Gokhale Institute of Politics and Economics
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BY
N. V. SOVANI, M. A.

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# FOREWORD

For a long time I have felt that the study of the population problem of India considered as a single unit failed to yield significant conclusions and was indeed apt to mislead. Some years ago I made a tentative attempt to analyse part of the available data on the basis of smaller and more integrated regions but could not proceed far with the work. When, therefore, Mr. Sovani expressed a desire to work on some aspect of the Indian population problem I suggested to him the possibility of this regional approach. He readily took up the suggestion and the result was a thesis which in a somewhat abridged and revised form is here presented to the public.

The chief task performed by Mr. Sovani has been to gather together all the important available and relevant data on economic conditions and on the composition and movement of population and to present them separately and in a connected form for a number of homogeneous and / or integrated regions. The chief aim of the study has been a search for any well-defined trends in population movement or any significant correlations between physical environment, economic circumstance and population composition or growth that may exist in a particular region or a group of regions. The major justification for the study is the assumption that India is too vast and too heterogeneous in respect of all factors which should count in a study of the problem of population—geographic, economic, social and cultural and that the Indian population problem is not a single problem but a collection of a number of different types of problems. On this assumption the averages yielded by an all-India study cease to have much meaning ; they would contain within themselves such a diversity of phenomena that they would conceal much more than they could reveal. For a study, therefore, both of the particular Indian situation and of the conclusions relating to the general theory of population that it yields the splitting up of the problem into a number of properly constituted units is rendered vitally necessary.

The formation of these units is, however, not a matter entirely of free choice ; it is largely predetermined by the manner in which

the data have been compiled in the past. The constituent units for the conduct of the Indian Imperial Census are the Indian provinces and the major Indian States. It has always been realised by those in charge of the provincial and State Censuses that most of the provinces and some of the States were mixed in character. Therefore, in compiling and presenting the provincial or State data the Census Commissioners usually prepared tables on the basis of smaller units, called by them "natural" units. These natural units were formed chiefly in view of the geographic factors, so that the climate, the rainfall and the main agricultural conditions in a natural unit were fairly uniform. The natural units being comparatively small and compact areas they were usually homogeneous also in respect of other important factors such as language and social structure. The natural units, once determined, were followed from Census to Census and data in respect of these units were presented in the successive Census reports. It is difficult for a student of these data to depart from the limits of natural units as defined in the Census reports. Because any one desiring to define independently the limits of a region would find it impossible to compile the data especially for the earlier Censuses for units other than those for which the data have already been presented. The range in the size of the units studied by Mr. Sovani varies in area from *1,480 sq. miles* to *66,624 sq. miles* and in population from *1,205,016* to *20,690,518*. The large majority of the units, however, fall within the population limits of *3,200,000* and *11,500,000* and the area limits of *8,000 sq. miles* and *30,000 sq. miles*. It will be thus observed that the units studied are comparatively large and are comparable for the most part with countries like Egypt, Norway, Sweden, Spain, Portugal and Ireland.

Before saying anything regarding the conclusions suggested by the data put together by Mr. Sovani it is necessary to emphasize the series of handicaps under which the student of Indian population problems labours. For all his conclusions he has to rely on a single source of information–The Indian Census. The other and the really important series of statistics available in other countries—the birth, the death, the marriage registrations—are either not at all available to him, or are available in such a form that they can be put to no use. These series present the data in a continuous form from year to year and they are usually the basis of all the trustworthy conclusions regarding trends and tendencies. Their absence in India leaves the student with only a discontinuous set of figures revealing the population position at each ten-year interval.

