FIRST REPORT OF

THE NATIONAL INCOME COMMITTEE

APRIL 1951

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CHAPTER ONE
INTRODUCTION

1.1. The National Income Committee was appointed by the Government of India Resolution No. 15(33)-P/49, dated the 4th August, 1949, which reads as follows:--

"The Government of India have been giving consideration for some time to the inadequacy of the factual data available for the formulation of economic policies. One important gap is the absence of authoritative estimates of the national income and its various components. The Government of India have accordingly decided to set up a committee to advise how best this gap could be filled up. The terms of reference of the committee are to prepare a report on the National Income and related estimates, to suggest measures for improving the quality of the available data and for the collection of further essential statistics and to recommend ways and means of promoting research in the field of national income. The Committee will also guide the National Income Unit of the Government of India to compile authoritative estimates of the national income.

2. "The Committee will be constituted as follows:—
Chairman: Professor P. C. Mahalanobis, F.R.S., Indian Statistical Institute, Calcutta.

Members: Professor D. R. Gadgil, M.Litt., Gokhale Institute of Politics & Economics, Poona.

Professor V. K. R. V. Rao, Ph.D., D.Litt., Delhi School of Economics, University of Delhi.

Secretary: Shri R. C. Desai, Ph.D., National Income Unit, Ministry of Finance, New Delhi.

The Committee will have power to co-opt as and when necessary any other person to attend its meetings.

3. "Arrangements are being made to secure the advisory help of Professor Simon Kuznets, Ph.D., University of Pennsylvania and of the National Bureau of Economic Research, New York; Mr. J. R. N. Stone, C.B.E., Department of Applied Economics, University of Cambridge; and Dr. J. B. D. Derksen, Ph.D., National Income Unit, United Nations Statistical Office, Lake Success, New York.

4. "The headquarters of the Committee will be at New Delhi. The report of the Committee will be submitted to the Government of India in the Ministry of Finance."

1.2. Dr. R. C. Desai resigned from the post of Secretary on the 25th December, 1949. Shri M. Mukherjee was appointed as the Secretary of the

Committee from the 26th December, 1949, and has been working in this capacity since then.

1.3. The National Income Unit of the Ministry of Finance was formed by the Government Order No. 29(G) in the Memorandum No. F.8(23)-Est.I/49, dated the 30th July, 1949, as an attached office in the Ministry of Finance. Dr. R. C. Desai was in charge of the office till his resignation since when Shri M. Mukherjee has been in charge. Dr. A. K. Ghosh (from August 1950), Dr. D. N. Saxena (from February 1951) and Shri T. N. Joseph (from August 1949) are the other research workers who participated in the work of the Unit. The National Income Unit has been working in full strength only from July 1950 and even then, had to undergo some dislocation in September 1950, three junior members of the staff having to be changed as a result of the U.P.S.C. decisions. On an average, roughly 6 technical man-months have been spent every month since the inception of the National Income Unit, the total technical manpower used in the work being roughly 115 man-months during a period of 20 months.

1.4. The National Income Committee held 30 meetings in all, details being given below:

1st	Meeting	:	13th August, 1949 at New Delhi
2nd	,,	:	11th November, 1949 ,,
3rd	,,	:	13th December, 1949 ,,
4th	,,	:	10th March, 1950 ,,
5th	,,	:	29th July, 1950 ,,
6th	,,	:	28th November, 1950 ,,
7th	,,	:	29th November, 1950 ,,
8th-11th	Meetings	:	Between 26th-29th December, 1950 at Calcutta
12th-24th	,,	:	Between 15th-23rd January, 1950 at New Delhi
25th	Meeting	:	20th March, 1951 ,,
26th-30th	Meetings	:	Between 8th-15th April, 1951 ,,

1.5. Seven meetings were held prior to the visit of the foreign advisers in which the working papers prepared by the National Income Unit were examined, new lines of work suggested, and recommendations made for facilitating the collection of statistical information required by the Committee. Prof. Simon Kuznets, Mr. J. R. N. Stone and Dr. J. B. D. Derksen, the foreign advisers to the National Income Committee, visited India during the winter of 1950-51 and stayed here for more than a month. They attended all the meetings of the National Income Committee from the 8th to the 24th. They also had informal discussions with the different Ministries, the Indian Statistical Institute in Calcutta, the Gokhale Institute of Politics and Economics at Poona, and the Reserve Bank of India in Bombay. Dr. Rao was present throughout these discussions; Prof.

Mahalanobis was present in Calcutta and Delhi; and Prof. Gadgil in Calcutta and Poona.

1.6. The tentative estimates prepared by the National Income Unit were reviewed in the Delhi meetings, and the National Income Committee along with the foreign advisers took decisions on the shape of the preliminary report and the nature and form of the tables in which all national income data were to be presented. The form and contents of the final report to be prepared in course of the year were discussed in these meetings and certain broad decisions were arrived at. The advisers left by the end of January, 1951.

1.7. The draft of the preliminary report was considered at the 25th meeting of the National Income Committee held on 20th March, 1951, and was subsequently revised by the Chairman and Dr. Rao. The revised report was again considered at five meetings of the National Income Committee held between 8th and 15th April, 1951, and was finally adopted with certain changes. Prof. Gadgil could not attend the last six meetings due to his absence abroad, but he suggested that if the Chairman and Dr. Rao so desired, the report could be published with the statement that he participated in the preparation of the general framework and the synopsis but was not able to be present at the time of the final discussion of the report.

1.8. The preliminary report is being released mainly to furnish government with an estimate of the national income for 1948-49 without delay, and does not cover all the terms of reference of the Committee. Their final report, however, will cover all the terms of reference and is expected to be presented early in 1952.

1.9. It would be useful to give here a brief indication of the form and content of the preliminary report. The report consists of 7 chapters and an appendix. Chapter 1 is introductory. Chapter 2 deals with the concepts used in national income analysis, and gives a brief indication of the use of national income estimates in the formulation of economic policy. Chapter 3 deals with the inherent difficulties in the estimation of national income and allied data for India, and gives a broad account of the range and types of statistical material used in the preparation of the estimate presented in the report. Chapter 4 gives a general description of the methods of estimation used in the report. Chapter 5 contains estimates of the national income of India for 1948-49, in different economically useful forms, and includes brief comments on the manner in which this material can be used in the handling of various questions confronting our economy. Chapter

6 contains a social accounting frame-work for the presentation of national income data, symbols being used wherever actual figures are not available due to inadequacy or unavailability of data such as depreciation provision, consumer expenditure, private savings, and private investment. Chapter 7 gives a brief account of the new statistical material useful for national income work that is likely to become available in the near future, and gives some indications of the form and content of the second and final report of the Committee. The appendix contains detailed notes on the methods of estimation used in calculating the various figures which form the basis of the tables presented in chapters 4, 5 and 6.

1.10. It would be fitting to close this chapter with acknowledgement of help received in the work of the Committee. First of all, the Committee's thanks are due to the three distinguished foreign advisers, whose participation in their discussions constituted a most valuable contribution and has left an indelible impression on the form and contents of the report.

1.11. The Committee's thanks are also due to the members of the National Income Unit for the hard and untiring work they have put in. Despite the frequent changes in staff and the shortness of time at their disposal, the Unit has carried out the arduous task entrusted to them by the Committee. It is the NIU which is mainly responsible for the details of the calculations, the results of which are presented in this report. While all the members of the Unit deserve the thanks of the Committee, they would like to make particular mention of the Secretary of the Committee and Chief of the Unit, Shri M. Mukherjee.

1.12. The Committee's thanks are also due to the various Ministries of the Central Government and their attached offices who gave their ungrudging co-operation to the Committee and the Unit in their work. Thanks are also due to the Governments of Bombay, Madras, U.P. and West Bengal who were particularly prompt in supplying information asked for by the Committee. The Reserve Bank of India gave their unstinted co-operation and undertook some valuable studies at the instance of the Committee. The Committee's thanks are due to this national institution not only for help received but also for the help which will no doubt be forthcoming in the future as well. Finally, the Committee's thanks must be extended to the Indian Statistical Institute for placing a number of its research workers at the disposal of the NIU as well as for the general co-operation that they gave to the officers of the Unit. The Committee have no doubt that the position occupied by the Chairman as Director of the Indian Statistical Institute has proved to be of real assistance to them in their work.

Chapter Two

NATIONAL INCOME AND ECONOMIC POLICY

2.1. The economic policy of a nation is designed to assure the livelihood of its people, to prevent or mitigate declines in the nation's material product and to encourage vigorous economic growth; securing at the same time economic justice in the country, and peaceful relations with the rest of the world. In the under-developed regions of the world, the problems with which the state must particularly cope are starvation levels of output, due to natural or man-made calamities or to stagnant productive conditions, and gross inequalities that may arise because adverse circumstances and obstacles to greater productivity effect unequally various groups in society.

2.2. These problems, which are the compelling drives of economic policy in under-developed regions, fall with particularly severe impact upon some classes in the community. Popular pressures upon economic policy come, therefore, only from some specific groups, and the state ordinarily finds itself subject to a series of demands, generated by such groups, urgently calling for assistance. In such a situation, there is a tendency to deal with each specific problem as it arises; to overlook the interdependence of groups in a nation and the continuity of effects of any policy over time. When economic policy is pursued in such piecemeal and short term fashion, solution of the problems of one group may impinge adversely upon others; a given solution to-day may give rise to a worse problem tomorrow; and long term problems may be allowed to accumulate, with the danger that they will not be capable of solution within the existing framework of society whose preservation is sought.

