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THE FUTURE POPULATION OF INDIA

By

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India having committed herself to a continuous process of planning is threatened of all the good work being undone, due to a tremendous increase in the number of her children. Appendix I, at the end, gives a summary of the projections so far made.

The Foodgrains Enquiry Committee also points out that the rate of population increase during the Second Plan period itself will be of the order of 2 per cent. The rate of increase according to a survey conducted by the Registrar-General Census during the First Plan period is said to be 1.5 per cent. Working at these rates at geometric progression, the population of India by 1960 would be touching 391 millions and if the same rate of growth is assumed to continue during the Third and Fourth Plans, India's population may be 423 millions by 1965, and 477 millions by 1970.

Most of these projections assume static conditions. But we are passing through a phase of rapid economic growth unparalleled anywhere in the world. It thus becomes necessary to look into the whole problem in its proper perspective. It must, however, be understood at the very outset that there is no immutable natural law of population growth; it is determined by a great variety of circumstances depending upon the environments.[1] We can, therefore, examine only those factors which determine population growth in a particular community at a particular time.

POPULATION DETERMINANTS

Births, deaths, immigration and emigration are the four postulates on which the population of a region depends in a particular period. The extent to which exact projections can be made depends on the accuracy of our knowledge about these determinants. Any net addition to population takes place as a result of the difference between births plus immigration and deaths plus emigration.

EMIGRATION AND IMMIGRATION

From among these four factors, emigration and immigration may be considered as of no consequence. In these days of narrow nationalism, almost all the countries have imposed stringent immigration and emigration laws. There also persists some prejudice against immigrants from backward countries. The number of Indians overseas is computed at 3.5 millions at present. There is very little possibility of any appreciable number of Indians returning to India from overseas. Nor it is likely that any more Indians will go out[2] or any foreigners will settle in India.

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1. Warren S. Thompson: Population Problem, Third Edition, New York, 1942, p. 41.
2. Cf. Lanka Sundaram: India in World Politics, pp. 234-36.

As compared to her population, the number of emigrants or immigrants has been, even in the past, insignificant. These two factors will thus have very little influence in our discussions about the future population trends in India.

A study of the registered birth and death rates (Appendix II at the end), indicates that the death rate fell by 39.5 per cent during 1931-51, and the corresponding fall in birth rate was only 28.7 per cent. While both birth and death rates remained practically stationary during the decade 1931-40, they witnessed a steep fall in the last decade. Even then the rate of net increase never reached the level of the pre-1941 period.

BIRTH RATES

Sex Ratio

An increase in masculinity is taken by experts as an indication of declining population.[3] In a stationary society as Karve would observe, the ratio of males and females is practically the same.[4] But in the world of today, while there is an excess of men over women, sex ratio (the number of females per 1000 males) being 992,[5] the population is still increasing. And the rate of increase is not insignificant. It is about 41 per minute, 2,500 per hour, 60,000 per day or 25 million a year.[6] All the same, other things remaining the same, an increasing trend in masculinity in a particular country is a sign of decreasing population. Table I gives the pattern of sex ratio in India during the last 30 years.[7]

TABLE I—DISTRIBUTION OF POPULATION BETWEEN MALES AND FEMALES

Zone	Sex Ratio				Increase in total population (1921-50)	Per cent increase
	1921	1931	1941	1951		
1	2	3	4	5	6	7
North India	909	904	907	910	165 lakhs	35.3
East India	986	967	951	945	273 ,,	43.4
South India	1011	1010	1001	999	239 ,,	46.2
West India	941	941	941	938	153 ,,	60.2
Central India	972	968	966	973	150 ,,	40.2
North-West India	853	863	871	883	108 ,,	44.6
India	956	951	946	947	1088 ,,	43.8

3. Census of India—1931, pp. 196-98.
4. D. G. Karve: Poverty and Population, p. 48.
5. Census of India, Part I-A, Report, 1951, p. 58.
6. News of Population and Birth Control No. 1.
7. Census of India, Part I-A, Report, 1951, pp. 57 and 124.

Column 6 in the Table gives the increase in the population in each zone and column 7 the percentage increase over 1921. While sex ratio is the lowest in North-West India, percentage increase of population is the minimum in North India. There is in other words no relation between the sex ratio and the percentage increase in the various zones of India. It is, however, clear that the country is heading towards masculinity.

The position in India also compares favourably in this regard when compared with other countries. While in India females account for 48.5 per cent of the total population, the percentage in Germany in 1930 was 51.4, in the U.S.A. 49.4, in Japan 49.6 and in Egypt 50.2. In all the countries of Europe (excepting Ireland and Bulgaria) there are at present more females than males.[8]

Number of Married Women

Though in some of the European countries, there are more females than males, the population there is either stationary or declining. This is because what matters is not the total number of females, but the number of girls who actually get married. Marriage in India is universal, enjoined by religion on all. The parents take it as their duty to marry their children. When they are of marriageable age, particularly the girls, parents are only too eager to arrange their marriage. The result is that there are few unmarried girls in India.

In other countries, the position is, however, different. Economic factors[9] are an important consideration for the people in Europe before they decide on marriage. It is not necessary for everyone there to marry. While hardly any woman remains unmarried in India, such women in England number about 13.6 per cent. Writers like Farr in England go to the extent of using the index of marriage as a barometer of prosperity.