Including the results of both the 1881 and the 1941 Censuses, the maximum of such points of information are seven and the decennial intervals over which changes in population numbers can be studied, six. In view of the modern development in population theory it is unnecessary to emphasize how insufficient are such data of gross population movement for drawing any significant conclusions. This insufficiency appears the more glaring when it is observed that for the major part and for most of the regions studied the decennial figures cannot be taken to register the progress of continuous trends. The period before 1920 was subject, in India, to a number of major calamities and catastrophies which left a deep impress on most of the Census figures. The famine of 1874-76, the famines during the closing years of the last century, the plague epidemics which ravaged large portions of the country intermittently for about two decades after 1896 and the influenza epidemic of 1918, none of these can be treated as normal phenomena, unless, with some writers, one counts the periodic incidence of a catastrophe as a part of the Indian normality. Further, the incidence of the mortality due to the famines, the plague or the influenza was not uniform over the whole population; it varied considerably as between the various age groups and the two sexes. Thus, not only have the total numbers been affected by these events but also the composition of the population according to age and sex bears at each Census the peculiar impress left upon it by these happenings of the previous decades. This latter feature of the Census figures makes it specially difficult to interpret them. In the absence of continuous series of vital statistics, it has been usual with demographers to judge of tendencies towards an increase or a decrease of population from the age composition of a population as revealed at the Census. The earlier Sundburg test or the more recent Bergdorfer test all rely on the use of these data. The use of these tests or methods, however, implies that the composition of the population as revealed at the Census is normal, in the sense of its not being affected by any extraordinary event which could not be reckoned as a persisting integral part of the population situation. None of the data available to us from 1881 to 1941 can be regarded as normal in this sense. The results of the applications of these tests to the Indian statistics have, therefore, to be treated with considerable reservation. It is only proper to add that one of the regions studied by Mr. Sovani—Travancore—was not affected to any marked degree by the various catastrophes enumerated above. The composition of the

population of that region at various Censuses might, therefore, be considered normal.

Some remarks may, at this stage, be made about the relation between opportunities for migration and the rate of growth of the population in a region. It is, of course, obvious that the concept of the comparatively homogeneous region is in itself abstract and its use is permitted because it is a convenient device for bringing out more clearly than would otherwise be possible the operation of the forces affecting the movement of populations. The definition of such a region will, it has been pointed out above, always encounter some difficulties and no region can be said to be unaffected by circumstances and movements in other regions. The chief manner in which a region is affected by others is by migration into it and emigration from it. In this connection the terms "pull" and "push" have been used to differentiate between forces attracting population outside a region and those impelling it to move out of it. It seems to me, however, that the distinction sought to be made and especially the debate as to whether one or the other set of forces more powerfully affect a particular movement are to a large extent unreal. Essentially both a push and a pull are merely the two aspects of the same phenomenon, which is the difference in the relative conditions obtaining in two regions bringing about a movement of population from one to the other in spite of the costs of transfer. No movement can take place unless there exists a better place to go to (pull) and the phrase better conditions outside logically involves comparatively unfavourable conditions (push) at home. It may, perhaps, be better to say that it is always a "pull" that acts; for, there are no conditions so absolutely unfavourable as will "push" people outside a region if they have nowhere else to go to. (It may be noted, that this is written with reference only to movements whose origin is in the main economic and does not apply to such movements as those of the Jews through the greater part of their history. An exception has also to be allowed in the case of movements due to local famines or to permanent changes in the climate of a region such as are supposed to have given rise to movements of population from Central Asia). Also it is well to remember that different population groups will react in a varying manner to the same set of phenomena. The Assam plantations get their labour chiefly from distant Chota Nagpur; the Bengal peasant is attracted neither by these nor by jute mills but only moves in order to occupy the lands in the Assam Valleys. The coal mines do not prove attractive enough to the Chota Nagpur aboriginals and have to recruit a large proportion

of their labourers from the districts of U. P. and Bihar. These same districts send labour in large numbers to Calcutta, Bombay and other parts of India but not to any large extent to the tea plantations. One has again to distinguish between migrations from the different strata of the population. Numerically the most important migrations are always those of the labourers and the peasants but the small trader and artisan migration may also assume quite considerable proportion and may be economically important. To the Gujarat peasant the conditions outside are nowhere attractive enough but the small trader from that region has moved out in large numbers to Africa and to other regions of India itself.

