the people are dependent on agriculture; the number of these per square mile of arable land is 423. This figure, as Table 1 and Figure 1 reveal, is higher than that for European countries but lower than that for some other Asiatic countries which have a comparable percentage of their population dependent on agriculture. Another indication of the concen-

¹ From the Office of Population Research, School of Public and International Affairs, Princeton University.

tration on agricultural land in India is the fact that in some almost purely agricultural districts the general density rises above 1,000 per square mile, and in many others, above 550. Excluding major cities, approximately 38 per cent of the population lives in districts with over 550 persons per square mile. These districts, which occur mainly in the Ganges Valley and along the coasts of the peninsula, represent only 12 per cent of the total area.

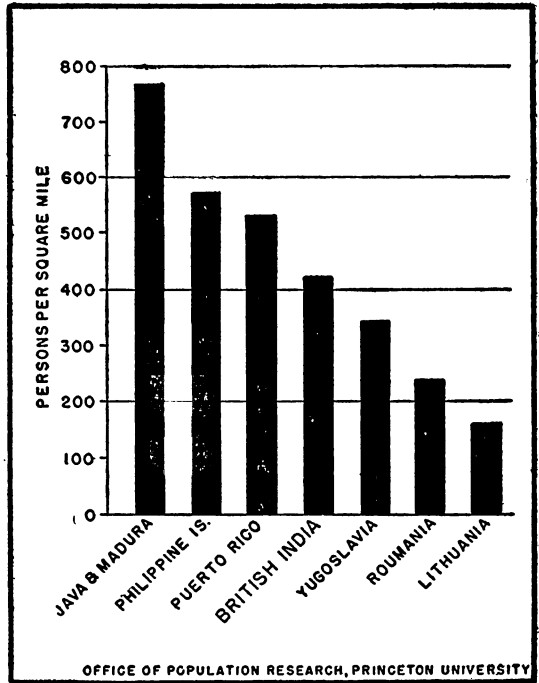


Fig. 1. Persons dependent on agriculture per square mile of arable land in British India and selected countries.

Table 1. Persons dependent on agriculture per square mile of arable land.

COUNTRY	DATE	PERCENTAGE OF POPULATION DEPENDENT ON AGRICULTURE	NUMBER PER SQUARE MILE OF ARABLE LAND
Lithuania ¹	1930	70.	161
Roumania ¹	1930	72.4	240
Yugoslavia ¹	1930	76.3	344
BRITISH INDIA ²	1931	67.9	422
Puerto Rico ³	1930	65.9	533
Philippine Islands ⁴	1939	70.0	573
Java & Madura ⁵	1930	63.0	769

¹ Based upon data in a forthcoming publication by Wilbert E. Moore, *Marginal Economies of Europe*.

² CENSUS OF INDIA, 1931. Vol. I. Part II, p. 206.

³ United States Census Bureau: 15TH CENSUS OF U. S. OUTLYING POSSESSIONS AND TERRITORIES. pp. 193-194.

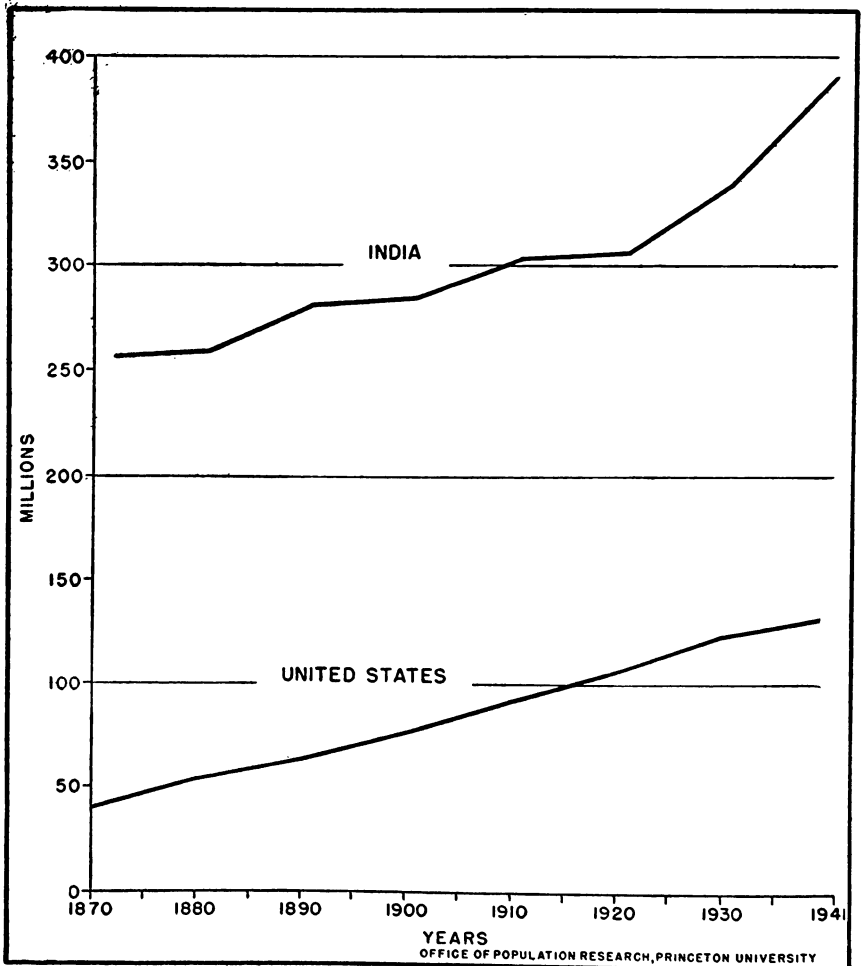
⁴ Philippine Islands Commission of the Census: CENSUS OF 1939. Vol. II, p. 496.