2.3. Some problems are so urgent, and the cost of not meeting them so high, that economic policy must respond promptly and without close calculation of effects upon the rest of the community or upon the future. When famine strikes, or when the country's security is in danger, action must be taken without delay and without precise calculus. Yet even in such cases, there could be choice; and if the crisis is prolonged, there will be need for keeping the whole economy in view and to think of the future as well as of the present. In other problems, there is more room for weighing the costs to the rest of the society against the gain to the sector whose problem is being remedied. Above all, if the state is to act for the commu-

nity at large, a community that lives not only to-day but through its coming generations in the future, it must, in economic as well as in other policy, view the country's economy in all its ramifications and as a system that must increasingly satisfy both present and future needs. The relevance of what we have said above to this report is that national income statistics provide a wide view of the country's entire economy, as well as of the various groups in the population who participate as producers and income receivers: and that, if available over a substantial period, they reveal clearly the basic changes in the country's economy in the past and suggest, if not fully reveal, trends for the future.

2.4. National income statistics, estimates and accounts are often presented in a technical jargon, which, however useful to technicians, obscures the fundamental concepts whose understanding is important to all men of intelligence concerned with economic problems of their country. These concepts are as simple as they are basic.

2.5. A national income estimate measures the volume of commodities and services turned out during a given period, counted without duplication. The first important characteristic of such measures is their comprehensiveness; they include all economic activity, whether it be the production of shoes or of airplanes, services in the way of medical care or provision of justice. These measures, therefore, provide a total for the country's whole economy; and permit one to weigh the magnitude of any given sector, the product, expenditures or incomes of any group, against the corresponding national totals.

2.6. No national income estimate and account is, or can be, limited to a single figure covering the whole country's product or expenditure. Both because of requirements of proper bases of estimation and because of analytical needs, national income estimates or accounts attempt to distinguish the important groups in the economy: producers of various categories, whether agricultural cultivators, persons and firms engaged in manufacturing production, or individuals who render professional or administrative services. For each of these producing groups the estimates gauge the net product which their activities yield. Likewise, there is an attempt to distinguish various groups of income recipients, whether by the type of productive factor which their income represents (wage earners versus recipients of property income) or by size of their income. The distinction thus made among various groups of producers, income-recipients, and if data are available, spenders, savers and taxpayers is of wide importance for both analysis and policy, since it permits one to view the country's

economy as a congeries of interrelated but distinct groups, differing with respect to the technology and pattern of their productive operations; level and structure of their income; and character of their expenditures and savings. The crux of the matter lies in the fact that these various groups will respond differently to various policy measures; and the effect of one and the same measure will differ as it is applied to the several groups.

2.7. Just as a set of national income estimates or accounts will distinguish significantly different industries or groups of producers and between types-of-payment or size-of-payment classes or different groups of income recipients, so will it also try to cover fully the several economic functions such as production, distribution, and expenditure. In the circuit flow of economic activity the same total income can be measured at the point of production, as a sum of net outputs arising in the several industrial sectors of the nation's productive system; at the point of flow of incomes, as the sum of all incomes in cash, in kind and retained by enterprises as net profit; at the point of final utilisation, as the sum of consumer expenditures, government purchases of goods and services, and net outlay on capital goods. The total of net outputs, income flows, and final expenditures, with allowance in each for flows across boundaries, will of course, be identical; but the significance of each arises from the fact that they reflect the total operations of the nation's economy at the levels of the three basic economic functions, viz. production, distribution, and expenditures or consumption; and, at the several levels, the groups and components distinguished will be different, each illuminating the basic operations of the country's economy.

2.8. Several lines of interconnection run among the several operating sectors such as producers, distributors, consumers etc. and the several functions which they perform. In the wide division of labour that exists in economic society, the productive activities of one group e.g. of agricultural cultivators, affect the activities of another group of producers e.g. of the manufacturing, transporting and trading units which handle the products of agriculture. Likewise for any given producing unit, say a business firm or an individual, the amount of net output during the year determines the amounts of income received, paid out or retained, as well as the amounts consumed and saved. Since for groups of producers, output affects and determines their activities as distributors, consumers, or savers, it shows that the interconnection of groups of producers via the markets means also their interdependence as income payers or receivers and as consumers and savers. These lines of interconnection among the several operating sec-

tors of a nation's economy, including its relation to the rest of the world, and among the several basic economic functions in which they are engaged, can be described most effectively through a system of accounts; in these the operating groups appear as transactors, and their several functions as types of transactions among transactors or between accounts. It is a great advantage of national income estimates and accounts that, in addition to giving a wide view of the whole economy and distinguishing the significant operating sectors and functions, they also emphasize the various lines of interconnection existing among the sectors and the functions.

2.9. National income estimates, therefore, constitute a quantitative measure, rather than a verbal description of the country's economic activity; as well as of the activity of the significant sectors of the country's economy. We have already stated that these estimates pertain to the net total, where one must avoid the double counting involved in including both the raw material and the commodity into which the raw material enters. The reduction of the numerous economic activities of the millions of people in a country to a common denominator that permits quantitative measurement is clearly beset with intellectual difficulties; how does one add together the services of a street-sweeper with those of a prime minister, the product of a village carpenter with that of a steel mill? Likewise, getting at net product is far from an easy task: while it is clear that one should not count the full value of both the coal and the steel in whose production the coal was burned up, difficulties arise when one asks which part of the government's general administration is service to business firms, enters into the value of its product, and hence should not be counted, and which part is service to the people as individuals and consumers and should be counted.

2.10. It would be out of place to discuss these problems here; many learned texts have been written on their solution. They are mentioned here only to indicate that some basic judgments and social criteria are involved in the task of measuring a country's total net output. Yet this does not mean that the results are arbitrary, in the sense that they are subject to the caprice of the individual estimator. If a country's economy is an integrated system, if its various parts and sectors are interrelated, it must be operating on some common if only approximate yardstick—ordinarily provided by market prices. Hence reducing all activities to prices as the common denominator reflects a basic aspect of a nation's economy, and is not a mere whim of the estimator. Likewise, in considering what is consumption in the process of production and what si net pro-

duct, the estimator merely follows the judgement of society—which views net product as what is available either for consumption of individuals, personally or collectively, or for addition to capital stock.

2.11. National income estimates or accounts are, therefore, measures of the total net product of a country's economy, with distinctions among significant operating sectors and the several economic functions, all gauged on a consistent basis permitting quantitative measurement. These measures tell us how much the various sectors have produced, distributed, and consumed; and they tell it for the economy as a whole, without omission and without duplication.

2.12. The great usefulness of such measures, even if relating to only a single year, for any consideration of questions of economic policy is obvious enough—particularly if one remembers that in the process of arriving at such measures, a great deal of related information (e.g. on the number of workers, on the geographical distribution within the country, on gross income and expenses etc.) is usually secured. Take a typical policy problem that arises, say that of imposing a retail sales tax in which the magnitude of possible collection has to be estimated and then a possible limitation to non-necessities considered. If one has at hand a customary component in national product estimates, measures of consumer expenditures by various categories (food, clothing etc.), it should presumably be possible to approximate what different rates of taxes with different coverage would yield, since even a single year's figure gives an order of magnitude of the level of retail sales in a country. It is not argued here that information provided by national income estimates would be decisive in the policy question illustrated—only that it would permit a far more intelligent decision than would be possible otherwise. And what is true of the example cited would likewise be true, say, of questions of subsidy to certain industries (e.g. small scale or cottage industries), of tariffs, or wage rates, of facilities for investment etc. In all these cases a well developed set of national income estimates and accounts, even for a single year, would yield basic facts of inestimable value for narrowing the range of conflicting conjectures and for permitting a more intelligent decision.

2.13. If detailed and consistent national income estimates are available for more than one year, their value increases more than proportionately. For then it becomes possible to have not only a cross-section of the nation's economy at a single point of time, but to compare and analyse changes in the output, income and expenditures of the various sectors;

and to study the responses of the various economic groups to the different conditions that may have characterised the several points of time covered. In such case, the income estimates yield not only the basic magnitudes but also knowledge of relations that are of the most value in appraising possible effects of changes introduced by economic policy. Thus to use the earlier illustration, it becomes possible not only to approximate the magnitudes of yield in case of a contemplated sales tax but also to try to evaluate the effects of such a tax on the disposition of consumers' incomes on the sales of taxed and untaxed categories, and perhaps even on saving; provided that the analysis of the past yield information as to how demand for consumer goods has changed in response to a rise in price. The point to be emphasized in this connection is that such use of national income estimates and related data involves not only availability of such data over periods comprising short term changes, but also economic analysis that goes beyond the mere presentation of data in tables and accounts.

2.14. Finally, if detailed and consistent national income estimates and accounts are available over a long period of the country's economic history, it becomes possible to appraise the trends in the country's economic growth; and by dint of analysis, associate these trends with various factors. Of particular importance is the possibility of appraising the long term response of the various groups and sectors in the nation's economy, responses that may be significantly different from those manifested by the same groups to short term impacts. For example, a long term change in income level clearly produces an entirely different adjustment of consumption expenditures and savings from a short term change. The bearing on economic policy is obvious. Even short term economic legislation should be appraised from the standpoint of the long term effects it may bring about. In fact many facets of a state's economic policy are of direct concern with and have impact upon the long term growth of a country's economy; more particularly, any systematic endeavours in the field of economic planning have primarily long term implications. It is, therefore, exceedingly important that some background of empirical knowledge and analysis exist relating to past growth of the economy, reflective of its patterns of adjustment to changes over the long run. The availability of long period data on national income and its components can therefore be exceedingly helpful in revealing the trend in the productivity of various industries, and the effects of capital investment upon them; the tendencies in the distribution of income among various population groups and the effects of such tendencies upon trends in the apportionment of income between consumption and savings; and many other dynamic

aspects of the economy—all indispensable for a proper thinking through of the country's feasible economic future and of the probable impacts of various economic policies designed to encourage economic growth.