In 1931, about 49.3 per cent of the women in India were married while the corresponding figure for England and Wales was 41.3.[10] The pattern has not undergone any appreciable change in India during the last 25 years and the percentage of married women in 1951 was also 48.4. As a result of various socio-economic changes now taking place in the country, there may be many women who would like to live independent lives. But their number may not be so appreciable as to affect the total number of births.

Age of Marriage

The age of a woman at marriage is the next important factor which has an influence on the birth rate. Early marriage usually results in larger families. The custom of child marriage was adopted by the Hindus during the Muslim period. It was abolished when the Marriage Restraint Act was passed in 1929. All marriages of males below the age of 18 and of females below 14 were declared illegal. Even then the number of married persons below the age of 15 was 91.5 lakhs in 1951. This included as many as 62.5 lakh females out of whom nearly

8. Census of India, Part 1-A, Report, 1951, p. 58.
9. Brij Narain: The Population of India, *Op. cit.*, p. 51. *Cf.* Gyan Chand: *Op. cit.*, pp. 134-136; and S. Chandrasekhar: India's Population, *Op. cit.*, pp. 30-31.
10. India and Pakistan Year Book and Who's Who—1952-53, The Times of India, p. 15.

1.3 lakh have already been widowed. These child marriages are now coming to an end. In 1941 the percentage of married females under the age of 15, to all married males was 9.6. This fell to 7.4 per cent in 1951.[11] The fall in the coming decade may be more precipitous.[12] It can thus safely be assumed that the marriage age among women may rise reducing the married period in the life of a woman.

Fertility Period

These late marriages may at the same time have no effect on the total population of the country, if the total number of children born during the shorter period of married life remains the same. There are instances in which girls bring forth children before they attain their 14th year,[13] marriage having been consummated when the boy was, say, not more than 16 years and the girl twelve or thirteen. Such cases being, however, rare, fertility period in India has been taken from 15 to 45.[14]

The question that now arises is: if the age of girls for marriage is raised, will such a step bring about any reduction in the rate of population increase in India? Popular opinion gives the answer in the affirmative.[15] According to them, if girls marry later, they will have less number of off-springs since fertility in women is higher when they are younger. The most fertile period in India has been taken to be from 15 to 20.[16]

But the above contention is not borne out by facts in India. According to the Census Report of Baroda, if the age of girls at which first marriage takes place, is raised from 13 or 14 to say 20, the fertility rate is raised by 10 per 100 mothers.[17] Again in Travancore-Cochin the most fertile period in the life of a woman has been found to be from 20 to 25.[18]

This net increase of births is attributed by Ghosh to the improvement in the health of women which creates a favourable influence on their fecundity.[19] According to Kuczynski, "an increase of the reproductive period through an improvement in living conditions, especially through a more regular and more rational food consumption is conceivable in two ways. It is possible that the child-bearing period be expanded or the child-bearing capacity be intensified."[20]

The improvement in health brings about a further increase in the number of potent mothers in two ways: a reduction in infant mortality and fewer deaths

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11. Census Report, *Op. cit.*, p. 72.
12. Brij Narain (Population of India, *Op. cit.*, p. 49) said in 1925, that the age of marriage was rising in India, though the progress was slow.
13. The Political Economy of Population, p. 208.
14. Census of India, p. 81.
15. *Cf.*, S. N. Agarwal, "Control of Population—Qualitative and Quantitative," Economic Essays, edited by J. K. Mehta, 1954, p.126, and K. N. S. Nambudripad, Paper on "Growth of Population in India," 37th Annual Conference of the Indian Economics Association, 1954, p. 99.
16. *Cf.*, Dr. Gyan Chand, *Op. cit.*, p. 137; Health Survey and Development Committee (Bhore Committee) Report, Vol. IV, p. 80; and Kuczynski: The Measurement of Population Growth, p. 147.
17. Census of India, 1931, Vol. XIX, p. 178, quoted by D. Ghosh: Pressure of Population and Economic Efficiency in India, 1946, p. 71.
18. Census of India, *Op. cit.*, p. 80.
19. Ghosh, *Op. cit.*, p. 71.
20. Kuczynski: Population Movement, p. 35.

of mothers during pregnancy.[21] It has been calculated by Lad that in India only 238 out of 1000 females pass through the whole of the fertility period, while the corresponding figures for England, Sweden and Japan are 683, 708 and 500 respectively.[22] Even otherwise we find that the percentage mortality of females as compared to males is the highest during the ages of 15 to 29. As against this, the mortality percentage is higher among males[23] upto the age of 9 and when they are above 40.

A rise in the age at marriage, though desirable from the social point of view, may thus not necessarily bring about any reduction in the population growth. This has been further confirmed by the findings of Thompson[24] in some of the European countries and also by the studies made in Lucknow and Kanpur by the Lucknow University.[25]

If the age of girls at marriage in India also reaches the same standards as in Europe, there might be a reduction in the fertility ratio. But this seems to be quite impossible at the moment. The median ages of bridegrooms range from a little less than 27 years in America, Europe and Oceania to a little less than 29 in Japan; for brides, from 22.2 years in America to 24.3 in Oceania.[26] This little improvement in the age of girls offering themselves for marriage may not, accordingly, have any effect on our future population.