⁵ Netherland Indies, Department van economische zaken: VOLKSTELLING, 1930. Vol. 8. p. 124.

GROWTH OF THE POPULATION

The current density has arisen from a substantial but not a phenomenal population growth. (See Figure 2.) Between 1872 and 1941 the population of the present area in India grew 54 per cent. The United Kingdom during the same period increased 56 per cent, and during the 70-year period from 1821 to 1891 (more comparable to India's recent history) it increased 81 per cent. Similarly Japan, during the 70 years from 1873 to 1942, experienced a growth of

Fig. 2. The growth of population in India and the United States, 1870-1941. (The population of India is adjusted to the 1941 area.)



approximately 136 per cent. Comparatively, then, India's increase has not been extremely rapid.

The growth, however, has been extremely sporadic, and has tended lately to accelerate. In the decade prior to 1881 the population remained practically stationary. In the next decade it grew over 9 per cent. Following that, during 1891-1901, it grew hardly at all, only to advance once more in the succeeding decennium. (See Figure 3.) This cyclical process continued until 1921. At this date an uninterrupted period of increase set in which has lasted longer

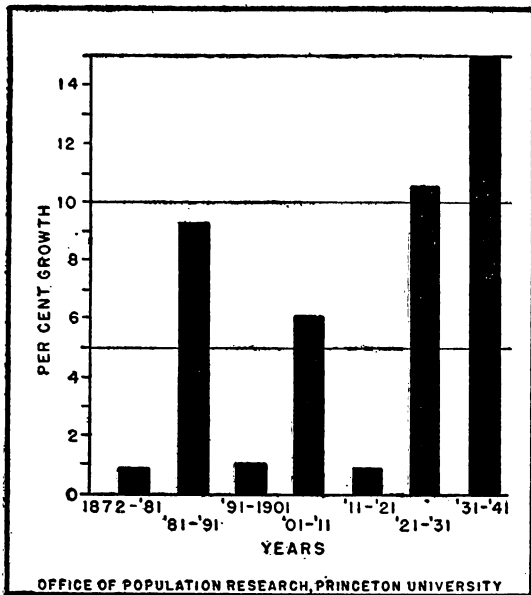


Fig. 3. Decade rates of growth of the Indian population, 1872-1941. (Populations adjusted to the beginning area of each decade.)

and attained more momentum than any previous spurt, continuing until the present moment. From 1921 to 1931 the increase, almost 11 per cent, was the highest on record for India, but during the following decade, 1931-1941, the record was broken again by a 15 per cent growth. This period — from 1921 to 1941—was the first time in India's known demographic history that she experienced two successive decades of rapid growth. Thus at a time when the Western nations were approaching demographic stability, India, with its much larger population, was just starting what appears to be a period of rapid and gigantic expansion.

To be sure, the recent *rate* of growth (1.2 per cent per year) has not been phenomenal for modern times. But because of the massiveness of India's existing population, even a moderate percentage

increase means a huge absolute increment. For example, during the twenty years from 1921 to 1941, she added 83 million inhabitants to her total. What seems important is not simply the rate of growth but these huge absolute additions and the promise of even greater additions in the future.

THE DEMOGRAPHIC TRENDS

Mortality. Throughout the known history of India's population, its lulls and spurts have been governed, not by fluctuations in the birth rate, but by wide variations in the death rate. These wide variations arose primarily from three not wholly separate causes: wars, famines, and epidemics. In ordinary years, as a result of poor diet and endemic disease, the death rate was high. But since it was surpassed by an even higher birth rate, the population grew moderately during "normal" times. Coming every few years, however, a calamity of one sort or another would suddenly increase the death rate and wipe out the population increment that had been accumulating. In this way the long-range result was virtually a stationary population. During the period for which we have statistics there have been, as we have seen, three decades during which the population hardly grew at all. In the first two of these the explanation lay in two great famines, the first one occurring in 1876-1878, and the second in 1898-1900. In the third the explanation lay in the influenza epidemic of 1918, which according to our estimate, killed more than 15 million people. (*See* Figure 4.)

Perhaps by 1872, the time of the first census, the frequency of such calamities had been reduced. The earliest reduction may have been in deaths contingent upon war and banditry. We cannot be certain, though historical accounts would lead to this conclusion. If so, the next great reduction, for which we have better evidence, was in deaths resulting from famines, the last of which, on a large scale, occurred in 1908. And the final great reduction was apparently in the control of epidemic disease, a phase that gained its greatest

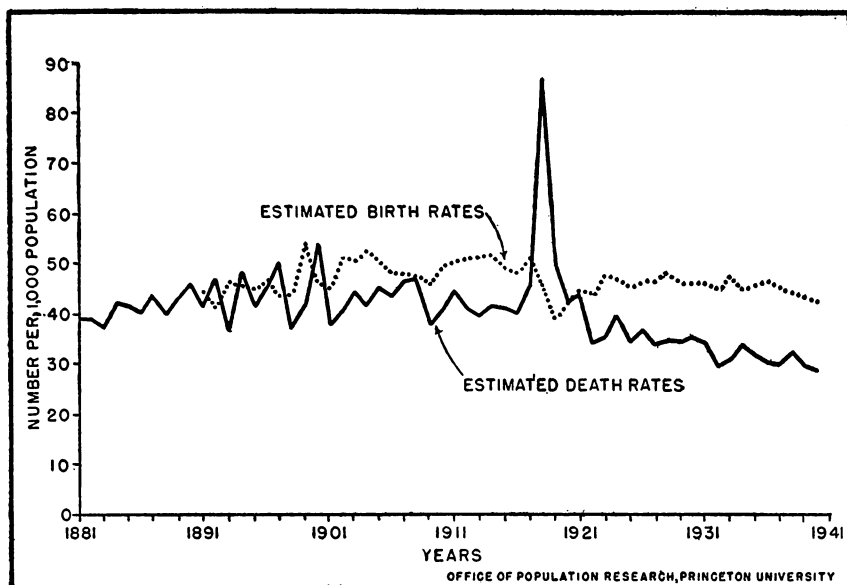


Fig. 4. Estimated birth and death rates in India, 1881-1941.