2.15. The utility to economic policy of national income estimates and accounts, especially if enhanced by analysis serving to reveal the factors at play, needs no further stressing; it channels the mind of the policy maker away from the immediate pressures of the specific problems to a consideration of the whole economy, of the close interrelations among its parts, and of the links between the present and the future. But to avoid misunderstanding, it should be stressed that these statistical measures, no matter how revealing, do not in and of themselves yield determinate answers to questions of economic policy; nor will they do it completely, even when used in a framework of economic analysis. There would still be room for value judgments, based on social ideals and appraisals of political and administrative feasibility. Nevertheless, there can be no doubt that national income estimates and economic analysis thereof can form a useful base for intelligent decisions and can minimise, if not altogether eliminate the guesses and prejudices that so much underlie current policy judgments on economic issues. Securing proper data for national income estimates and the intellectual resources necessary for their analysis constitute a long and relatively costly task. If, in spite of this, we have laid so much stress on the utility of such data and the need for undertaking both their collection and analysis, it is because of our belief that policy makers in this country will make active use of this material, once it becomes available to them in a form visibly relevant to the many issues they handle.

Chapter Three

PROBLEMS OF NATIONAL INCOME ESTIMATION IN INDIA

3.1. If national income estimates and accounts and their economic analysis are to be used in economic policy, they must be based not only on a clear and unambiguous understanding of the concepts employed but also on empirical data of at least a minimum order of reliability. Even in the case of the highly industrialised countries of the west with their longer tradition of work in the national income field, concepts are by no means always clear or uniform, while adequate empirical data are not always available on the significant sections of their economies. It is but natural therefore that difficulties in the way of a satisfactory estimation and analysis of national income in India are somewhat greater. We proceed to discuss some of these difficulties as a necessary prelude to the methods we have actually used in the estimation of India's income for 1948-49.

3.2. To begin with, when calculating the value of output, one normally proceeds on the assumption that the bulk of the commodities and services produced in the country are exchanged for money. In the case of India, however, a considerable portion of output does not come into the market at all, either being consumed by the producers themselves or bartered for other commodities and services. The problem of imputation of value thus arises and takes on significantly large proportions in some sectors of the economy. In view of the difficulties in measurability that this results in, and in order to avoid misunderstanding, it may perhaps become necessary for estimates of India's income to include a classification of 'monetary' and 'non-monetary' sectors which one would not find in national income estimates of other countries.

3.3. The problem of measurability is further complicated in India by the fact that many producers have nothing but the remotest notion of either the quantity or value of their output. In western countries, economic statistics are largely collected directly from the individuals and enterprises who are the active economic agents and have knowledge of the fact by virtue of their participation in economic activity. It becomes difficult to follow this practice in India not only because of the expense involved and the relative dearth of the technical personnel needed for the purpose but also because of the illiteracy of the majority of the population, the semi-subsistence character of their economic activity, and the general absence of the

practice of keeping accounts either among producers or among consumers. Even if he could and did maintain accounts, the producer in India will find it hard put even to know the gross value of his output, let alone the net output; in the absence of accounts, we cannot even know, much less impart information on his income and expenditure. An element of guesswork therefore inevitably enters into the assessment of output, especially in the large sectors of the economy which are dominated by the small producer or the household enterprise.

3.4. Then again, Indian economy is distinguished by the comparative lack of differentiation in economic functioning. While it is true that we have a sector in our economy that is as differentiated and subject to modern income classification as in the west, it is also true that a major portion of our economy consists of household enterprises, simultaneously and without differentiation performing functions which would normally fall under different industrial categories. Thus sizable groups among agricultural producers pursue other occupations in other industries, often in urban places or at any rate outside their domicile. Hence the customary classification of national income by industrial origin cannot be taken except as a rough approximation to a classification of distinct groups in the population, whose main income is derived from a single industry. And there arises a genuine question as to whether a substantial revision of the industrial classification and a much greater emphasis than is customary in the west upon social groupings connected with the character of the enterprise rather than with industry would not be more useful for India.

3.5. Thus a great deal of analytical work remains to be done on questions of definition and classification in regard to the problem of measurability in national income estimates in India. Such work cannot, however, be successfully undertaken except as part of a substantive analysis based upon empirical data. Concepts and classification can be tested as to their usefulness and effectively re-formulated, only if they rest upon a cogent view of the operation of the economy which is the subject of economic analysis. A revised classification for national income work in India can be useful only if it brings out more clearly the groups in the economy which are at significantly different levels of income, that respond differently to changing economic conditions, and that would be affected differently by economic policy. We hope to revert to this subject in our second and final report, but, in the meanwhile, we would like to draw the attention of our colleagues among Indian economic analysts to the vast territory that aits intellectual exploration.

3.6. Apart from the conceptual difficulties relating to national income work that we have briefly mentioned above, there is the much larger problem of the non-availability of statistical data for the estimation of income and related accounts in India. We briefly mention below the major sources of statistical data available as also the major gaps, leaving to the next chapter an account of the methods we have employed in bringing together and processing this diverse and incomplete material for estimating India's income for 1948-49.

3.7. The main bodies of available data, used in fact by us as the pillars of the statistical estimates for 1948-49, are five in number. First, there are the data on gross volume of agricultural production (crops, livestock, forestry etc.) together with some data on prices at which these products of agriculture and related activities are marketed. Second are the data on the activities of the factory establishments, including both gross volume of output and a fair amount of information on payments to employees etc. Grouped with these could be data on other organised private sectors, such as banks and insurance companies. Third ample though somewhat uncoordinated data are available on the income and expenditure of government and government enterprises. Fourth, there is some information on the working population, which permits derivation, in a few cases as residuals, of numbers engaged in such pursuits as small scale manufacturing production, professional and related services, domestic service and the like. Finally, there are the data on imports and exports and other items in the international balance of payments.

3.8. Even the data just listed are subject to limitations. The prices and expenses data for agricultural and related activities are quite incomplete. Data on factory establishments are limited to only a part of the industries in which factory units are important. Information on governmental activities, while detailed, is quite diverse and not easily reducible to economic categories. And data both on total and working population are obsolete, since no census data are yet available after 1941; and even the latter was incompletely tabulated. Finally, some of the items in the international balance of payments are still rough estimates and others subject to potentially large errors. Yet, these five bodies of data, plus a variety of subsidiary special studies, must be used, and have been used by us to derive estimates for 1948-49.

3.9. But the list of major gaps in the supply of statistical data is far more impressive. As already indicated, even the population data are quite inadequate—a gap that one may hope will be remedied when the data for the 1951 census become available. But the lacunae in purely economic

information are striking indeed. There are scarcely any current data on the economic structure of the basic industry of the country—agriculture and related activities—no information on the structure of costs, on consumer expenditures of the population attached to land, or on their savings if any. Neither are there any recent or sufficiently comprehensive data on the consumption expenditure or savings of the urban population. There are no useful data on distribution of income by size, the current information yielded by the income tax statistics being exceedingly limited in scope, if not also in accuracy. There are no data that would permit an estimate of capital formation, except for the hope extended by further analysis of production statistics.

3.10. In connection with the specific task of preparing the estimates for a country like India for a year like 1948-49, two other aspects of the supply of statistics should be noted. Regional diversities in India, with its size and varied history, are large; and inadequacy of data cannot easily be overcome by extending data for one part of the country to the rest of the country. Secondly, administrative and area changes are of recent origin; and much of the available information has reference to the period prior to partition on 15 August, 1947, and is not usable for estimates relating to the present Union of India, without thorough-going, laborious and, in the nature of the case potentially imprecise adjustments.

3.11. In indicating the difficulties, both conceptual and statistical, in the way of preparing national income estimates for India, it is not our intention either to criticise official agencies or to offer an advance apology for the somewhat unsatisfactory character of the estimates we are presenting in chapters 5 and 6. The relative dearth of material, both statistical and analytical, in the national income field in India is part of the vicious circle characteristic of an under-developed economy, poverty leading to perpetuation of poverty. We must emphasise however that accumulation of adequate data and analysis for national income estimation is part and parcel of the accumulation of intellectual and technical capital which is so necessary a condition for both the accumulation and utilisation of material capital. Basic changes in economic functioning and in economic intelligence are closely interrelated; and if there is to be economic development, efforts to carry it through must be made simultaneously both at the level of material production and of that of economic and other intelligence. We have no doubt that this will be done and that we shall soon have in the national income field both data and analysis that would prove significant and useful in the handling of economic questions in this country.

CHAPTER FOUR

METHODS FOLLOWED FOR ESTIMATION OF INDIA'S INCOME

4.1. In spite of the difficulties mentioned in the preceding chapter we have ventured to put forward an estimate of India's income for 1948-49. The estimate undoubtedly makes use of a number of expedients, assumptions and guesses in order to overcome the many gaps in the statistical field and to extend its coverage to the whole of the country and to all the sectors of its economy. The estimate is obviously tentative and subject to revision in the light of additional data. If nevertheless we have put forward these provisional figures, it is because we feel that the only way to make progress in this field is to make the best use of what is available and in the process point to the directions in which there is need for collection of additional data or for additional analysis.

4.2. In determining the methods followed for estimating India's income for 1948-49, we have received valuable help from the work of previous research workers in the field. In particular, the two pioneering studies made by a member of the Committee in the field of national income deserve mention*. Though the estimates now put forward do, in our opinion, constitute better estimates than any published so far, we are also conscious of the fact that this is due in large measure partly to the availability of new material such as the Census of Manufactures and Marketing Reports and partly to the advance which has taken place in the whole field of national income work in the last ten to twelve years. We must also acknowledge that the broad pattern of the methods followed in our estimate have their basis in the methods adopted by our colleague in the two studies mentioned above.