Widow Remarriage

Another important point which has a bearing on the country's birth rate is that of widow remarriage. Under the prevailing Hindu customs such remarriages are forbidden. This evil practice is now on the decline. There is every possibility that the coming decade may find an increasing number of widows getting remarried. There has already been a noticeable change in the direction during the last twenty years. Every decrease in the number of widows would mean an increase in the number of child-bearing women. More of widow remarriages can thus lead to increasing population.

Effect of Demographic Factors on the Birth Rate

From the above discussion, we find that the fall in the number of women offering themselves for marriage may be cancelled by a similar increase in the number of widows.

As the third factor—the rise in the age of girls at marriage—may not affect birth rates either way, other things remaining the same, the birth rates in India may remain unchanged on the basis of demographic determinants, more so, when India is favourably situated in so far as sex ratio is concerned.

21. Bowley and Robertson: A Scheme for an Economic Census of India, p. 61.
22. Economic Problems of Modern India, Vol. I, Edited by Dr. Radhakamal Mukerjee, 1939, p. 93.
23. India and Pakistan Year Book, 1952-53, *Op. cit.,* p. 16.
24. Population Problem, *Op. cit.,* pp. 195-96.
25. *Cf.,* Nevett: Too Many of Us ?, pp. 165-66.
26. W.S. and E.S. Woytinsky: World Population and Production, 1953, p. 192.

DEATH RATE

The problem of rapid growth of population in India has been epitomised as one of too many births and too many deaths.[27]   High mortality is due to a large number of deaths among infants.   Diseases like malaria, influenza and cholera also take a heavy toll.   The rate of infant mortality during the quinquennium 1931-35 in different countries, was: India—171, the United States—59, the United Kingdom—65, Sweden—51, Norway—47, Germany—76, France—73, Italy—105, Netherlands—45, and Japan—124.[28]   About half the deaths among infants in India occur before they are one month old and of these too, nearly 60 per cent die during the first week.[29]

Among babies under a year India loses 24 per cent as against 7 per cent in U.K.   Between the years 1 and 5, the death rate is 19 per cent in India as against 2 per cent in U.K. and from 5 to 10 years age group the corresponding figures are 6 and 1 per cent.   With improved public health measures, there is every possibility that infant mortality may be appreciably reduced and death rate among infants may reach near the level of some of the European countries quoted above.

As a result of these measures deaths caused by epidemics (correct and reliable records for which are not available) are also bound to come down.   Against the estimated death rate of 27 in India; Belgium Congo has the lowest rate of 5.5; Netherlands 7.5; and that of Israel, Italy, Australia, Denmark, Norway, Canada and New Zealand was less than 10.[30]   In the United States, the crude death rate was only 10.8 as far back as 1940.[31]

From the above study of death rates in other European countries, we may assume that the death rates in India may also go down appreciably.

RELATION BETWEEN BIRTH AND DEATH RATES

All this would mean that other things remaining the same, the net rate of population increase may be larger when compared to the last two or three decades. But other things may actually change.   Yule examined the correlation between birth and death rates in some of the European countries and came to the conclusion that these two go together.[32]   Rubin and Westergard also produce[33] statistical evidence to show that infant mortality rises in proportion to the number of children in the family.   "If high infant mortality is an incentive to births," according to them, "then low infant mortality must be a deterrent."

Similar are the findings of Spencer who stated that if the death rate in human society is lower, the birth rate will also be lower.[34]   Drysdale basing his results

27. S. Chandrasekhar: India's Population, *Op. cit.*, p. 115.
28. *Ibid.*, p. 93.   The rate in Egypt (1942) was 168 and Burma (1939) was 204.   (Nevett, *Op. cit.*, p. 19).
29. W. R. Aykroyd: Public Health and Nutrition in India.
30. Woytinsky: *Op. cit.*, p. 163.
31. T. L. Smith: Population Analysis, p. 234.
32. "The Growth of Population and the Factors which Control it," *Journal of the Royal Statistical Society*, LXXXVI, II, p. 12.
33. *Cf.*, T. H. Marshall: Essays in Economic History, edited by E. M. Carus-Wilson, London, p. 312.
34. Quoted by Ranadive: The Population Problems in India, pp. 10-12.

on a study of birth and death rates over a number of years from 1853 to 1911, enunciated his own theory in 1912. He says the death rate falls or is stationary or rises,[35] on the behaviour of birth rate.

As would be seen from Appendix III, at the end, a major portion of the deaths in India are of children in the age group 0-1. A fall in their death rate is likely to lead to lower infant mortality, resulting in better spacing of children. An enquiry conducted in the Punjab supports this view when it says, "prolonged lactation reduces to some extent, the rate of conceptivity among women, and it is also followed by abstention from intercourse to a greater or smaller degree."[36] Similar are the views of Staley.