momentum after 1920 and is still continuing. As a result of the ever greater control over these more spectacular causes of death, the average death rate declined. It is this decline in mortality that has caused the long-run growth in the Indian population, and has led of late to the acceleration of that growth. (See Figure 3.)

The actual decline in the death rate can be proved by four lines of statistical evidence: (1) the registered deaths, (2) the registered infant mortality, (3) the estimated deaths, and (4) the total expectation of life in successive life-tables. I shall not review these types of evidence.² Each is open to some criticism, but since each is based to some extent on a distinct kind of data,³ and since they all indicate a decrease in mortality, there seems not the slightest reason for doubting this decline.⁴ The average decennial death rates, estimated

² They will be reviewed in the writer's forthcoming monograph on the population of India.

³ For instance, the life-tables are made by differencing the censuses, not by using vital statistics.

⁴ Some Indian writers, bent on using whatever propaganda device lies at hand, profess to see no decline in mortality during the period of British control. *E.g.*, Chand, Gyan: *INDIA'S TEEMING MILLIONS*. London, Allen and Unwin, 1939, pp. 95-129.

by subtracting the intercensal increase from the estimated births for each decade were as follows:

1881-1891	41
1891-1901	44
1901-1911	43
1911-1921	47
1921-1931	36
1931-1941	31

These are minimum estimates, especially the earlier ones.⁵ They probably conceal a part of the decline in the death rate — a decline which perhaps began prior to the period of census taking. But in any case the decline since 1921 is unmistakable. The rate for 1931-1941 is 29 per cent below the forty-year 1881-1921 average.

Fertility. In contrast to mortality, fertility has experienced a smaller decline, as shown by both the recorded and the estimated rates. The average rates for six decades were as follows:

	<i>Estimated</i> ⁶	<i>Reported</i>
1881-1891	49	—
1891-1901	46	34
1901-1911	49	37
1911-1921	48	37
1921-1931	46	33
1931-1941	45	34

⁵ This method of estimating death rates requires first a method of estimating births. The latter, described in Footnote 6, gives a low rather than a high estimate, because not all the Indian life-tables have been based on mortality rates as low as those actually prevailing. Also, the intercensal increase is probably higher than the true increase because the later censuses are in some cases more complete than the earlier. The consequence is that when an exaggerated intercensal increase is subtracted from a slightly underestimated number of births, the resulting estimate of deaths is too small.

⁶ These estimates were made by using an appropriate life-table to estimate the size of the original cohorts which, at the current rates of survival, would give rise to the children age 0 to 9 at each census. The method, which we call the "Reverse Survival" method, is described in the forthcoming monograph on India, mentioned above. Migration was omitted from the calculation because for the whole of India it is negligible. The method probably underestimates slightly the birth rate, and because of possibly better enumeration of children in later censuses, it may underestimate to a small degree the declining trend. However, other measures of fertility also fail to show much of a decline.

In Figure 4 our estimates for single years from 1891 to 1940 are depicted.⁷

Clearly, the accelerating growth of the Indian population has as its immediate cause the increasing spread between a declining mortality on the one hand and a less rapidly declining fertility on the other. Migration has not been a factor. During the decades under consideration India has sent out between three and four million permanent emigrants. The current of migration, therefore, has tended to decrease rather than accelerate the growth rate, but it has been so small in comparison to the total mass of India's population that its effect has been infinitesimal.

THE SOCIAL CAUSES

It is obvious that the population of a given area cannot increase rapidly for many centuries.⁸ Even a modest growth, if continued through a great number of generations, would result in a layer of human beings several yards deep on the earth's surface. The current world-wide tendency toward rapid growth, which Knibbs estimated at .86 per cent per annum during the nineteenth century,⁹ must therefore be a passing phase of human history. Presumably it is a phenomenon of the transition from an archaic type of civilization to a modern type, contingent upon new cultural inventions of revolutionary importance. The demographic side of this transition is a change from a wasteful type of demographic balance in which high birth rates are matched by high death rates, to a much less wasteful kind in which low birth rates are matched by low death rates. The rapid population growth associated with the transition

⁷ These rates were estimated by raising the reported births for each year according to the average percentage of underregistration deduced from the estimated decade rates given above. It was assumed that the average underregistration during the decade applied to each particular year in the decade. The same procedure was used for estimating the death rates for single years.

⁸ Knibbs, George H.: *THE SHADOW OF THE WORLD'S FUTURE*. London, Ernest Benn, Ltd., 1928.