4.3. The methods followed in the estimation of India's income have been necessarily governed by the availability of data. It has, therefore, not been possible to use either the 'inventory' or the 'income' method to cover the entire range of the economy. We have, therefore, estimated the total working force in 1948-49 and its distribution among different occupations; this occupational classification is made on the basis of the classification of the economy by industry, including under the term 'industry'

* V.K.R.V. Rao : *An Essay on India's National Income: 1925-29* (Allen and Unwin) and *The National Income of British India : 1931-32* (Macmillan)

also agriculture, services, and all other means of income-generation. The inventory method is applied to as many sectors of the economy as possible, the value of net product being obtained by complicated process of estimation involving many ingenious devices and assumptions for inferring themagnitudes of the unknown from those of the known; while for the remaining sectors the income method is applied, the number of workers in each category being obtained from the re-organized data on occupational classification. The total gives the net domestic product at factor cost, and after adjusting for earned income from abroad, the figure of national income for 1948-49 is derived. The area and population covered by this estimate pertains to the whole of the Union of India; and this in turn involves a good deal of processing of statistical material as also the use of a number of assumptions as much of the data available in the field of Indian income relates to the territory and population of India before partition.

4.4. Detailed notes on our methods of estimation are to be found in the appendix. In this chapter, however, we have given a brief account of the major features of the methods followed for estimating India's income in order that the reader may be able to form his own judgment on the degree of validity of our figures.

4.5. In arriving at the total number and the occupational classification of the working force, we have been faced not only with the difficulty that the year chosen for the estimates is an inter-censal year, but also by the fact that the published census reports of 1941 do not contain figures of occupational classification, tabulation of the occupation data having been abandoned on grounds of economy. A significant exception to this statement is provided by the census reports of Class B and C States covering a population of 53.8 millions. Fortunately a 2% (every fiftieth) sample of census slips had been preserved; and after an expert enquiry* made by the Government of India in 1945, the Indian Statistical Institute of Calcutta was entrusted with the task of making estimates of occupation distribution for class A States for 1941. These Tables covering a population of 235.1 millions together with the Tables available in the 1941 census for class B and C States covering a population of 53.8 millions gave a total of 288.9 millions out of a total population of 318.9 millions. For the balance of 30 millions, the working force is estimated from ratios calculated separately for Class A and for Class B and C States. The total gives the working force for 1941. For arriving at the working force and its classification for 1948,

* *Report of the Population Data Committee* (Government of India, 1945)

the assumption is made that the ratio of occupied population in all industrial classes and subclasses in 1941 to the total population remained the same in 1948; these ratios were calculated separately for male and female principal earners and working dependents. It will be possible to check this assumption when the results of the 1951 Census become available, and it is likely that these figures will require some revision in future.

4.6. Another feature of the estimated working force and its industrial classification is our inclusion of working dependents in the working force and the exclusion of subsidiary workers. Dr. Rao had included both working dependents and subsidiary workers in his calculation of the working force in 1931 and gave them weights of $\frac{1}{4}$ and $\frac{1}{3}$ respectively as compared to 1 for principal earners. We have not followed this procedure mainly because the scale of equivalence adopted is somewhat arbitrary, and considerable research has to be undertaken before scales of equivalence can be established with real justification. Moreover, the inclusion of subsidiary workers as above rests on the assumption that an earner with a subsidiary occupation necessarily earns more than one without a subsidiary occupation whereas it may well be that subsidiary occupation is associated with less than average income in the primary occupation. Finally any error arising from our procedure is likely to be negligible in the estimates of Indian income as the bulk of it is estimated on the inventory or net output method.

4.7. We have made some adjustments in the category of occupational classes with a view to making our classifications more logical in respect of the persons included in each category. Estimates of working force and its occupational distribution in 1948 are given in Table 1; these constitute the controlling totals in our calculation of India's income.

TABLE 1: DISTRIBUTION OF WORKING FORCE BY CENSUS SUBCLASSES

census subclasses		principal earners plus working dependents		principal earners plus $\frac{1}{2}$ working dependents	
		no. in (000)	p.c.	no. in (000)	p.c.
(1)		(2)	(3)	(4)	(5)
I.	exploitation of animals and vegetation	90,537	68.2	81,550	67.9
II.	exploitation of minerals	633	0.5	589	0.5
III.	industry	18,019	13.6	16,245	13.5
IV.	transport	2,448	1.8	2,269	1.9
V.	trade	8,250	6.2	7,706	6.4
VI.	public force	1,909	1.4	1,847	1.5
VII.	public administration	1,697	1.3	1,638	1.4
VIII.	professions and liberal arts	5,044	3.8	4,673	4.0
IX.	domestic service	4,194	3.2	3,533	2.9
	total	132,731	100.0	120,050	100.0

4.8. The categories of income arising from the following sectors are estimated on the basis of the 'inventory' or value of net product method:

(1) exploitation of animals and vegetation including animal husbandry and fishing;
(2) exploitation of minerals; and
(3) industry.

The remaining items in Table 1 are dealt with on the 'income' method, except in the case of house property where income from urban house property is derived from municipal taxes on property and that from rural house property from an average rate of return on the basis of the estimated value of rural houses.

4.9. Estimating the value of agricultural output is subject to a number of difficulties because of inadequacy of coverage and, where coverage exists, inaccuracy of return, in regard to the data dealing with acreage, outturn, valuation, and derivation of net value. Thus statistics of land utilization are available only for 557 million acres out of a total geographical area of 781 million acres in the Indian Union. Of these 781 million acres, 224 million acres are 'non reporting'. For 180 million acres, returns of land utilization are estimated and not based on complete enumeration.* Estimates of yield for the 'forecast' crops cover 230 million acres or roughly 77 per cent of the gross area under cultivation; estimates of yield are also available for tea, coffee and rubber. Even in the case of forecast crops, with the exception of rice and wheat in class A states for which out-turn statistics based on random sample surveys are available, estimates of out-turn are generally based on eye-estimation by the village *patwari* and contain an unknown element of error. Estimates of out-turn for certain other crops are made by the Ministry of Agriculture as also estimates of out-turn of foodgrains for part of the non-reporting area. For the remaining crops including pulses, fruits, vegetables, 'other' foodgrains, 'other' pulses, 'other' oilseeds, 'other' drugs and narcotics, 'other' dyes, 'other' fibres, 'other' condiments and spices, fodder crops, grass, straw, rice husk and bran and miscellaneous food and non-food crops, estimates have been made on the basis of miscellaneous data obtained from both official and non-official sources, especially the Ministry of Agriculture and from published and unpublished Marketing Reports prepared by the Agricultural Marketing Adviser to the Government of India. A noteworthy feature is our inclusion of the output of straw, stalks, rice husk,

* Ministry of Agriculture: *Co-ordination of Agricultural Statistics in India*, 1949, p. 3.

bran, and grass and fodder even though these are used mostly for animal consumption.

4.10. As regards valuation, we have in the main adopted harvest prices for individual states as constituting the nearest approximation to prices at the farm level or those relevant for the producer. It must be noted however that harvest prices are usually wholesale prices ruling in important rural markets during the harvest time, while in the case of Bombay, Madras and for a few crops in Madhya Pradesh harvest prices are in fact retail prices. Moreover, harvest prices are not available for all crops or for all areas even for important crops, and recourse has had to be taken to other available price data for such crops and for such areas. Since these prices, including harvest prices, are in a sense market prices of crops after husking, cleaning and similar processing for market, we have treated the value of agricultural output as including these ancillary activities including marketing services performed by the cultivator. Incidentally this involves a departure from a strictly industrial classification of national income but this is due to the lack of a strictly functional distribution of economic activity in our country. It may also be noted that our treatment fails to take note of the possible differences between the imputed value attributable to the non-marketed part of the agricultural output and the actual value measured by the price obtained for the marketed output. The gross value of agricultural output resulting from these calculations is thus based on different types of estimates. The approximate coverage of these different types of estimates is as follows. Forecast crops, including rice husk and bran, stalks and straw, and including the estimate for non-reporting areas roughly constitute 74% of the total. Estimates of output (for non-forecast crops) supplied by the Ministry of Agriculture come to 6% while those derived from the Marketing Reports cover 6%; finally, 13% of the gross value of agricultural output is based on estimates of value per acre of the crops for which estimates of output are not available.

4.11. The problem of netting the gross value of agricultural output arrived at as above is complicated by the fact that there is no census of agricultural production as such nor are there authoritative and comprehensive studies of agricultural costs covering the entire country and all the crops. Information on seed, wastage, market charges, manures, repair and depreciation and feed of livestock used on the farm have been obtained either from the Ministry of Agriculture or from standard text books of agriculture or from Marketing Reports or other miscellaneous published and unpublished material. No deduction has been made for interest on productive agricultural debt, as all income originating in each

category has been included by us in that category even though it may not all accrue to the persons returning their occupation under that category. It may be of interest to the reader to know that the total cost of production deducted by us comes to 21% of the gross value of agricultural output. To the net value thus arrived at, we have added an arbitrary figure to cover non-reporting areas.

4.12. As regards the income originating in animal husbandry we have used the livestock census data of 1945 as our controlling totals. Estimates of the output of different livestock products such as milk and milk products, meat, hides and skins, eggs and poultry, wool, dung and minor items have been obtained either from Marketing Reports or from the Directorate of Marketing and Inspection. For valuation of output, prices have been obtained either from published Marketing Reports or from the Directorate of Marketing and Inspection or from other sources; where the prices obtained do not cover all areas, averages have been used based on available data. Direct estimates of value have been taken, made on a somewhat arbitrary basis for minor products such as bones, horns, ivory, tips, blood etc. The net value of the product has been arrived at by deducting the estimated value of goods consumed by non-service livestock, no allowance being made for distributive margins in view of the fact that almost the entire material consumed comes from within the agriculture and livestock sector. It may be of interest to note that the estimated cost of production works out at 47% of the gross value of output in this sector.

4.13. As regards forestry, a considerable volume of data is available for government forests but it is not in a form that can be directly used for purposes of estimation. The situation is further complicated by the existence of private forests as also by the lack of complete coverage of the area under forests in the country. An attempt has been made to estimate directly the value of forest products in the area for which data are available and the average value per acre thus obtained extended to the remaining area. The method followed is not very satisfactory but cannot be helped in the absence of more comprehensive data.