Lower death rate among children also proves as a deterrent on parents to have more children. With more chances of the child pulling through, parents have to think in terms of providing for him and giving him a better start in life, including a higher and a more expensive education.[37] As Marshall has stated "if the doctor preserves seven or eight of the ten (children), and other things remain equal, the burden may become intolerable."[38]

The available data also establishes a correlation between the infant mortality and birth rates. While the registered birth rate fell by 28.7 per cent from 1931 to 1951 in India, the fall in infant mortality rate was also 30.7 per cent (Appendix II). The figures relating to U.P. alone were 42 and 48 respectively. The fall in the registered birth rate in U.P. over the last 50 years has been so marked that the Government had to set up an enquiry in 1947 to go into the matter.[39]

There is, at the same time, the example of Ceylon, where the birth rate instead of coming down has gone up from 38.9 in 1901-5 to 39.4 in 1953 against a fall in mortality rate from 26.8 to 10.9.[40] The fall in the death rate there is attributed to the complete control of malaria. The causes for the rise in birth rates need to be properly investigated. But this solitary example should not lead us to pessimistic conclusions. The whole weight of socio-economic factors as we will discuss below is likely to check any increase in birth rates.

SOCIO-ECONOMIC CHANGES

The greatest defect of neo-Malthusians has been that they have taken population growth as an independent variable, isolated from other social phenomena.[41] But these increases of population are to a very great extent dependent on economic and political factors.[42] The psychological traits of a people and their social institutions and ideals have a great bearing on the actual birth rate of a country.[43]

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35. C. V. Drysdale, Diagrams of International Vital Statistics, quoted by P. K. Wattal: The Population Problems in India, Op. cit., pp. 53-54. Wattal also quotes (p. 59) an acturial Report on the Census for 1931 in support.
36. Quoted in the Punjab Census Report, 1921, p. 256. Also see Nevett, Op. cit., p. 20. Personal enquiries of the present writer also confirm the same view.
37. Eugene Staley: The Future of Underdeveloped Countries, 1954, p. 11.
38. Carus-Wilson: Essays in Economic History, Op. cit., p. 311.
39. Cf., Some Facts About Our Life and Living, Bulletin No. 8, 1947, Department of Economics and Statistics, U.P.
40. World Health Organisation, General Vital Statistics, January, 14, 1953.
41. Bowen, Ian: Population, p. 200 . Also see pp. 62 and 212.
42. Ibid, p. 23.
43. D. G. Karve: Poverty and Population, Op. cit., p. 43.

As Marx has pointed out, the rate of increase or decrease in population changes from period to period in accordance with changing social organisation.[44]

Malthusian theory of population would seem to be an over-simplification of facts in a dynamic subject like demography. The increase is not always in direct geometrical proportion until checked by adverse and natural circumstances. An increase or decrease in population is due to the complex of inter-related causes. The decline in population can be attributed to a shift in the emphasis on social and economic policies.[45] The view is also supported by the Report of the Royal Commission on Population whose closing words are, "The Commission's general theme is that population policy cannot be separated from general, social and economic policy." It would be interesting in this connection to refer to Ranadive. He has tried to prove that the fall in the birth rate in modern Europe is not due to the socio-economic changes. It is all due to the artificial means adopted. He, perhaps, forgets that the very urge for the adoption of these means is the result of those changes. This he himself admits when he says, "It is essentially borne out of economic considerations and has been resorted to in spite of a good deal of opposition from various quarters. It is an expression of the will of people to live as decent human beings."

If the birth rate in the West has fallen due to the pressure of these socio-economic factors, it would be wise to consider the effect of these factors on the rate of population growth in India. These factors include among others the spread of education, employment opportunities for women, industrialisation, urbanisation and consequent rise in the standard of living.

Education

It has been found that more the husband and wife are educated, the less is the number of children. Education not only liberates one from many prejudices, but also provides opportunities for better use of one's leisure. Both these factors have the effect of reducing the size of families.

It has generally been observed that the ratio of children borne by women is invariably correlated to literacy. Davis tabulated 57 castes with a population of 107 millions according to the literacy percentages. The number of children in the age groups 0-6 per thousand women (14-43) is found to be in an inverse relation with the literacy percentage.[46]

Again, fertility in better educated classes is lower than among the lesser ones. This is supported by the findings of Jain[47] in the Punjab, Aykroyd[48] in Madras City, Davis for the whole of India and an enquiry made by Cochin State.[49] High caste Hindus, like Parsis and Jains who are highly educated have the lowest birth rate while in the case of other low castes, the position is just the reverse.

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44. Quoted by De Castro: *Op. cit.*, p. 23.
45. The Determinants, and Consequences of Population Trends, U.N.O., p. 77.
46. Population of India and Pakistan, *Op. cit.*, pp. 75-76.
47. Punjab Board of Economic Enquiry: Relationship between Fertility and Economic and Social Status in the Punjab., p. 28.
48. W. R. Aykroyd: Human Nutrition, *Op. cit.*, p. 200.
49. Quoted by N. V. Sovani: The Population Problem in India: A Regional Approach, Publication No. 8, 1942, p. 138.

All these facts and figures leave no doubt about the effect of education on fertility. It is direct if more and more girls abstain from marriage and indirect if education makes people conscious of family planning.

Existing Conditions in India

The total number of students on rolls in recognised and unrecognised institutions in India went upto 47.4 million in 1950-51 as against 13.8 million in 1934-35. The progress recorded would work out to more than 350 per cent. The Constitution lays down that within 10 years of its commencement free and compulsory education will be provided for all children upto the age of 14. The Second Five-Year Plan has already laid a still greater stress on education. Also in the Community Project and National Extension Scheme areas, attention is being paid to the education of children and adults. More schools have been opened in the villages for social education. The effect of all these and various other activities will only be visible at the end of the Second Five-Year Plan. Then we will be able to gauge the effect of education on the various sectors of our economy including fertility.