⁹ *Ibid.*, p. 11.

arises from a striking fact — namely, that in the transformation the death rate generally declines before the birth rate. The resulting gap between the two provides an accelerated population growth, until eventually the forces of modernization finally depress the birth rate too and thus restore the balance between births and deaths.²⁰

Just why the decline of fertility lags behind that of mortality requires a complicated explanation. Only one step in that explanation will be mentioned here. It begins with the proposition that both reproduction and the preservation of life are indispensable for the continuance of any society, and therefore, through socialization, are instilled as profound values in the minds of each new generation. It follows that with the coming of a more deliberate, innovative control over human affairs, a movement to limit fertility in unaccustomed ways will meet strong opposition as being contrary to an established value, whereas attempts to preserve life, even in unaccustomed ways, will meet with approval as being in favor of an established value.²¹ It is only after the successful preservation of life has resulted in larger families, and these larger families have proved an embarrassment to the individual in the highly urbanized and mobile structure of modern society, that he seeks a way around the full practice of his high fertility mores. He leaves the customary evaluation intact, but tends to violate it to a certain degree in his own private behavior.²² Thus the lag of birth control behind death control is implicit in the growing rationalism of modern life, which first attacks the negative value (death), and only later the positive value (high fertility).

²⁰ Cf. Notestein, Frank W.: *Some Implications of Population Change for Post-war Europe. Proceedings of the American Philosophical Society*, Vol. 87, No. 2, 1943, p. 165.

²¹ Of course, there are plenty of instances in which new methods of preventing death are rejected, but these are all instances in which the people believe that the method does not in fact achieve the result claimed. They distrust the motive of the physician or the efficacy of the remedy. Once they come to believe that the innovation really promotes health, they accept it.

²² Cf. Penrose, E. F.: *POPULATION THEORIES AND THEIR APPLICATION*. Stanford University, California, Food Research Institute, 1934, pp. 115-120.

Since the lag almost invariably accompanies the cultural revolution, its presence now in India is not strange. And because it eventually disappears, it will someday disappear in India. But now arises the crucial question: Is the situation of India — and indeed, of other parts of the Orient — peculiar in any way that will prolong or intensify the lag? Perhaps so, because India has a semi-colonial status and is borrowing rather than originating the cultural revolution.

India's situation is not strictly analogous to that of Europe during the industrial revolution or to that of Japan. Europe's modernism, being rooted in her own peculiar heritage, arose internally and spontaneously. It also, for this reason, arose earliest, and consequently brought industrialization at a time when there was no industrialization elsewhere. This gave Europe a monopoly over the virgin resources and expanding markets of the entire world. Furthermore, she commenced her period of rapid population growth at a time when her initial population was still fairly sparse, and she had the advantage that any real surplus could be diminished by emigration to the newly discovered territories. India, on the other hand, has begun with a civilization most unpropitious for modernization — with a rigid caste system, a very otherworldly religion, and a servile political status. She has also started with a comparatively dense population, which, owing to the lateness of the period, can find few outlets for free and attractive emigration. She has had to pursue her industrialization in a world where markets are already dominated by advanced industrial peoples. Finally, her modernization has not resulted from an internal impetus to which all phases of her civilization have contributed, but has been borrowed from the outside. This may speed the process of modernization, but it may conceivably have the opposite effect; because the diffusion of Western civilization has not been a balanced diffusion. With the gulf between the two cultures and the difference of political power, some aspects of Westernism have spread to India more rapidly than

others, producing a disharmony of a type that Europe did not experience.

One may argue that Japan too has borrowed Western civilization, and with disconcerting rapidity. But the Japanese, in contrast to the Indians, have kept control of the process. They borrowed more deliberately and reweave the borrowed elements more solidly into their own pattern. They had a social structure more susceptible to modernization. Also, they entered the field of industrial expansion at an earlier time when the Asian sphere was still relatively unexploited by Western powers. Above all, they did not fall into a colonial or semi-colonial status. India, with her economy controlled and managed by alien interests, has had to compete not only with Europe and America but also with Japan. She has been largely confined to the role of producer of raw materials for foreign industry, and has been industrially retarded for that reason. She has lost out in the same way that other colonial and semi-colonial peoples have lost out. As a result, her modernization has been, if not slower, at least more one-sided than it might have been.

The differential diffusion of Western culture may extend and exaggerate the lag of fertility decline behind mortality decline. This is a highly speculative conclusion, but it does seem that modernization has proceeded mainly in those matters that are profitable, easy, or sentimentally desired by the Europeans. Mortality has been reduced not only because the natives were most willing to cooperate on that point, or because its reduction was economically and militarily advantageous, but also because the control of mortality appealed strongly to Western humanitarianism. European culture is the type in which this value is exceptionally strong and the techniques extremely advanced. But even so, health measures were generally introduced only when they involved little disturbance of the Indian masses.

Hypothetically, the first step in improved mortality came with the Pax Britannica, which brought political peace and public

security to this land of internecine war, governmental corruption, rapacious taxation, hereditary banditry, and cultural and racial diversity.

Whether the first step is imaginary or not, the second — the control of famines — is quite definite. The British reduced the isolation of famine areas by building, often for the specific purpose of famine relief, railroads and highways. They provided a surplus by creating a normal export of Indian crops which, when necessary, could be retained in India for famine relief. They reduced the hazards of climate by an immense development of irrigation, the world's largest, which today waters an area of close to 60 million acres, about 20 per cent of the total cultivated area of India and more than three times the irrigated area in the United States.¹³ Finally, a system of advanced famine warnings and a program of efficient famine relief were worked out. Today all these measures are constantly in operation, for famine control is a continuing thing, requiring perpetual vigilance. Though people still may starve from poor diet and inadequate income, the wholesale and sudden diminution of the food supply below the normal amount does not any longer occur.¹⁴

The third step came with the control of epidemic disease. Western medicine first decreased the mortality from smallpox, and then gained some control of cholera, kala azar, plague, and similar diseases.