To what extent then does migration result in modifying the character of population growth as essentially a problem of regional balance? So far as India is concerned, it does so only to a limited extent. Moreover, the population balance in a region is affected chiefly by conditions in contiguous regions and migration does not, therefore, result in moving the problem from a regional to an all-India basis. As to external migration the directions in which it can take place and its volume are both limited. Fifty years ago Mr. Justice Ranade could contemplate a continuous flow of labour to distant countries. Today the position has so far changed as to create the problem of the repatriation of old migrants. Whatever the distant future may hold in store, at least immediately there is no prospect of any large outlet being thus available to any region in India. Internally there are only a few regions whose development may be said to have been substantially modified by the possibilities of migration.

The character of a population movement in a region during any period is influenced to a considerable extent by the point of historical development reached by the region at the beginning of the period studied. Thus in a land occupied and exploited since ancient times the forces to which population growth was subject and the resultant movement would be very different from the forces and movement in a new colony with large tracts of virgin soil. No region of India in 1881 could be compared to a new colony. The differences in the character of past development were, however, very considerable from region to region and it is a further handicap to the student that little can be said with certainty regarding the movement of Indian population for the century or even half century preceding 1881. The major fact of the history of this century was the series of wars waged by the British for the conquest of India and

the subsequent British occupation of the country. The wars and the occupation affected different regions at different times. The wars influenced the population of a region according to whether they were short or long drawn out and according to whether they led or did not lead to a transitional period of a quasi-anarchistic regime. The British occupation of Bengal, Bihar and of the populous Gangetic plain as a whole took place comparatively quietly. On the other hand, the population in parts of the Deccan and Central India suffered terribly in the process. Subsequent to the British occupation of the country the two forces that mainly affected population growth were in the first stage the settlement, especially in its revenue aspect, of the country by the new rulers and secondly, the impact through the imports of British goods and capital of the industrial revolution. As a general rule the early British settlements were devastating in their effects on economic life. This was true in the 18th century of the settlement with landlords in Bengal and Bihar as well as in the 19th century of the settlement with the cultivators in Madras and Bombay. It is, however, difficult to disentangle the effects of the revenue settlement from those of other economic forces. It is, for example, clear that in Peninsular India the first half of the 19th century was a period full of difficulties in which the recovery from disturbed times, the occupation of new lands and the growth of population all took place slowly ; yet the many factors responsible for the slowness of the pace are not clearly discernible. During the same period, however, Bengal and Bihar had largely got over the earlier stage of revenue mismanagement and had begun to pursue an even course in economic development. In the same manner the opening up of the country to British trade and capital took place in the different regions at widely differing times, depending on two factors, the date of the British occupation and the development of the means of transport. Thus tracts like the Punjab and Sind were occupied much later than other parts of India by the British and regions of the interior in Peninsular and Central India were not opened to commerce to any considerable extent even when so occupied. Bengal took precedence in all matters because of early occupation and the facility of river communications. In spite of these differences the statement might be hazarded that a general movement towards rapid economic development became established over the larger part of India only about the middle of the 19th century. The beginning of, what may be termed the modern trends in Indian

population, has thus to be placed at least three decades before the date of the earliest reliable Census statistics.