Employment Of Women

A good deal of data about the relation of fertility to the employment of the housewife has been collected in European countries. It has been established that the number of children born to women who are gainfully employed is much smaller than in the case of those who are not employed.[50] It has, all the same, not been possible to find out whether this was due to the inability of wives to have children because of their continued employment or they preferred employment to bearing children. But Myrdal says that productive work and child-bearing can no longer take place side by side.[51]

No such reliable data of the number of children borne by working women is available in India. But on the basis of European studies, it can be assumed that conditions here will not be much different. The difference in fertility may rather be more marked than in other countries because of the vast difference that will be made in the status of families by the gainful employment of housewives and other women of the family.

Education among women is spreading fast in India. They are entering the various fields of education in larger numbers. The Indian Constitution also does not lay any ban on the activities of women. They are working side by side with men practically in all walks of life—right from holding the minister's rank in the Central Cabinet to any ordinary worker on daily wages.

Urbanisation

Fertility among women is also dependent on religion, class, climate and social status. The fertility is lower in urban than in the rural areas. Various reasons are advanced to explain this. Family life in the city is less cohesive, because the family members have more contacts outside the family. Children

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50. Determinants, *Op. cit.*, p. 88.
51. *Op. cit.*, p. 56.

in the cities are not considered an economic asset as they are in the countryside. City people aspire more for status which is only possible when the number of family members is small. The importance of this spirit of 'rationality' and 'independence of tradition' prevailing in the cities has a bearing on the size of the families.[52] The combined effect of these factors considerably reduces the fertility rate—a fact which has been amply borne out by conditions in India as well as the world over. It may further be observed that the fertility rate falls as the size of the city becomes larger.

All the countries with predominantly rural population have high birth rates, irrespective of their death rates. The most glaring example of an appreciable decline in the birth rate in recent years is that of Australia. According to Thompson, the pace of urbanisation there well exceeded 60 per cent of the total. This has undoubtedly been declared as one of the most significant factors in the very rapid decline in Australia's birth rate during the last fifteen or twenty years. Similar differentials in the city and rural populations are witnessed in Japan, U.S.A. and many other countries. According to Shrosi Nasu,[53] the reported birth rate for Japan as a whole in 1921 was 35.05. It was, however, 28.5 for all cities.

Urbanisation in India is making a steady progress. While it increased from 8.7 per cent in 1872 to only 11 per cent upto 1931 (a period of nearly sixty years), the increase during the last decade alone was of the order of 5 per cent. A similar or even a speedier increase is expected during the current and subsequent decades.[54]

Industrialisation

There are records to prove that India was one of the major industrial countries in the world. Just as we used to speak of the drain of wealth from India to the United Kingdom, the Roman writer, Pliny, spoke of the drain of wealth from Rome to India, about 2,000 years ago. India is today aspiring to achieve the same old status and there is not the slightest doubt about the fulfilment of her ambitious plans in this direction.

There is yet another point which merits consideration. It is true that with industrialisation, the fertility rate ultimately falls, but the experience of European countries shows that the immediate effect of industrialisation is not only to increase the birth rate but also to reduce the mortality rate. It is only after a time lag of some 50 to 100 years, when the standard of living of the people has increased appreciably, that the fertility rate falls. The tendency towards falling death rates in Europe manifested itself at the close of the 18th century with the advent of the Industrial Revolution, but the fall in birth rates came several decades later. It, therefore, took a long time for the 'demographic revolution'—shift from high to low demographic equilibrium—to take place there. It has been contended that in the initial stages India, too, will have to reap her harvest of plentiful children before a fall in the birth rate takes place.[55]

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52. Determinants, *Op. cit.*, p. 78.
53. Aspects of Japanese Agriculture, New York, pp. 4-5.
54. Foodgrains Enquiry Committee Report, 1957.
55. Warren Thompson: Population and Peace, *Op. cit.*, p. 249. Robert C. Cook: Human Fertility—The Modern Dilemma, London, 1951, p. 34.

DEMOGRAPHIC CYCLE

This leads us to the discussion of what is called a demographic cycle. This natural law of growth and fall of population was originally evolved by Verhulst—a Dutch mathematician—and was revived by Pearl. According to them, a fall in the birth rate in the later half of the 19th century was the result of a law which applied to all ecological systems. According to this law, fertility and mortality are both functionally related to the size of the population. Their relationship to it is such that the population tends to reach a stationary limit at which no further growth is possible.[56]

The Cycle which is said to have five phases follows the long process of industrialisation, urbanisation, and modernisation. The crux of the problem is whether or not India will also pass through such a process. Though nothing definite can be said, this is a fact that the position in Europe on the eve of Industrial Revolution was quite different from what it is in India today. Medical science progressed in Europe 'only' after industrial advancement. In India, on the other hand, we are at a much advanced stage in the public health measures. Even otherwise "1954 medical technique can be introduced briskly in a medieval economy." "Two centuries of groping" in the words of Sauvy, can thus be "spared to the population of underdeveloped countries which enter without difficulty the age of the tractor and the atom."