But an interesting thing about all these steps has been their alien origin and their noninterference with daily life. The Pax Britannica was an imposed peace. The control of famines was an alien control that depended on a governmental and financial structure, upon a

¹³ Anstey, Vera: *MODERN INDIA AND THE WEST*. London, Oxford University Press, 1941, edited by L. S. S. O'Malley, pp. 270-71.

¹⁴ The writer does not have full information on the recent famine in Bengal. Reports indicate, however, that it was a minor thing compared to the one-time famines that killed tens of millions in India. Furthermore, it was apparently due to the breakdown of transportation and relief contingent upon the special conditions of the war, and to politico-economic relations between the various provinces.

science and technology, that were generated and maintained by foreigners. The prevention of epidemics was another importation. Smallpox vaccination, for example, represented a simple and inexpensive technique that could be employed effectively on a mass basis by a small medical staff. With its aid smallpox can be eliminated in colonial areas, as the case of the Netherlands Indies proves. Cholera was more difficult. It seemed to require either the sanitation of all the villages of India or the yearly inoculation of all the inhabitants. But when it was discovered that the infection was spread mainly by pilgrimages to religious centers, it became possible to sanitize the pilgrim centers themselves and inoculate only the people going on these pilgrimages. In this way, by a combination of techniques and with a minimum disturbance of the Indian way of life, the cholera death rate was considerably reduced. Similarly, epidemics of kala azar were virtually eliminated by the use of antimony salts on a mass scale. In view of the emphasis in Western nations on the socio-psychic aspects of public health it is astonishing how much can be done *externally* in a backward country. But the gain has not depended on a great change in the texture of Indian life, and hence does not have any such change to rely on in the future. The local village still remains about as unsanitary as ever, the public apathy to health measures about as complete as ever, and the poverty almost as abject as ever.¹⁵

Though the reduction of India's mortality has been considerable, the rate still remains high. The expectation of life at birth is still only 32 years.¹⁶ The infant mortality is still, in all probability, over 200.¹⁷ There is thus a long way to go before the death rate falls to the low level achieved by Western nations. Probably a great deal

¹⁵ Megaw, Sir John: "Medicine and Public Health" in Blunt, E. A. H. (editor): *SOCIAL SERVICE IN INDIA*, Chaps. VI and VII.

¹⁶ This is the expectation revealed by a life-table constructed by us for the period 1931-1941. The table was made by differencing the two censuses for certain provinces and states.

¹⁷ The officially reported infant mortality averaged 161 during the period 1936-1940. Infant deaths, however, are probably more underregistered than births. The life-tables show a rate of about 211.

more can be done through the further control of epidemic disease and an attack upon the pervasive diseases — such as malaria, tuberculosis, ankylostomiasis, and malnutrition — which are still virtually untouched because their elimination requires considerable expense and basic social change.

Remaining a satellite nation, however, India has not developed a balanced economy and has consequently not achieved the internal structure that will motivate her citizens to reduce their fertility. To the extent that additional control of mortality is achieved without altering the fundamental conditions of Indian life, and without therefore greatly affecting fertility, the gap between births and deaths will continue to widen and the population growth to accelerate. This will tend to create an unstable demographic situation, because if the external and somewhat artificial support of the reduced mortality should be withdrawn, there will be a larger population to be affected by a suddenly increased death rate.

EARLY FERTILITY DECLINE NOT PROBABLE

Were fertility destined to decline shortly, one would expect the signs to be already manifest in the urban regions and upper classes, where such decline usually starts. On this hypothesis, the rural-urban fertility differentials in India were investigated, the ratio of children 0-4 per thousand women 15-39 being employed in lieu of more direct data. Starting with the 1931 returns the analysis revealed, as Figure 5 shows, a small but nevertheless definite differential.¹⁸ It

¹⁸ The percentage which the urban ratio constituted of the rural in India and in Chile and the United States was as follows:

<i>India</i>	<i>Per Cent</i>
Cities 500,000	68
Cities 50,000	82
Rest of India	100
<i>Chile</i>	
Cities 50,000	59
Rest of Chile	100
<i>United States</i>	
Cities 500,000	57
Cities 50,000	58
Rural Farm and Non-Farm	100

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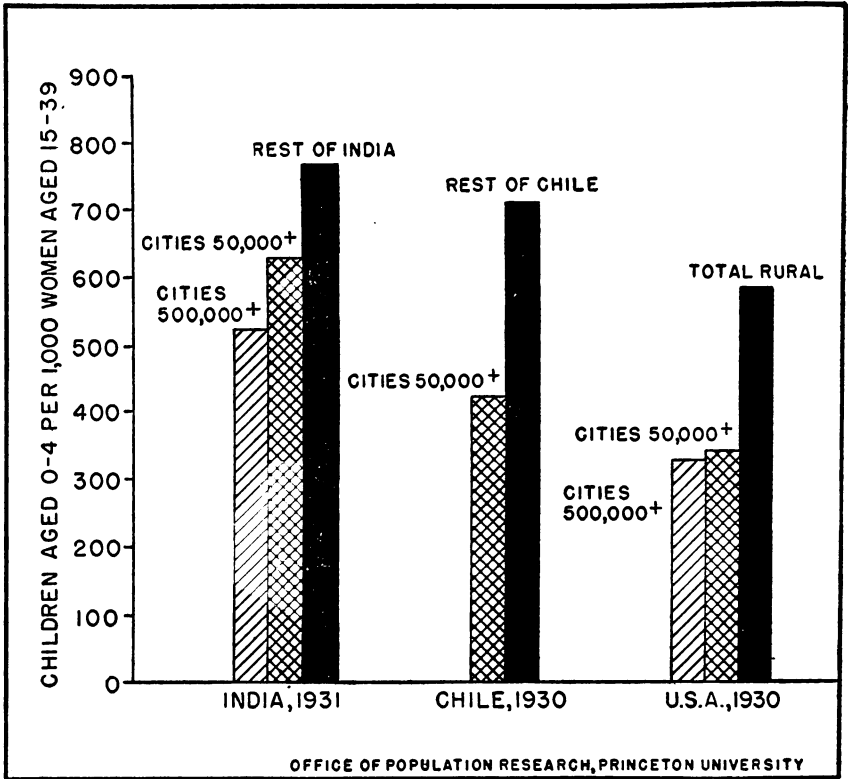