This leads to a consideration of the problem of the nature of a population trend. When, for example, we say that the modern trends began to be operative at about a certain period what degree of homogeneity and continuity of phenomenon is implied in the statement? Broadly there is in the background of all such statements an assumption of a certain balance between population numbers and the economic environment, which means that if completely static economic conditions rule over a long enough period a perfectly stable population appropriate for that environment will ultimately be reached (Cf. Marshall, Principles, 8th Edition, p. 577). With a given disturbance in the economic conditions brought about by, say, a technological revolution, a process of re-adjustment of numbers to the environment begins and this follows a given course which we term a tendency or a trend. The approach of the statistician who tries to measure the degree and nature of this trend by the method of curve-fitting involves the acceptance of these assumptions in their most rigid form. The statistician when predicting the future of population movement on the basis of a curve fitted to the data relating to the past seems to make a yet further assumption. This is that the whole series of movements — past and future — during the given period are all contained in and predetermined by the originating impulse. The assumption of a long growth cycle (and the period of the population theorist is necessarily very long) implies its non-disturbance at any intermediate point. It is only if the originating forces continue to act unhampered that the growth cycle will follow through its predestined course. The assumption, for example, that in the larger part of India the modern trends in population movement began about 1850 means that the ensemble of modern conditions began to have its joint effect on the movement of population at about that time. This set of forces that we term modern is, of course, highly complex. Let us, for helping the understanding of the phenomenon, enumerate a few of them. The most important of these would seem to be the new technique of material production, the increased knowledge regarding the control and prevention of disease and the breakdown of the old social structure. All these forces together act on a situation, a relation between environment and population which has historically reached a certain point on the basis of other conditions. They transform the situation, disturb the older relation which might or might not

have been at an equilibrium point and begin a series of new movements, working, of course, ultimately through an effect on birth and death rates. The point for consideration is whether these forces work from their origin in a uniform and continuous manner in such wise that their future can be predicted from a sample of the results of their working in the past available in the shape of decennial or annual statistics. An examination of the recent past scarcely warrants this hypothesis. If only one of the modern forces, the new technique of material production, is taken into consideration the history of its progress shows that the course of development has followed no predictable uniform course. This course has seemed to profit specially the economy of one region at one time while that of another at another time. In some cases the substitute employment thrown up has been considerable, in others negligible. Even retrospectively it does not appear that at any time in the past the course of the future could have been confidently predicted. The same is true of the effects of the spread or control of epidemic disease. And the mere increased accumulation of past data cannot increase the confidence in predicting the course of the future. Secondly each curve has a meaning. It may represent a continuous growth at varying paces at different periods of time or it may represent varying combinations of periodic growths and recessive movements; in any event it represents a predetermined regular movement of a certain type. For the results of curve fitting to be logically satisfying it must be explained, apart from the vagaries of curve-fitting, as to why the movement should follow the particular pattern. That is, the nature of the relation beween environment and population which leads the movement to follow a particular course must be understood. Some discussion of this sort has taken place about the nature of growth curves in general, both in relation to the study of population and that of industrial fluctuations. But these considerations are ignored in the majority of attempts at curve-fitting to population data, which seem to take for granted that a passable fit to past data gives a good enough basis for predictions. Mr. Sovani has exemplified the use of the most common type of curve in use for this purpose by trying to fit it to data of various types of regions. The curve-fitting was done when the data up to only 1931 were available and they show a varying degree of divergence between the projected figure for 1941 and the actuals recorded in the Census of that year. Reference may also be made here to an article in the *Sankhya*. (An Estimate of the Population of India for the year 1941, T. Krishnamurthy and R. S. Krishnamurthy,

*Sankhya*, Vol III, Part 3, August 1941) where the results of a series of such attempts are recorded. A study of most of these attempts would show that a true prediction could only be in the nature of an accident.