Again, economic development and expansion of production here have been stifled and artificially stunted, in the past. In the matter of contraceptives, while there was an opposition from the Church as well as the Society in the West, various enquiries made in India reveal that public opinion is favourably inclined to their adoption. While the American Statute Book even today contains a law—the Comstock Law of 1873—which prohibits the propagation, sale or even practice of contraceptives and there is a strict ban on birth control clinics in the two States of Connecticut and Massachusetts, the Government of India is openly encouraging birth control.

This matter was further studied by Sauvy with regard to under-developed countries.[57] His conclusion was that Europe's experience is not bound to be repeated in these countries. Same is the opinion held by Bowen.

Besides this, there have been cases of a heavy fall in the birth rate in many countries during comparatively shorter period. France, no doubt, took more than seventy years to experience a drop in her birth rate from 30 to 20, but Switzerland and Sweden took about 40 years and in England and Denmark the period was about 30 years. In Bulgaria, on the other hand, the birth rate has fallen from 26 to 17, during the period 1924 to 1936. Again, while the birth rate in Central and Southern Europe in 1922 was still as high as in Western and Northern Europe in 1881-85, it had dropped by 1935-36 to the level held by Western and Northern Europe in 1911. Similarly Poland and Czechoslovakia achieved in 12 years before World War II a fall in birth rate that France could achieve in 70 years.[58]

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56. Quoted by Enid Charles: *Op. cit.*, p. 151.
57. *Cf.*, Ashish Bose, Paper on Population, 37th Annual Conference of the Indian Economic Association, 1954.
58. Population Growth and the Standard of Living in Underdeveloped Countries, p. 8.

Thus the intermediate stage of reduced mortality and continuous high fertility which results in unprecedented growth in population may be skipped in India.[59]

Standard Of Living And Fertility

The various socio-economic factors already discussed go towards increasing the standard of living of the people concerned. Summing up the whole position, we can establish a relation between fertility and the standard of living.

Numerous enquires on the subject have been made since the 18th century by students of population and ample statistical data have been collected which go to support the view already expressed.[60]

Not only this. "It has been noted that following the decline in fertility among the rich, the decline has also spread among the poorer groups. This has been true particularly in large cities as witnessed by the large decrease in fertility among the relatively poor."

Whatever the explanation, there is an overwhelming evidence to prove that the standard of living and fertility are inversely related. If that is true in other countries, it would be equally true in the case of India, according to late Prof. Brij Narain.

India today is one of the under-developed countries and the standard of living of her people is low. The per capita income is as low as Rs. 280 and there is maldistribution of the national wealth in the country. But independent India has taken to planned economy and within 25 years she hopes to double the per capita income. Again, the abolition of zamindaries, nationalisation of industries and the Socialist pattern of society to which the Government is committed are sure to level down the existing inequalities to a great extent. The Taxation Enquiry Commission has recommended to bring down economic disparities to the level of 1:30. The National Government as against this is committed to cut it further down to the level of 1:20 during the coming 10 years.[61] It would be interesting to note in this connection that in China, today, the ratio between the incomes of the lowest and the highest paid is about one to twelve. It may not under the circumstances be difficult for us to attain our object. Economic welfare of the people will, therefore, increase twofold both by an increase in the national income and a redistribution of the national dividend.

Population Projections

The two population determinants—birth and death rates—depend upon so many factors. As Eind Charles says, "Birth rate is not a function of the reproductive capacity alone. Neither does the death rate depend upon liability to death singly. Each is a resultant of the forces of fertility and mortality, and the task of disentangling their relationship is one which calls for considerable statistical ingenuity."[62]

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59. A. Myrdal and P. Vincent: *Are We Too Many?* Unesco, 1950.
60. *Determinants, Op. cit.,* p. 86.
61. *AICC Economic Review,* Sept. 23, 1955, p. 9.
62. *Op. cit.,* pp. 38-39.

These statistical data were declared insufficient even in the case of U.K., by the Royal Commission on Population.[63] In India too, therefore, it will not serve to project population on Mathematical[64] basis, Net reproductive rate,[65] Logistic Curve[66] or any other theory, since the existing data is insufficient to give us any idea of the future birth and death rate.. The current decade is going to be of far-reaching importance in the case of India. The two Five-Year Plans will have run their full life by then and the effect of various socio-economic factors will be visible to a marked degree on our population. Demographic factors remaining practically neutral, we can safely assume under the circumstances that the net rate of population growth during the current decade may remain stationary.

A study based on the age distribution of females as shown below also supports our view.

TABLE II—PERCENTAGE OF FEMALES IN THE VARIOUS AGE GROUPS

Age Group	1941		1951	
	No. in lakhs	Percentage to total	No. in lakhs	Percentage to total
5 — 9 ..	197.3	13.0	223.5	12.9
10 — 14 ..	156.3	10.7	195.6	11.0
15 — 19 ..	134.8	9.3	174.2	10.0
20 — 24 ..	130.3	9.0	157.7	9.0
25 — 29 ..	125.1	8.6	141.6	7.0
30 — 34 ..	110.3	7.6	124.2	7.0
Total No. Females ..	1,448.4		17,351	

Maximum contribution to the population of 1951 was from women who were counted in the age group 15 to 29 in the 1941 census which was 26.9 per cent. The number of females in the same age group in 1951 will be most important for the 1961 population. Percentage of such women in the 1951 census—26 per cent—was, however, a little less when compared with the last decade. Percentage of women in the age groups 10-14 and 30-34, who were active for a part of the period only in procreation process, was 18.3 in 1941 as against 18 in 1951. Some of the females in the age group 5-9 also begin to bear children in the latter part of the decade. Their respective percentage in 1941 and 1951 was 13 and 12.9. There is thus no chance of any excessive population increase in India.