Fig. 5. Rural and urban fertility ratios in India, Chile, and the United States. (See footnote 18.)

appears, furthermore, that the large cities had a lower fertility than the smaller, and these in turn a lower fertility than the country. It looked as if the Western fertility pattern was conveniently and in the nick of time beginning in India. The next task then became to discover how fast this trend was progressing. To this end the data were assembled from 1891 to 1941. The results were contrary to what had been expected. As Figure 6 shows, approximately the same differential that prevailed in 1931 also prevailed in 1891. There

It is obvious that the last item in each case is not strictly comparable to the last item in the other two cases. Neither the "rest of Chile" nor the "rural farm and rural non-farm" in the United States is as rural as the "rest of India." But this lack of strict comparability tends to increase the rural-urban differential in India as compared with the other two countries. Therefore, the conclusion seems safe that in both Chile and the United States, the rural-urban differential has progressed farther than in India.

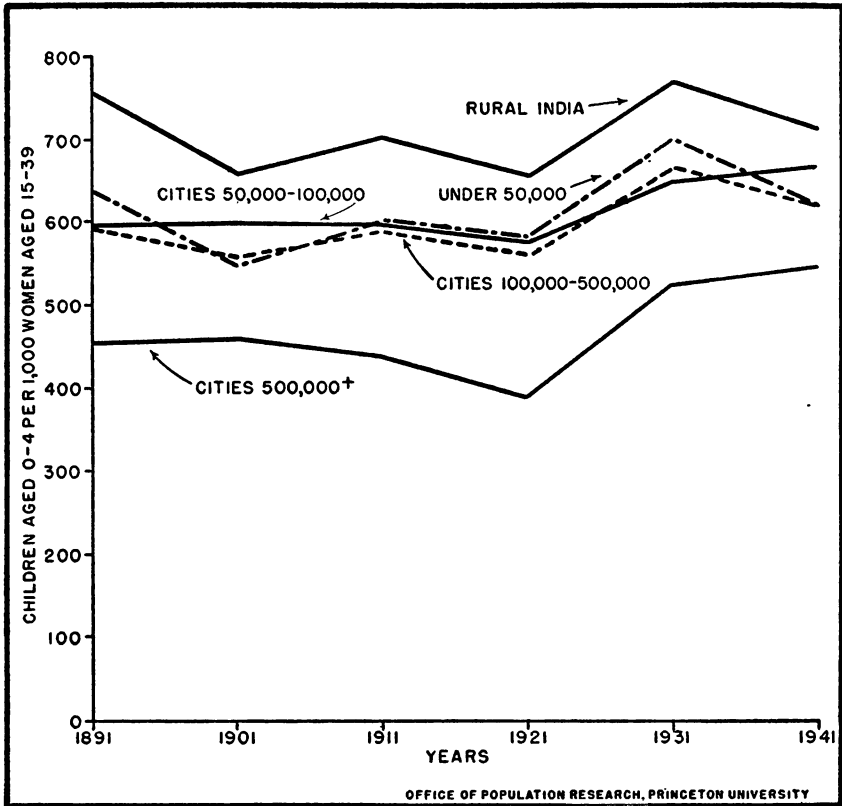


Fig. 6. Rural and urban fertility ratios in India, 1891-1941.

has been no tendency for the cities to inaugurate a sharp decline in the birth rate.¹⁹

Turning next to class and caste differentials, a bare hint can be gleaned from a very poor sample study made in connection with the 1931 census. The sample was so badly drawn and tabulated that only one conclusion seems safe — namely, that there is a bare suggestion of differential fertility as between farmers and nonfarmers,

¹⁹ The chart also shows that the ratio for all types of regions has risen slightly. This result may not be due to an actual increase in fertility, but possibly to a tendency for the enumeration of children under 5 to improve faster than the enumeration of women in the reproductive ages. Our estimates of births indicate that fertility on the whole has shown no consistent tendency to rise or decline. "Rural India" in the chart is really all of India exclusive of the 90-odd cities used in our calculations. Since India in 1931 was 89 per cent rural anyway, India outside these 90-odd cities is extremely rural in the technical sense of the term.

professionals and nonprofessionals, and that the differences, though not so sharp or consistent, are in the same direction as in Western civilization. Another hint can be gained from our own analysis, as yet incomplete, of caste and religious differentials. These show that in general the priestly and learned castes have a lower fertility ratio than the agricultural castes, the interior castes a lower ratio than the exterior (untouchable) ones. The differences, however, are not consistent: they vary from province to province. Finally, with respect to religion, it is known that the fertility of the Hindus is lower than that of the Mohammedans, and the latter lower than that of the so-called Tribals. The Hindus are more literate than the Mohammedans, but they are also more rural. The Tribals are both less literate and less urban than either. There is every indication that all of these class and religious differentials are slight. They may, like the rural-urban differential, have existed for decades without much change. They may not indicate the commencement yet of a Western pattern.