4.14. As regards the income originating in the fishery sector, the statistical material available is both scanty and unreliable, and reliance has been placed mainly on the Marketing Report on fish. This figure will undoubtedly have to be revised when additional data become available.

4.15. Estimation of gross value of output in the minerals sector is comparatively easy, as adequate statistical material is available both in the

Reports of the Chief Inspector of Mines and in the surveys made by the Geological Survey of India. The latter gives break-downs of the figures by States and endeavours to evaluate the output of all minerals at pit-head prices. We have, therefore, preferred to use the figures obtained from the Geological Survey. Net value figures are obtained after making some arbitrary deductions for cost of materials and of electricity consumed, deductions for depreciation being obtained from an analysis of the balance sheets of mining companies carried out by the Reserve Bank of India.

4.16. The sector on industry has some good statistical coverage on the one hand and a great deal of scattered and somewhat uncertain data on the other. We have classified the industrial sector under two broad categories, namely factory industries, and small enterprises including hand-trades (=handicrafts). Figures of the number of persons employed in the former are obtained on the basis of factory statistics with some minor adjustments for lack of coverage, while those of the persons employed in small enterprises are obtained by deduction from the overall total of persons engaged in industry given in Table 1.

4.17. For factory industries, there has been available for some year figures of output of a number of such industries. Recently, however, more comprehensive data have become available in the Census of Manufactures annually undertaken since 1946 by the Directorate of Industrial Statistics. Thus, the Census of Manufactures for 1948 gives not only figures of persons employed and quantum of output but also those of net value added by manufacture in each group arrived at by gross value of output *less* raw materials, fuel, etc., *less* depreciation. No allowance however is made for certain other operational costs such as current repairs, insurance charges, costs of advertisements etc. Moreover, the data given in the Census of Manufactures pertain only to 29 groups of industries, covering an employed population of 1.5 million workers, out of the total employed population of 2.4 million workers in 68 groups of industries. These 9 lakhs of workers have been re-classified into the Census of Manufactures categories, and rates of net output per worker as given in similar industries in the census were used. For those workers who could not be brought under any of these categories, a simple average of net output per worker for all the 29 groups of industries was applied. Independent estimates of net output were made for electricity generation, film industry etc. From the total value thus arrived at, which is already net of raw materials, fuel and depreciation, deductions have been made for insurance

premiums, imputed banking charges,* and other miscellaneous charges. The resulting figure constitutes the net value of manufacture of the factory sector of industry.

4.18. The position regarding the net value of manufacture of small enterprises, which consists of small establishments of the factory type and of cottage and hand industries, is much more difficult, as there is not even a partial census of this sector nor comprehensive studies either of output or earnings. The workers in this sector have been classified under three broad categories, viz. factory type small enterprises, those of an intermediate type, and cottage and hand industries, on the basis of an examination of the detailed census heads into which the total figure has been classified. For arriving at the net output per worker, all available material on daily, weekly, monthly and annual earnings of these activities have been tabulated and reduced to annual equivalents, and adjusted for changes in earnings in the case of data which pertain to an earlier period. The figures thus arrived at for different occupational categories are applied to workers in the cottage industry group; in the case of workers in the intermediate group an addition of 12% is made to account for income payments other than wages and salaries, while in the case of workers in the factory type, the corresponding addition is 24%. It may be noted that the addition made to the net earings per worker in the intermediate and factory type small enterprises are on the basis of $\frac{1}{8}$ and $\frac{1}{4}$ respectively of the difference between net value of manufacture per worker and net figure of wages and salaries per worker in the factory industries. These additions have been made on the obvious assumption that in these types of small enterprises, a given return is attributable to factors of production other than labour. It must be added that as the earnings data, on the basis of which the figures of net output per worker are calculated, are scattered and not derived from a random sample, the resulting figures of the net value added by this sector are likely to contain a significant measure of error. It goes without saying that these figures will have to undergo substantial revision when additional data become available.

4.19. As regards trade and transport the workers in this category are classified for purposes of income estimation into the following broad groups, viz. communications, railways, organized banking and insurance and other commerce and transport. The last is a residual and not only accounts for the largest number of workers in this category but also corresponds to

* see appendix, A.72.

the small enterprise section in the industrial sector in respect of the domestic or non-organized character of the economic activity.

4.20. The value of the net output of communication is derived from government budget accounts, while that of railways is obtained from the accounts published by the Railway Board. As regards banks, use has been made of the analysis of the balance sheets and profit and loss accounts of 611 scheduled and non-scheduled banks for 1948 undertaken by the Reserve Bank of India. For co-operative societies, costs of management for 1948-49 *less* 10% deduction for cost of stationery etc. have been assumed to represent wage and salary payments and banking surplus. The net value added by the banking department of the Reserve Bank of India has been estimated on the basis of wage and salary payments derived from the bank's profit and loss accounts for the year ended June 1949. The sum of the above is taken to be the net product of the banking sector. Imputed receipts of the banking sector for services rendered to other sectors have been calculated in order that they may be deducted from the net value of those sectors and double counting thus avoided.

4.21. As regards insurance companies data available in the Indian Insurance year book for 1949 have been made use of and the net contribution estimated on the basis of wages and salaries plus operating surplus of the concerns constituting the sector. Here again, imputed values are estimated of business insurance premiums paid by different sectors of productive activity and deducted from the net value contributed by the relevant sectors

4.22. Net value attributable to other commerce and transport is extremely difficult to estimate in the absence of a census of distribution. In fact, it is not possible to assess even the volume of trading transactions in the absence of such a census. The earnings of workers in this sector have therefore to be estimated on a rough and ready basis of average earnings in different trades. The workers under other commerce and transport are divided into two broad categories, viz. those who pay income tax and those who do not. The income of the former is obtained from income tax statistics. The latter are, in turn, divided into employers and employees on the basis of some evidence available for Bombay in pre-war years. Obviously the application of this ratio to the whole of the country leads to an error of unknown magnitude. The earnings of employees and of employers are estimated on the basis of scattered and miscellaneous data that are available on the subject. It may be noted that the average rate of earnings applied to employers is Rs. 2400 per year, while that applied to

the bulk of the employees is Rs. 720 per year. No deductions are made, as the figures are assumed to represent *net* average earnings in this sector. An alternative approach followed by the National Income Unit on the basis of an analysis of distributive costs culled from sources of widely differing reliability and range of comprehensiveness gives a figure of net value added by this sector which is slightly higher than the first figure. We have decided to use the first figure, which is based on the income method as it involves a much smaller number of assumptions than the alternative approach, the assumptions made being also more capable of verification in a broad kind of way. Moreover, the difference between the two alternative estimates is less than 4%. In any case, there is no doubt that the estimate of income from this sector forms the weakest link in our estimates of India's income for 1948-49; and too much stress cannot be laid on the imperative need for the collection and analysis of additional material in the field of both incomes and distributive margins in respect of unorganized trade and transport.

4.23. The sector entitled professions and liberal arts presents even greater difficulties for the national income estimator, for the data available on numbers are not reliable while those available on earnings and expenses are not representative. The division of workers in this sector between urban and rural areas is also a matter of conjecture. Nevertheless an estimate has been made on the basis of estimated average earnings in each category figuring under this sector; the figures thus arrived at have been compared with the estimated value of the net output of this sector derived from an analysis of the somewhat large but not particularly representative data available on consumer expenditure. As the two figures do not show a wide divergence, and as the latter is based on somewhat firmer data than the former, we have used the latter figure in our estimate of national income. It is not necessary to stress the importance of consumer expenditure studies undertaken on a country-wide and random sample basis in order to derive not only the figures of net value contributed by this sector but also in order to obtain the more important figures of expenditure-patterns, and of savings. Such studies could usefully be supplemented by income studies for workers in this sector, especially of those like barbers, washermen, etc. whose services are of a more standardized character and whose incomes are likely to show a smaller range of variation than those of lawyers and doctors.

4.24. The net value contributed by government services fall under two sections, viz. general administration, and business enterprises. The latter

fall under the industry sector and have been treated there on the same basis as other industries. As regards the former, the convention has necessarily to be accepted of treating the wages and salaries paid by all government administrative departments as the value (at cost) of government services. Figures in respect of these have been culled from budget accounts, both central and state, accounts of municipalities, and returns received directly from port trusts. Where establishment expenses do not clearly distinguish wages and salaries from purchase of materials or other miscellaneous expenditure, rough allocations and estimates have had to be made. In view, however, of the wealth of data available in regard to government accounts and the importance of analysing government share in the generation, utilization and disposal of national income, including current consumption and capital formation, we have devoted special attention to the public sector and have put forward in the next two chapters a number of tables which constitute the first of their kind to be published in this country.

4.25. Estimation of the income of domestic workers is subject to the same difficulties as those we have mentioned for estimating the income accruing to professions and liberal arts. Though an estimate has been made of the net value added by this sector, we cannot emphasize too strongly its unsatisfactory character. Here again is a field of study that requires immediate attention.

4.26. All house property in the country is divided into two classes, viz. urban and rural. Estimated annual rentals in urban areas derived from the collections of municipal rates and house taxes are used for estimating the income from urban house property. It is not possible to do the same in the case of rural house property. Here, therefore, the number of rural houses is estimated by extrapolation from the 1941 census tables, the average value of rural houses estimated on the basis of some limited data that are available on the subject, and current rental value imputed by applying 6 per cent rate of interest on the value of this property. From this rental value, the net value is obtained by deducting the estimated annual expenditure on maintenance and repairs of rural houses.

4.27. The sum of the net output of all the sectors discussed above gives the net domestic product at factor cost. In order to arrive at the national income we have to adjust this figure by that of the estimated net income from abroad. Fortunately, a wealth of statistical material in regard to the country's balance of payments is available in the publi-

cations of the Reserve Bank of India which have been made use of in this connection. Incidentally, we have taken the opportunity of using these data for presenting a number of tables in the next two chapters showing the relation of the economy to the rest of the world. Adjusting the estimated net domestic product by the estimated net income from abroad we arrive at an estimate of the national income of India for 1948-49.