63. Quoted by the Census of India, 1951, *Op. cit.*, pp. 177.
64. The method was adopted by Francis Boynge in 1952 and H. S. Pritchett in 1890 for the U.S.A. (Woytinsky: *Op. cit.*, p. 245).
65. Kuczynski: The Balance of Births and Deaths, *Op. cit.*, pp. 41-44.
66. P. F. Verhulst and Raymond Pearl, *Cf.*, Determinants and Consequences, *Op. cit.*, p. 4.

This view is further substantiated on the basis of Sunbarg's theory. According to him a normal population has about one-half of its total between the ages of 15 and 50, and the proportion of those above that age group to those below it indicates whether the population is increasing, stationary or decreasing. The youngest of the three population groups must be double the oldest, if the population continues to grow. Just short of that point it may be stationary, but if the older group continues to exceed the younger, the population is bound to be regressive.[67]

The population of India below 15 and above 50 during the last three decades has been as shown in Table III.

TABLE III—PERCENTAGE OF POPULATION IN THE YOUNGEST AND OLDEST AGE GROUPS TO TOTAL POPULATION

Year of Census	Youngest Upto 14	Oldest over 50	Percentage of oldest to youngest
1931	39.5	9.7	25.6
1941	38.3	11.2	30.0
1951	38.3	12.1	32.0

The percentage of the oldest age group is steadily increasing in India. This again is a healthy sign. Not only the standard of the people is improving but the rate of increase would also appear to be on the decline. It was, perhaps, on the basis of these factors that Colin Clark, in one of his recent studies, concluded that "there is every indication that the net rate of population growth will prove to be less than 1 per cent per annum,"[68] for the decade 1951-61. The rate of population increase in India during 1921-31 was 1.1 per cent per annum according to him. It went up to 1.6 per cent during 1931-41 and came down to 1.1 per cent (taking India and Pakistan together) during 1941-51.[69]

It may not be wholly correct to go with Colin Clark on the basis of the existing data. This study all the same brings out that the rate of population increase may not exceed the one in the previous decade. There is thus no need to be frightened by the guesswork of a number of existing demographers. Preparations for the 1961 Census are already afoot. It would be worth our while to cover a larger ground this time. Some specific surveys in areas like Kerala should also be conducted to find a relation, if any, between infant mortality and birth rates.

67. Census of India, 1931, p. 87.
68. Article by Colin Clark, *International Labour Review, Op. cit.*, p. 114.
69. The rate of increase in the Indian Union from 314·83 millions in 1941 to 356.8° millions in 1951 works out to 1.26 per cent per annum. But this rate in the case of Pakistan comes to only 0.75 per cent per annum; the increase being from 70.2 to 75.69 millions during the decade. It is true that practically the whole of Pakistan was disturbed as a result of Partition. But this hardly sounds reasunable when we know that the rate of increase for the period 1931-41 was 25.2 for N.W.F.P., 2.5 for Punjab, 20.3 for Bengal and 16.7 for Sind as against 15 for India as a whole. In order to avoid any discrepancy, we have taken combined growth rate for India and Pakistan for the decade.

Besides formulating correct estimates about our birth and death rates, we will have to go a little deeper. The death rate will have to be split up into, say:

(1) infant mortality,
(2) deaths at various age groups and their causes,
(3) deaths as a result of various diseases in the different parts of the country,
(4) natural deaths, etc.

Once this is known, we can formulate somewhat accurate estimates about the likely rate of growth. If as a result of these findings it is observed that the rate of net increase is still high, we cannot afford to sit with our hands folded. Just contrary to Marxian principles, even China after weighing up all the relevant factors—family and marriage habits, moral prejudices, medical and hospital equipment, and social as well as economic conditions—has adopted the objective of a 50 per cent reduction in their birth rate in a short period of 10 years. Chinese birth rate at present is between 43 and 45 and mortality rate is computed at 22. If China succeeds (as she is confident) she may even stabilise her population. The three main measures being taken up by Peking are: (1) abortion, (2) contraception, and (3) raising of the marriage age.

Maximum emphasis from among these three is being laid on contraception. Of 100 million Chinese menages under the age of 45, contraceptives were distributed last year among as many as 25 millions.[70] If China, with conditions as bad or even worse than India, can embark upon such an ambitious programme, one would wonder why we should go on having an exercise in geometrical progressions. Steps should immediately be taken to undertake a comprehensive survey of the country so that we can form a correct idea of the position as it exists at present. The Third Five-Year Plan will then have to take some concrete measures like those of China to bring down birth rates. It would, in any case, be unimaginative and against commonsense to resign to a stagnant situation and discount completely all efforts at reducing the birth rate. Sticking to a high rate of population increase like 2 per cent per annum under the circumstances, for any perspective studies will not be reasonable. Such a course would in fact mean a negation of planning—a completely defeatist attitude which the country can ill-afford at this critical juncture in her history.