POPULATION POLICY

If by "population policy" is meant a deliberate attempt to modify an existing demographic trend for some ulterior purpose, then three elements are involved: (1) the end to be attained, (2) a demographic change required to reach the end, and (3) some social measures designed to produce this change. Let us glance at each of these in turn with reference to India.

Among the most frequently mentioned goals for India are these: (1) more political independence, (2) greater per capita wealth, (3) wider popular education, (4) better public health, and (5) greater internal democracy. The second goal, greater wealth, is frequently considered to be a master means to many of the others, and demographic policies are frequently argued on the basis of it alone. But the goals, though interdependent, are clearly separate. They are also Western in character, although their application to

India by no means receives universal Western approval. For Indians they are national goals, and therefore in conflict with other types of goals. Many Indians would like to see India an independent nation, but not at the expense of their religion. Many would like to see India a wealthier nation, but not at the expense of their own relative wealth. Many would like to see India an educated nation, but not if it includes the lower castes. Many would like to see India a healthy nation, but not at the cost of higher taxes. Many would like to enjoy the privilege of climbing socially, but not by the extension of that privilege to persons beneath themselves. While, therefore, most Indians hold certain goals for India as a whole, they also hold other goals in terms of lesser but more immediate affiliations — such as caste, family, community, and church. In case of conflict, the latter seldom yield.

That India's population is already, or is becoming, a handicap in reaching her national goals seems fairly plain. With existing techniques and resources, the total per capita product, for example, would probably be larger if there were fewer people. This conclusion may seem to contradict the fact that certain nondemographic variables in India have been going ahead faster than population. Looking at a few indices of development — industrialization, education, and urbanization — we find that their growth has exceeded that of the population (*see* Figure 7).²⁰ Still, it may be maintained that the present or the potential density of the population may now, or may in the future, cause these trends to move more slowly than would otherwise be the case. Consequently, a cessation of the present growth rate would be a means to some of the ends mentioned above.

²⁰ In Figure 7 the Census definition of "urban" is used, embracing all places of more than 5,000 inhabitants. The definition of "literate" includes only persons who can read *and* write. The index of manufacturing production is taken, for the years 1913 to 1931, from Rolf Wagenfuhr's estimate, "Die Industriegewirtschaft," *Vierteljahrshefte zur Konjunkturforschung*, Sonderheft 31, Berlin, 1933, p. 66. The change of the volume of production from 1931 to 1932 was estimated on the basis of a series of textile and paper production and the number employed in the iron and steel industry. Beginning with 1932 an index was estimated by computing the weighted arithmetic average of six different indices representing cotton, jute, steel ingot, pig iron, cement and paper production. The indices and the weights used are from *Capital*, July 24, 1941, Calcutta.

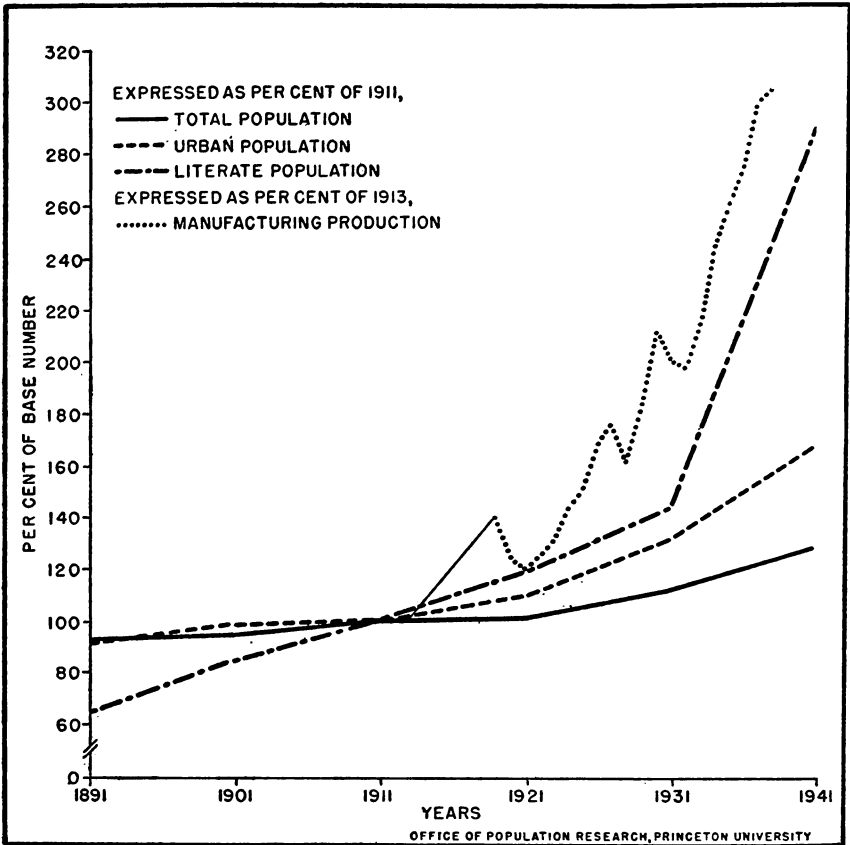


Fig. 7. Growth of total population compared with the growth of three indices of economic and social development — literate population, urban population, and manufacturing production. (See footnote 20.)

But what measures can be utilized to put this means into effect? The answer is extremely difficult. Deliberately to allow mortality to rise again would offend our humanitarian sentiments. To grant new territories to India would offend our political ideals. To encourage sufficient emigration would surpass our power.²¹ About the only alternative left is the reduction of fertility, but again this offends the sentiments of many Europeans and Indians alike. Let us, however, examine this alternative further.

²¹ It would be hard to induce some five million Indians to leave India every year, and it would be even harder to induce the residents of any region to take them.