The lack of birth and death statistics makes it impossible to calculate reliable gross or net reproduction rates and the peculiar nature of the sex and age composition data makes the estimates of such rates by certain established methods difficult to rely upon. The approach by the method of curve fitting lends illusory precision to the treatment which is warranted neither by the degree of homogeneity of the data nor by the logic of facts. Mr. Sovani has, therefore, been reduced to the device of merely classifying the various regions by the total extent of the growth that has taken place in them during the entire period and observing whether this leads to any significant grouping of the regions. Such a procedure is, of course, warranted also on grounds other than mere lack of data. It may yield significant results even for regions where ample statistics of all kinds are available. (Cf. " Growth of American Manufacturing Areas" Glen E. McLaughlin, Bureau of Business Research Monograph, University of Pittsburgh, Pennsylvania, 1938.) The classification yields mixed groups in some respects but it shows, specially at the two extremes, what would appear to be the main necessary conditions for a rapid growth of population or for a stagnant state. The areas, the population in which grew rapidly during the period 1881–1931, reveal many common features in respect of security of water supply, richness of land and possibilities of expansion of cultivation. On the other hand, the stagnant regions, which might belong to either the secure or insecure types, show mostly a high degree of previous development and a very narrow margin left for future expansion and in some cases, even a retrogression in agricultural conditions due to the heavy pressure of population on land. It would thus appear that even if it was not possible, because of the paucity of data, to talk with any certainty regarding the actual real trends in net movements at the present time, the bare facts recorded at the past censuses showed a rough and broad relation to exist between environment and population movement.

Mr. Sovani completed his thesis early in 1941 and if I had been writing this 'foreword' at that time I should in all probability have contented myself with the comments made so far. In the mean-

while, however, the summary results of the 1941 Census have become available and they reinforce many latent doubts regarding the possibility of the ordering of the facts of population history in this apparently reasonable manner. The 1941 Census recorded an enormous increase in population in most regions and some of the most remarkable increases have taken place in regions that have been properly regarded so far as most stagnant. This is notably the case with Indo-Gangetic Plain, Central and the Central India Plateau. Nothing in the past history of the numbers in these regions suggested the possibility of this happening. Also the age compositions of these regions at various censuses show no suggestive peculiarities. To explain this increase merely by the absence of a famine or a pestilence is to beg the question. For, famines and pestilences are considered to be the two most important checks on population. And if a region had been overcrowded and, therefore, stagnant for long, any marked upward movement in its numbers ought to be promptly met by either one or both of these checks. This is apart from the fact that the last decade shows a much greater increase in these regions than decades with somewhat similar conditions in the past. As I have said above, the discrepancies revealed by the 1941 Census are only the most glaring. A careful examination the pre-1941 data also raises many problems. Apart, for example, from a few groups at the two extremes the population movements in most other regions are difficult to interpret; difficult to interpret in the sense of not revealing any consistent or clear relation between economic fact and population movement.

It might reasonably be objected at this stage that such a relation if it subsists cannot be a simple one and it may well be that it would be revealed on a very thorough examination of the detailed facts of the economy and history of each region. Mr. Sovani has after all collected together only the available published statistics relating to the more important aspects of the economy of comparatively large regions. A searching examination into more detailed facts in respect of even smaller sub-divisions may explain the why and wherefore of the movements that appear contradictory. It is possible to view this question from two different points of view. The first would be the point of view of those interested in the problem of the growth or decline of population *per se*. For such students all factors—biological, social, economic, etc.—that bear on this study are relevant, and it would be their aim to try to define the relations of whatever type that seem to subsist between the

phenomenon of population and all these kinds of factors. The economist, however, looks at the problem of population from a much more restricted point of view. The economist is concerned with the manner in which population movements act upon and in their turn are influenced by the constituents of his particular field. His interest in the population problem arises out of such questions as to whether a movement in the standard of living or in the general level of wages leads to any changes in population numbers and *vice versa*. If the economic factor is only one among many factors responsible for population movements and if its extent and mode of operation are not clearly observable, these movements fall largely outside the sphere of the economist. He has then to treat the facts of the growth and decline of human population as externally given without being able to weave them integrally into the pattern of his theories. The connection between economic forces and population movement should be clearest in tracts where the economic environment presses most closely on a people and where human institutions and sentiment least modify the normal biological processes. The majority of the regions studied in this work satisfy both these requirements. In them there are clear indications of a pressure of population on resources. And in India as a whole, the process of social disintegration has largely upset the older checks during the last sixty years while nowhere have their newer forms, such as contraception, made any significant advance. The study of these regions for this period should, therefore, most clearly indicate any readily traceable relation of the type in which the economist is most interested. A large body of economic theory has based itself in the past on the assumption of a direct palpable relation between the growth of population and economic environment. In recent times doubts have been raised in some quarters regarding the existence of such a relation, and it has been recognised that the aggregate supply of labour might not be determined by any fundamental economic law. A study of the regional data offered by Mr. Sovani reinforces this sceptical attitude. The broad economic data relating to the various regions do little to explain the mutual similarities or differences in respect of the movements of population, sex-ratios or age composition between region and region. The movements for many regions take from decade to decade such turns that no cogent explanations can be offered regarding them. They also raise strong doubts about the predictability of future trends. Mr. Sovani has drawn attention to many detailed peculiarities of the regional data in the course of his study and to certain general conclusions regarding