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70. *Capital,* 12 June, 1958.

APPENDIX—I

PROJECTIONS FOR GROWTH OF POPULATION

(Figures in millions)

	I			II		III			IV					V
	Kingsley Davis			Registrar-General		Coale and Hover			Das Gupta and Mazumdar					Second Five-Year Plan
						Infant Mortality Rate 200 initially								
	I	II	III	Lower Limit	Upper Limit	HF	LF	MF	S	M	B°	B′	B	
1951				361.3	361.3									
1956	384	372	377	(384)	(387)	384	384	384	379	381	381	381	383	384
1961	405	384	394	408	412	424	420	424	398	406	406	404	409	408
1966	—	—	—	—	—	473	458	473	410	436	434	429	440	434
1971	451	381	430	459	470	532	496	524	442	470	465	454	473	465
1976	—	—	—	—	—	601	531	569	465	511	500	481	511	500
1981	492	427	476	528	535	682	562	603	490	558	536	508	550	536

ASSUMPTIONS UNDERLYING VARIOUS PROJECTIONS GIVEN IN APPENDIX I

I. *Kingsley Davis*

    I.   The relatively high rate of natural increase observed between 1921 and 1941 (1.2 per cent per year) will continue in future.

    II.   During the next 6 decades population will grow at the average rate (*0.6 per cent per year*) exhibited during the seven decades (1871-1941).

    III.   The rate of growth as shown by the logistic curves fitted to Indian population at eight census dates, 1871-1941 will be applicable to the next few decades.

II. *Registrar-General*

Lower Limit

The rate of increase in population would be the same as that of the average of the three decades 1921-1950.

Upper Limit

The rate of increase would be the same as recorded during 1941-1950.

III. *Coale and Hoover*

Higher Fertility

Current fertility rates (*i.e.*, a birth rate of 40 per thousand) will continue but mortality will decline sharply. The death rate is taken to decline from about 31 per thousand in 1951 to 14.6 by 1981.

Low Fertility

Fifty per cent fall in fertility between 1956 and 1981 and the same assumptions as above for mortality. Birth rate would fall from 43.2 in 1951 to 22.6 in 1981 and the death rate would fall from 31 in 1951 to 11.7 in 1981.

Medium Fertility

Fifty per cent fall in fertility between 1966 and 1981 and same assumptions as regards mortality as in the other two projections. Birth rate is taken to fall from 43.2 in 1951 to 33.8 in 1966 and 23 in 1981. Death rate is taken to decline from 31 in 1951 to 12.8 in 1981.

IV. *Das Gupta and Mazumdar*

Mortality Assumptions

For projection S continuance of the present mortality (death rate of about 31 per thousand) is assumed.

For projections M, B° and B' improvement in mortality is assumed so that expectation of life improves by fifty per cent by 2001. This means a progressive improvement of about 1 per cent in the probability of survival in the first year. For projection B an additional assumption of a balance in sex ratio by 2001 is made.

Fertility Assumptions

For projections S and M continuance of current fertility rates is assumed.

For projection B° current fertility rate is assumed to continue till 1961 but thereafter a fall is assumed. It is implied that the birth rate would drop from about 41 per thousand in 1961 to about 34 per thousand in 1981.

For Projection B' and B decline in fertility is assumed from 1951 and 1961 respectively. The latter assumed a somewhat greater decline in fertility.

V. *Estimates used in the Second Five-Year Plan*

The assumptions underlying this estimate are the same as those for the B° projection by Das Gupta and Mazumdar except that the rate of increase during 1951-1960 is adjusted so as to conform to the recorded rate of 1.25 per cent per annum during 1941-50.

APPENDIX—II

BIRTH AND DEATH RATES IN BRITISH INDIA SINCE 1885

Period	Birth Rate (per thousand per annum)	Death Rate	Infant mortality
1885-90	36	26	
1890-01	34	31	
1901-11	38	34	
1911-21	37	34	
1921-31	35	26	
1931-41	34.6	23.4	168
1941	32.1	21.9	158
1942	29.5	21.4	163
1943	26.1	23.9	165
1944	25.8	24.5	169
1945	28.0	22.1	151
1946	28.9	18.7	136
1947	26.6	19.7	146
1948	25.2	17.0	130
1949	26.4	15.8	123
1950	24.8	16.0	127
1951	24.9	14.4	124

(Figures upto the year 1946 relate to the Provinces of Undivided India. Thereafter they relate to India comprising the nine Part 'A' States and three Part 'C' States of Delhi, Coorg and Ajmer. After 1948 certain merged areas were also included).

APPENDIX—III

DISTRIBUTION OF DEATH RATE BY AGE GROUPS PER 10,000 OF EACH SEX

Age group	Males	Females
0 — 1	1,844	1,671
1 — 4	376	346
5 — 9	100	99
10 — 14	63	63
15 — 19	89	106
20 — 29	95	119
30 — 39	126	113
40 — 49	187	163
50 — 59	318	283

Source : India and Pakistan Year Book, 1952-53, p. 116.