There are two conceivable ways of reducing Indian fertility. One — the indirect way — is to stimulate social development to the point where India will become sufficiently modernized to engender private fertility control. The other — the direct way — is to speed the process by taking birth limitation directly to the people. The former implies more than merely allowing social evolution to take its course. It implies an attempt to facilitate and emphasize those elements of modernization that will be most likely to depress fertility — such as more education, more industrialization, and more social mobility. These things are so enormous and are instrumental to so many different ends, however, that their feasibility is likely to be decided on other grounds than population alone. They are, in fact, among the things *for which* we wish to reduce the rate of population growth. Moreover, even granting that their development can be somehow speeded up, the period of modernization would nevertheless permit a huge interim growth in numbers. For one thing, the death rate during the next few decades would probably continue to fall much faster than the birth rate. The latter would remain high for a while not only because of the previously mentioned lag, but also because of the effect which some of the modernizing changes themselves would have. For example, the taboo on widow remarriage would probably be modified. In Western eyes there is nothing more inhuman than this taboo, especially since, because of child marriage, many of the widows are quite young. Assuming that the taboo were abolished, and that the proportion of widowed women in India became as low as it was in the United States in 1930, there would be a net gain of 14 per cent in fertility.²² Other changes — such as the improvement of maternal health and the reduction of sterility — might also tend to raise

²² This result was obtained by assuming the same age-specific fertility for widows as for married women in India. If the number of Hindu widows in 1941 were reduced by remarriage to the proportion which they constitute in the United States population of 1930, Hindu fertility would rise by 15 per cent. If the same were done for Muslim widows, Muslim fertility would rise by 10 per cent. One reason for the greater fertility of Muslim women is the lesser stringency among them of the taboo on widow remarriage.

fertility. If, with the gap between fertility and mortality growing larger, the achievement of a Western-type demographic balance were to take 80 years, the interim population growth would be enormous. The same rate of increase as Europe experienced from 1850 to 1933 (a rate smaller than that of India during the last 20 years) would give India in the year 2024 a population of 750 million and a density of 482 per square mile. How fast the modernization process can be speeded up depends mainly on India's role in the post-war economy, but it seems hard to believe that it can be done rapidly enough to avoid an enormous growth.

The direct measures also give little hope of early success. In the first place, if death prevention itself must be introduced by remote control with a minimum disturbance of the Indian way of life, it can be imagined how delicately birth prevention must be handled. A partially alien government places itself in a vulnerable position if it tells the subordinate people to curtail their numbers, for in the heat of controversy this may be construed as an attempt to limit the power and freedom of the nation. And since "overpopulation" is a relative matter, it can be taken as merely an excuse for not effecting other improvements of a nondemographic kind. In the second place, our own taboos prevent diffusion of our birth limitation patterns. Despite our private behavior we have generally adopted a public policy of suppression in this matter. Finally we encounter in India a social system that for many centuries has been geared to produce high fertility — embracing a familistic religion and a caste order which encouraged early and universal marriage, early and copious fertility.²³

Forgetting these circumstances, the unwary reformer is tempted to believe that if a quick, easy, inexpensive, and semi-permanent contraceptive could be found which, like an injection or a pill, might produce harmless sterility for six months or a year, it could

²³ Davis, Kingsley: *Changing Modes of Marriage: Contemporary Family Types in* Becker, Howard and Hill, Reuben (editors): *MARRIAGE AND THE FAMILY*. Boston, Heath, 1942, pp. 93-100.

be brought to the Indians much as smallpox vaccination has been brought to them. This belief is tempting because from a purely physical point of view birth control is easier than death control, and because the Westerner thinks that since population is a handicap to a better standard of living in India, it should be possible to acquaint the people with the fact that by this means they can improve their personal circumstances. There is just enough truth in this view to justify some sort of birth control program. But the sociological barriers are so great that such a program *alone* would probably have no effect, and might in fact be a boomerang. It can be more effective, in all probability, if it is accompanied by the indirect method of speeding up modernization as fast as possible. It should also be pursued with the greatest care to fit into the actual motivations and circumstances of the people, and to this end research might be profitable. For instance, what motives could be seized upon to overcome the disesteem into which an Indian wife falls who does not have children early in her married life, or the hard lot of a widow who happens to lack sons, or the anxiety of a man who reaches middle age without male progeny. Some of these institutional compulsives to high fertility would be less rigid if it became established that death to any particular child were less likely — if, that is, the curse could be removed from birth control by transforming it into a positive means for aiding child health.

CONCLUSION

If we look candidly at the probable future, we must admit that the differential diffusion of Western culture to India and the creation there of a semi-colonial economy have produced an unstable demographic situation that promises to get worse before it gets better. India has remained predominantly rural, illiterate, religious, and immobile — with a resulting high fertility. At the same time she has acquired a stable government, a commercial economy, and a public health system largely controlled by outsiders — with a con-

sequent reduction of her death rate. The discrepancy between the two is causing a rapid population growth that is in a sense artificial, for if the alien controls over mortality should slip away — if, for example, political strife should arise, if famines should return, if epidemics should get out of hand — the mortality might be greater than ever before, precisely because the population would be larger. In order to avoid an otherwise inevitable and perhaps catastrophic rise in mortality, India's industrial revolution must be accomplished as quickly and as thoroughly as possible. Even so the population is likely to increase by hundreds of millions during the next century. Yet because the industrial and the demographic revolutions are apparently inseparable, a rapid and balanced modernization (with a sociologically intelligent program of fertility control integrated with it) seems the only feasible alternative in ultimately halting the detrimental rate of population growth.