4.28. In the next chapter, we proceed to give in tabular form the results of the calculations described in this chapter. We have pointed out the many limitations of the available material. We are, however, presenting the estimates not because we think that the individual figures are free from a large margin of uncertainty but because they have an overall value in showing the relative magnitudes of the different items, and because they bring out the need of a continuing improvement of the statistical information and its economic analysis.

Chapter Five

THE ESTIMATES FOR 1948–49

5.1. Although the aggregate national income and its changes from year to year are of interest in many ways, the detailed structure of the aggregate is more important for policy decisions. For example, it is useful to know the contribution of different types of productive activity and the net output per engaged person in different branches of such activities A breakdown by character of enterprise, namely, small (broadly household) enterprises and larger establishments is of importance in a comparatively under-developed economy. The relative share of rural and urban sectors, or the relative proportion of the monetized (arising through monetary transactions) and demonetized (through barter and payments in kind) sectors of the economy are important in India. Consumer expenditure and capital formation; the share of Government in domestic product and expenditure; and the flow of commodities and services across the boundary of the country, that is, the position of the national economy in relation to the rest of the world, are essential items of information for the guidance of economic policy. In the present chapter we shall discuss these problems in a general way, and give such estimates for the financial year 1948-49 (1 April - 31 March) as could be prepared on the basis of the available material.*

5.2. *National income by industrial origin:* Table 2 shows the distribution of national income by industrial origin, and indicates the relative importance of different types of productive activity in the national economy. If similar figures are available for a number of years, it is possible to compare the shifts in the distribution of national income among the different sectors. The rate of industrialization, for example, can be properly assessed only on the basis of such figures.

5.3. For the present we have, however, estimates for only one year which also provide useful indications of the general structure of Indian economy. Agriculture, animal husbandry, and ancillary activities (namely, processing, transport, and marketing services performed by the cultivator on his own account in respect of his own produce) contribute roughly 48 per cent (item 4) or nearly half the national income. Commerce, transport,

* The unit used is abja rupees = 100 crores of rupees = one milliard rupees = one U.S. billion rupees = 10^9 rupees = £75 million pounds sterling = $210 million U.S. dollars. The word "abja" is a standard Sanskrit term for one hundred crores.

and communications (item 13) amount to 19.5 per cent or nearly a fifth of the total national income. When it is remembered that a large part of the commodity production does not enter into trade at all—being retained by the producer for his own consumption—the relative importance of this sector is clear. These figures, taken in conjunction with income-tax returns, may also be of some help in appraising the incidence of taxation on various sectors. Looking at a different aspect, we find from Table 2, that commodity production taken roughly as the total value contributed by agriculture, mining, manufacturing and hand-trades (sum of items 4 and 8) amount to Rs. 56.5 abja or nearly two-thirds of the total national income.

TABLE 2: NATIONAL INCOME OF THE INDIAN UNION BY INDUSTRIAL ORIGIN: 1948-49

item (1)	net output (Rs. abja*) (2)	per centage (3)
agriculture		
1. agriculture, animal husbandry and ancillary activities[1]	40.7	46.7
2. forestry	0.6	0.7
3. fishery	0.2	0.2
4. total of agriculture	41.5	47.6
mining, manufacturing and hand-trades		
5. mining	0.6	0.7
6. factory establishments	5.8	6.6
7. small enterprises	*8.6	9.9
8. total of mining, manufacturing and hand-trades	15.0	17.2
commerce, transport and communication		
9. communications (post, telegraph and telephone)	0.3	0.3
10. railways	2.0	2.3
11. organized banking and insurance	0.5	0.6
12. other commerce and transport[2]	14.2	16.3
13. total of commerce, transport and communications	17.0	19.5
other services		
14. professions and liberal arts	3.2	3.7
15. government services (administration)	4.6	5.3
16. domestic service	1.5	1.7
17. house property	4.5	5.2
18. total of other services	13.8	15.9
19. net domestic product at factor cost	87.3	100.2
20. net earned income from abroad	(—) 0.2	(—) 0.2
21. net national output at factor cost =national income	£ 87.1 abja	100.0

*abja = 100 crores = 1 milliard = 1 U.S. billion = 10^9.
Rs. abja = £75 million pounds sterling = $210 million U.S. dollars (current rate).

[1] these include processing, marketing and ancillary activities performed by the cultivator in respect of his own produce.
[2] include services of indigenous money-lenders.

5.4. *National income by character of enterprise*: The information given in Table 2 has been re-grouped in Table 3. In this table items 15–17 (namely, other commerce and transport, government administration, and house property) have not been classified. The remaining items have been grouped under two heads: (a) small (or broadly household) enterprise; and (b) larger enterprises (which are generally corporate establishments). Omitting the unclassified items, the contribution of small enterprises (83.6 per cent) is practically five times as great as the contribution of larger enterprises (16.4 per cent). Even if the unclassified items are included, small enterprises account for more than 61 per cent of the net domestic product. The relative importance of small (or largely household) enterprises is quite clear. A comparison of the share of household enterprises

TABLE 3: NET DOMESTIC PRODUCT OF THE INDIAN UNION BY CHARACTER OF ENTERPRISE: 1948-49

items	net output (Rs. abja*)	percentage of "classified product"	percentage of "domestic product"
(1)	(2)	(3)	(4)
small enterprises (largely household)			
1. agriculture (other than plantations, etc.)	40.0	62.6	
2. fishery	0.2	0.3	
3. small enterprises and hand-trades	8.6	13.4	
4. professions and liberal arts	3.2	5.0	
5. domestic service	1.5	2.3	
6. total of small enterprises	53.5	83.6	61.3
larger enterprises			
7. agriculture (plantations, etc)	0.7	1.1	
8. forestry	0.6	0.9	
9. mining	0.6	0.9	
10. factory establishments	5.8	9.1	
11. railways	2.0	3.1	
12. communications	0.3	0.5	
13. organised banking and insurance	0.5	0.8	
14. total of larger enterprises	10.5	16.4	12.0
unclassified items			
15. other commerce and transport	14.2		
16. government services (administration)	4.6		
17. house property	4.5		
18. total of unclassified items	23.3		26.7
19. net domestic product	87.3	100.0	100.0

* abja=100 crores=1 milliard=1 U.S. billion=10^9

Rs. abja=£ 75 million pounds sterling=$ 210 million U.S. dollars.

over a number of years would give an important indication of the changing pattern of economic development in India. The relative share of small and large enterprises is also a matter of interest from the point of view of

priorities and allocation of resources. For planning purposes, it would of course be still more useful to have similar breakdowns within important groups of industries. This is not possible at present, but it would be useful to collect relevant data for such purposes in future.

5.5. *Net output per engaged person in different branches of productive activity*: It is useful to consider the contribution of each industrial sector (in Table 2) in relation to the estimated total working force in the sector. This would give a rough idea of the net value of output per engaged or occupied person in each sector. Relevant figures are given in Table 4.

TABLE 4: NET OUTPUT PER ENGAGED PERSON IN THE INDIAN UNION: 1948-49

items	net output (Rs. abja*)	number of persons engaged (lakhs)*	net output per engaged person (Rs. thousands)
(1)	(2)	(3)	(4)
1. agriculture	41.5	905	0.5
2. mining and factory establishments	6.4	38	1.7
3. small enterprises	8.6	149	0.6
4. total of mining, manufacturing and hand-trades	15.0	187	0.8
5. railways and communications	2.3	12	1.9
6. banking, insurance and other commerce and transport	14.7	95	1.5
7. total of commerce, transport and communications	17.0	107	1.6
8. professions and liberal arts	3.2	50	0.6
9. government services (administration)	4.6	36	1.3
10. domestic service	1.5	42	0.4
11. house property	4.5		
12. total of other services	13.8	128	1.1
13. net domestic product at factor cost	87.3	1327	0.66

* abja=100 crores=1 milliard=1 U.S. billion=10^9. Also, lakh=100,000.
Rs. abja=£75 million pounds sterling=$210 million U.S. dollars.

The estimates are based on the occupational distribution of the working force in the country. As we have already stated, each working dependent is treated as equivalent to a principal earner, subsidiary workers being completely omitted from the calculations of the working force. The complete omission of subsidiary occupations is unavoidable because of the vagueness of the category; it is also probably justified by the fact that part-time work in different sectors is likely to cancel out.

5.6. An alternative procedure would be to treat a working dependent as equivalent to half of one principal earner. This may be justified by the fact that there is a great preponderance of women among working

dependents, and the fact that working dependents occur largely in the agricultural sector. It is possible that many of the working dependents work only a part of their time. Secondly, a child below 14 years engaged in economic activity would be described as a working dependent, and it would be reasonable to assume that his productivity is lower than that of an adult. In the absence of tables of occupation distribution by age, it is not possible to examine the position more closely. However, the adoption of the alternative procedure leads to Table 4.1. Although some of the individual figures are somewhat different, it will be noticed that, estimates of net output per engaged person are very nearly the same in both the tables.

TABLE 4.1: ALTERNATIVE ESTIMATE OF NET OUTPUT PER ENGAGED PERSON IN THE INDIAN UNION: 1948-49

items	net output (Rs. abja*)	number of persons engaged (lakhs)*	net output per engaged person (Rs. thousands)
(1)	(2)	(3)	(4)
1. agriculture	41.5	816	0.5
2. mining, and factory establishments	6.4	34	1.9
3. small enterprises	8.6	134	0.6
4. total of mining, manufacturing and hand-trades	15.0	168	0.9
5. railways and communications	2.3	11	2.1
6. banking, insurance and other commerce and transport	14.7	89	1.6
7. total of commerce, transport and communications	17.0	100	1.7
8. professions and liberal arts	3.2	47	0.7
9. government services (administration)	4.6	35	1.3
10. domestic service	1.5	35	0.4
11. house property	4.5	—	—
12. total of other services	13.8	117	1.2
13. net domestic product at factor cost	87.3	1201	0.73

* abja=100 crores=1 milliard=1 U.S. billion=10^9. Also, lakh=100,000.
Rs. abja=£75 million pounds sterling=$210 million U.S. dollars.