the Indian situation as a whole. To me this mass of material relating to a large number of dissimilar regions appears even more interesting as the possible basis of an examination by the economist of the often implicit assumptions of his theoretical formulations.

Gokhale Institute of Politics and Economics,
Poona 4. 19th May 1942.

D. R. GADGIL.

## Author's Preface

The foregoing work was originally written as a thesis for the Master's Degree of the University of Bombay. Here it appears in a revised and more concise form. It is not an exhaustive treatise on the Indian population problem but only a sample inquiry. It does not ladle out any cut and dried schemes, or suggestions of reconstruction, as my aim all along has been analysis rather than prescription. In attempting this task, I have signally failed to uphold the tradition that writers on Indian population problems are rapidly establishing, that of being "sensational". My only endeavour has been a critical study of the problem. This work sets forth another and a more realistic point of view and a different method of analysis. And even in that direction, it is in the nature of an armed reconnaissance. The actual battle to follow I leave to more capable hands.

This study is mainly confined to the period 1881–1931. The 2nd and the 3rd chapters are principally concerned with the compilation and analysis of the available regional data and the last three chapters with their interpretation. I claim no finality of analysis or interpretation. When the complete 1941 Census figures become available these will have to be modified accordingly. But this need not cause any embarrassment. All the elements, necessary in population analysis, are always in such a constant state of flux, that all studies of population problems are necessarily studies in time–changes. Any student of population problems, who knows his subject and more particularly the Indian Census Reports—the reading of which breeds a curious insensibility to all surprises—surely knows that the movement of population, like that of a wayward butterfly, is rarely along a rational bee-line. Finality of analysis and opinions in this field, therefore, is always approached, never arrived at. "Lastly all that is contained therein is in submission unto maturer discernments".

The work was carried out under the able direction and guidance of Prin. D. R. Gadgil. My indebtedness to him is beyond words. To his useful advice and penetrating criticism the book owes most of its merit. Let me hasten to add, however, that he does not necessarily share all the opinions expressed herein.

For them and for all strayings into the field of error, I accept full responsibility.

My indebtedness to various authors has been fully acknowledged in the foot-notes. Special thanks are due to the various Provincial Census Superintendents who kindly supplied me with the provisional figures of the 1941 Census. I must thank Mr. Deodhar, who has helped me considerably with the mathematical portions of this work. I also thank Mr. Deo and Mr. Kale, both of the Servants of India Society's Library, for their help and co-operation. I also express my appreciation for the help which I have received from several of my friends. I am deeply obliged to Mr. D. V. Ambekar, Secretary, Servants of India Society, for going through the proofs and making valuable suggestions. I should also express my thanks to the management of the Arya-Bhushan Press for bearing with me patiently, though at times we sorely tried each other's patience.

I can only record here my profound sense of gratitude for the invaluable help rendered to me by my dearest friend — H. A., as etiquette prevents me from expressing it more concretely by way of a dedication.

I have to thank the authorities of the Gokhale Institute of Politics and Economics for consenting to include this work in their series of publications. Lastly, I have to acknowledge my indebtedness to the University of Bombay for the substantial financial help it has granted towards the cost of the publication of this book.

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