5.7. It must be emphasized, however, that too much should not be read into these figures which represent neither the productivity per worker of each sector (since, for example, non-working proprietors have been included) nor the average earnings per engaged person (since income payments like interest may conceivably go to persons outside the sector). In comparing the figures, it must also be remembered that the capital investment in the way of mechanical equipment per worker varies widely from sector to sector. For example, the high net output per engaged person in rail-

ways and communications is due to the heavy capitalization. There are many difficulties in making comparisons. However, within these limitations, the present figures give a comparative picture of the share per person of net output generated in the different sectors.

5.8. In the government sector, the output of government administrative services is by definition equal to the cost of these services. It is interesting to note that the cost of government administration in this sense (that is, the net output per engaged person in this sector) is practically double the average output in the country.

5.9. *Per capita national income :* The estimated national income for 1948-49 is Rs. 87.1 abja. The population in 1948 was taken as 341 millions on the basis of the estimats made by the Registar General. The per capita national income therefore, works out at Rs, 255.

5.10. *Share of government in domestic product and expenditure*: Turning to an entirely different aspect, we may now examine the share of government in national income generation and its disposition; government draft on private income; and capital formation in the government sector and its finance. Such estimates would show the relative importance of government control (administrative and financial) in the national economy. The larger the gross capital formation on government account in relation to the gross total or domestic capital formation the greater would be the effective government control over investment. Unfortunately, reliable information on capital formation in the private sector is not available and a comparison with the government sector is not possible at present.

5.11. However, by consolidating the accounts of the central and State governments, various municipalities, district boards and port trusts, it is possible to know the relative share of the revenue and expenditure of all public authorities in the national economy. Accounts relating to the public sector are fortunately available in considerable detail; and Table 5 gives a summary of the position of the public sector. In the different sections of Table 5 the consolidated Tables of the public sector have been shown against the corresponding national total, except in the fourth section relating to capital formation where the government sector has been given in isolation because the capital formation in the private sector cannot be estimated with the currently available material. Efforts must be made to obtain some idea of the total domestic capital formation; and once this can be done, the analysis of the consolidated public sector is likely to be of great help in making policy decisions.

TABLE 5: SHARE OF GOVERNMENT IN DOMESTIC PRODUCT AND EXPENDITURE IN THE INDIAN UNION: 1948-49

items (1)	Rs. abja* (2)	percentage (3)
government share in generation of net domestic product		
1. net output of government enterprises	3.0	3.4
2. net output of government administration	4.6	5.3
3. net output of private sector	79.7	91.3
4. net domestic product	87.3	100.0
government share in national expenditure		
5. government current expenditure on commodities and services (government administration)	6.3	6.9
6. government administrative capital expenditure	0.8	0.9
7. government enterprises capital expenditure	1.2	1.3
8. net national expenditure at market price	91.7	100 0
government draft on private income		
9. direct taxes	2.0	2.3
10. indirect taxes	4.2	4.8
11. miscellaneous fees, etc.	0.7	0.8
12. private income	87.3	100.0
government capital formation and finance		
13. surplus on current account and maintenance provision	0.5	
14. government borrowing at home	3.1	
15. government borrowing abroad	(—) 2.2	
16. extra-budgetary receipts and adjustment for cash balances	0.7	
17. gross capital formation on government account	2.1	

* abja=100 crores=1 milliard=1 U.S. billion=10^9

Rs. abja=£75 million pounds sterling=$210 million U.S. dollars.

5.11. *National economy in relation to the rest of the world:* For purposes of exchange and export and import control it is useful to analyse the national income totals in relation to the flow of goods and services across the boundaries of the country. Such estimates are given in Table 6. Section 1 shows India's exports and imports of commodities and services in the financial year 1948-49 in relation to the national product gross of imports (that is, the total of the net national income and the gross import of commodities and services) which constituted the total fund out of which exports might have been possible. Where export propensity is low, a fall in domestic product may lead to a shrinking of exports but not of imports; and the balance of payments position has to be viewed against the net national product gross of imports, the fund out of which exports would be possible.

For a single year, the figures give only the absolute magnitude of exports and imports in relation to this fund. If information is available over a number of years, such a Table can supply a basis for studying the pattern of exports and imports in relation to the national product.

TABLE 6: NATIONAL ECONOMY AND THE REST OF THE WORLD: 1948-49

item (1)	Rs. abja* (2)	percentage (3)
exports and imports in relation to net national expenditure at market price		
1. exports of commodities and services	5.0	5.3
2. imports of commodities and services	7.1	7.5
3. net national product gross of imports of commodities and services	94.2	100.0
domestic product in relation to net receipts from abroad		
4. net earned income from abroad	(-) 0.2	(—) 0.2
5. net donations from abroad	0.1	0.1
6. net domestic product	87.3	100.0
financing of import surplus		
7. private long term borrowing	(—) 0.2	
8. other long term borrowing (official and banking institutions)	(—) 2.1	
9. short term borrowing (balancing short term capital movements, official and banking institutions)	4.5	
10. net borrowing	2.2	
11. import surplus (commodities and services)	2.1	
12. other items on current account (net)	0.1	
13. net deficit on current account (=net borrowing)	2.2	

* abja=100 crores=1 milliard=1 U.S. billion=10^9
Rs. abja=£75 million pounds sterling = $210 million U.S. dollars.

5.13. Section 2 of Table 6 shows the relation between domestic product, earned income from abroad, and donations etc. received from abroad. The latter are important items in certain countries. In Indonesia, for example, income from abroad is a significant component of national income; in other countries, donations etc. received from abroad are sometimes quite important. In India both items are negligibly small. Section 3 of Table 6 gives a general analysis of the financing of imports which shows that India has a net deficit in the current trade account and, in respect of investment income, is a debtor country from the point of view of current liabilities.

5.14. *Other breakdowns and social accounts*: There are other breakdowns of national income which are of great importance in economic analysis but which we were unable to undertake for lack of statistical information of

adequate coverage or of sufficient reliability. We have discussed below some of these breakdowns as a guide to future action.

5.15. *Degree of monetization in the economy:* All estimates given in the present report have been obtained by calculating the value of each sector at its equivalent market value in terms of money. In actual fact, a large part of the commodities and services in India does not enter into the market at all (and is therefore not subject to monetary transactions). In a predominantly subsistence economy even when the quantity of production remains more or less steady the imputed value in terms of money may vary widely due to changes in prices (which, however, have real reference to only that relatively small part of the total product which enters the monetized market). It would be useful to know to what extent the estimates are imputed or hypothetical (or conventional) in the above sense. For example, consumption by the producer of his own product, wage earnings in kind, or bartered goods do not generate any demand for currency. Hence , in regulating the supply of money, the operative factor is not the total supply of goods and services but that portion which enters into the organized market. The division into monetized and non-monetized sectors is not possible with available material. Some fragmentary information is, however, available which indicates the importance of the problem. For example, from some unpublished material* it appears that out of the total out-turn of rice, approximately 6 per cent is used for seed, 20 per cent for wage payments in kind, 46 per cent for household consumption by the producer himself or for barter, so that a total of 72 per cent is in the non-monetized sector leaving 28 per cent or only a little more than a quarter of the total production to be marketed. Information is generally meagre; and no attempt is being made in the present report to give separate estimates for the monetized and non-monetized sectors. The problem is, however, of special importance in this country, and continuing attention will have to be given to it in future.

5.15. *Share of urban and rural sectors of the national product:* Again, in India the distribution of national income between urban and rural sectors is of importance for policy purposes as a suitable balance has to be preserved between these two sectors in any sound programme of national development. Certain conceptual difficulties arise in the present context. Should income generated in an area, or the income earned by residents in an area be deemed to be the income of the area? Apart from difficulties of definition, the separate measurement of urban and rural incomes s not possible from available data. It may be simpler to segregate the

unpublished Marketing Report on rice.

expenditure incurred in the urban and rural areas; and it would probably be less difficult to estimate such expenditure through sampling methods. This also is a problem to be studied in future.

5.17. *National income and consumer expenditure*: An analysis of consumer expenditure by different heads is useful for many purposes. It can show the relative share of private consumption and saving and the distribution of consumption expenditure over different types of goods and services. When available over a period of time, it reveals the shifts in consumer expenditure in consequence of a given economic policy (or of a tax measure) leading to a shift in the price structure. Estimates of consumer expenditure can be made either directly through family budget enquiries, or indirectly by making estimates of the value of different types of consumer goods and services. Unfortunately, family budget studies immediately available do not cover the whole country and cannot be used for preparing reliable estimates. Inadequacy of detailed information relating to consumer goods also prevent allocation of the national product into meaningful breakdowns of consumption and investment. Fragmentary and dimensional indications are available in isolated cases. For example, out of a total national product of Rs. 87 abja in 1948-49, the consumer expenditure on food probably amounted to about Rs. 46 abja or nearly 58 per cent of the national income. This particular figure is being given for purposes of illustration, and should not be taken too seriously. Nevertheless, the high proportion of consumer expenditure on food shows in a general way the undeveloped character of our economy. Attention will have to be given to the collection of data relating to consumers' current expenditure and private savings.

5.18. *A framework for social accounts*: It will be seen that there were many problems which the Committee would have liked to have studied but which were not amenable to analysis for lack of statistical information. We also considered the possibility of presenting the information in the form of social accounts. We found that a complete set of such accounts cannot be prepared at present as reliable information is not available on certain items like provision for depreciation, capital formation and saving in the private sector, or consumers' current expenditure. We have, however, thought it worth while to give a very simple framework of social accounts in the next chapter although we have found it necessary to use certain symbols to represent items for which reliable numerical values cannot be assigned. We hope these gaps will be filled up at an early date.

Chapter Six

A FRAMEWORK FOR SOCIAL ACCOUNTS FOR 1948-49.

6.1. In chapter 5 the information at present available on the national income and other elements of the national accounts was presented in such a way as to throw light on a number of questions of interest in the formulation of policy. The purpose of this chapter is to supplement that information, where this can be done with reliability, in such a way as to illustrate as far as possible the conceptual structure described in previous chapters and at the same time to bring out clearly the structure of statistical data on which this report has been based and the principal items on which no information is available at present.

6.2. The numerical results given in this report are all derived from three basic kinds of information. (1) The first is an estimate of the net domestic product at factor cost built up from estimates of the net value added in each branch of activity. These estimates were presented in Table 2 of chapter 5. (2) The second is a detailed classification on economic lines of the transactions of public authorities, that is, of the central government, government enterprises, State governments and municipal and other local authorities. Much of this information was used in chapter 5 but it was not presented systematically or in detail. Since this information is for the most part highly reliable being based on actual accounting data (there are exceptions in the case of certain B and C class States but these are not numerically important) and of very considerable interest in itself, it is set out systematically in tables 9, 10, and 11 of this chapter which show respectively a current account of government administration in 1948-49, a current account of general government commercial enterprise in 1948-49, and an account of the capital transactions of government enterprises and general government administration in 1948-49. (3) The third type of information relates to the transactions between the Indian Union and the rest of the world, and here again a large volume of information is available from the estimates of India's balance of payments published regularly by the Reserve Bank of India. Tables 13 and 14 which show the transactions between the Indian Union and all other countries on current and capital account respectively are based on this information.

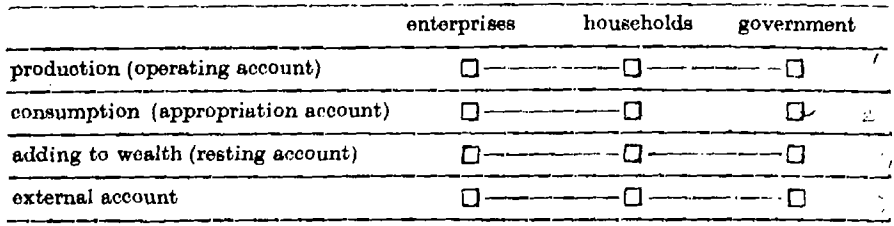
6.3. With these three types of information it is possible to go a considerable way in filling in numerically the conceptual structure described briefly in previous chapters. This structure involves distinctions between (a) different types of economic activity, in particular the three basic

forms, production, consumption and adding to wealth; (b) different classes of transactor, in particular between government and the private sector of the economy, and within the latter between different forms of organization such as enterprises and households; and (c) different classes of transaction, in particular those which involve a transfer of commodities or services and those which do not but instead take the form simply of unilateral payments.

6.4. The first of these distinctions is important since it provides the basic classification needed for economic analysis. Without it there could be no distinction between costs and incomes nor between consumption and capital expenditures. The second is important partly because transactors are so often the source of statistical and accounting information and partly because they are the centres of economic decisions. The third criterion is important because it permits transactions directly involving an absorption of commodities and services to be distinguished from those which involve only a redistribution of purchasing power between the different sectors of the economy.

6.5. It is usual and convenient to distinguish between three main sectors of the economy; enterprises, households, and government; and in each case to group the transactions together into one of three accounts, one for each of the three basic forms of economic activity. This completes a simple accounting presentation of the domestic economy. The rest of the world may be represented indifferently in such a scheme either as an additional sector or as an additional type of account. It will be represented in the latter way in what follows.

6.6. The system just described contains three sectors of the economy each with four accounts, or twelve accounts in all. Some further simplification is needed if the structure of the Indian economy is to be represented with existing information and this may conveniently be done by consolidation as follows.



In this diagram solid lines (——) indicate that the accounts over which they stretch are consolidated. Thus the original system of twelve accounts is reduced in the manner shown to one of five.

6.7. The first account, the Domestic Product Account in Table 7 below, is purely functional, that is to say it brings together in summary form all

TABLE 7: THE NATIONAL ACCOUNTS OF THE INDIAN UNION: 1948-49*

(1)	(2)	(3)	(4)
DOMESTIC PRODUCT ACCOUNT			
expenditure		*revenue*	
1. indirect taxes		5. current expenditure on commodities and services	
1.1 taxes (25.1)	4.2	5.1 consumers (10)	E
1.2 miscellaneous fees (25-2)	0.7	5.2 government sector (20)	6.3
2. provision for depreciation (33)	D	6. gross domestic capital formation	
3. domestic product accruing to		6.1 private sector (30.1)	I
3.1 private sector (14)	86.6	6.2 government sector (30.2)	2.1
3.2 government sector (27)	0.7	7. exports (net) of commodities and services (39)	(—)2.1
		8. subsidies (21)	0.3
4. total	D+92.2	9. total	E+I+6.6
PRIVATE APPROPRIATION ACCOUNT			
expenditure		*revenue*	
10. consumer expenditure (5.1)	E	14. income from domestic product (3.1)	86.6
11. direct taxes (26)	2.0	15. national debt interest (28)	0.5
12. private saving (34.1)	S	16. earned income from abroad (net) (40)	(—)0.2
		17. transfer payments (22)	0.3
		18. (net) donations from abroad (36)	0.1
13. total	E+S+2.0	19. total	87.3
GOVERNMENT APPROPRIATION ACCOUNT			
expenditure		*revenue*	
20. government expenditure on commodities and services (5.2)	6.3	25. indirect taxes	
21. subsidies (8)	0.3	25.1 taxes (1.1)	4.2
22. transfer payments (17)	0.3	25.2 miscellaneous fees (1.2)	0.7
23. government saving (34.2)	0.2	26. direct taxes (11)	2.0
		27. income from domestic product (8.2)	0.7
		28. *Less* national debt interest (15)	(—)0.5
24. total	7.1	29. total	7.1
CONSOLIDATED RESTING ACCOUNT			
expenditure		*revenue*	
30. gross domestic capital formation		33. provision for depreciation (2)	D
30.1 private sector (6.1)	I	34. saving	
30.2 government sector (6.2)	2.1	34.1 private sector (12)	S
31. net lending abroad (37)	(—)2.2	34.2 government sector (23)	0.2
32. total	I+(—)0.1	35. total	D+S+0.2
REST OF THE WORLD ACCOUNT			
expenditure		*revenue*	
36 net donations to India (18)	0.1	39. net exports of commodities and services to India (7)	2.1
37. net lending to India (31)	2.2	40. net earned income from India (16)	0.2
38. total	2.3	41. total	2.3

* in Rs. abja=£75 million pounds sterling=$210 million U.S. dollars.
abja=100 crores=1 milliard=1 U.S. billion=10^9.

the transactions relating to the domestic production of the Indian Union without any subdivision by sector. If more information were available it would be possible to subdivide the entries in this account by type of organization (private, government etc.) and/or by branch of activity (agriculture, manufacturing, commerce etc.). In fact the sum of entries 3.1 and 3.2 of this table are so subdivided in Table 2 of chapter 5 above.

6.8. The next two accounts, respectively the Private and the Government Appropriation Accounts in Table 7 represent a subdivision by sector of the second form of economic activity which above has been called consumption. The first shows on the revenue side the various elements of private income and on the expenditure side the appropriation of this income to consumers' current expenditure, current transfers (in this case direct taxes) and private saving. The second shows the same elements for public authorities. In their case the bulk of revenue comes from taxation and this revenue is laid out either on common services for the community (education, health, administration, defence etc.) or transferred to another sector or saved. The items in this account are further subdivided in Table 9.

6.9. The fourth account, the consolidated Resting Account in Table 7 brings together the capital transactions of the Indian Union and shows how domestic capital expenditure is financed by means of borrowing from abroad and from the saving and depreciation provisions of public authorities and private individuals and institutions.

6.10. The fifth and last account, the Rest of the World Account in Table 7 above, brings together the transactions of the Indian Union with other countries. The items in this account are further subdivided in Tables 13 and 14 below.

6.11. In all these accounts, we have used symbols wherever numerical data are not available against the respective activities. Thus, the following types of activities are represented by the symbols given against them:

Consumers' current expenditure	=	E
Provision for depreciation	=	D
Private capital formation	=	I
Private saving	=	S

It may be added that the presentation is articulated, each entry appearing in one other place in the system. Each entry is numbered and the number after each item indicates the entry reciprocal to that item.

6.12. Four items, D, E, I and S. are connected by two independent relationships which may be written in the form

$$E+I-D = 85.6$$
$$E+S \quad = 85.3$$

6.13. Thus if certain pairs of items could be estimated, it would be possible to obtain a residual estimate of each of the remaining two. In fact if value could be obtained for I,S; E,I; D,S; D,I; D,E; then it would be possible to derive respectively D,E; D,S; E,I; E,S; I,S. A knowledge of E,S however would not permit D,I, to be derived but only the difference I--D. If all four missing items could be directly and independently estimated then two constraints would be available with which to adjust all the entries in the table. The magnitude of such adjustments in any case would depend on the reliability of the estimates and the relationships, if any, between their errors.

6.14. In this way Table 7 brings out clearly the gaps in the present system of estimation. These gaps occur either in the elements of private final expenditure, E and I; or in the private sources of finance for capital expenditure, D and S. The existence of these gaps sets a new task in the field of data collection which must be completed before the economic structure of the Indian Union can be fully drawn up even in the simplified way indicated in Table 7.

6.15. There are a limited number of income and product totals which are found to be of recurring use in national income analysis. Many of these have in fact been already discussed. The following Table 8 shows how these other aggregates are related to the basic concept of the national income. The numbers in brackets after the entries in Table 8 refer to the entries in Table 7. It will be seen that various income and product totals commonly in use are readily obtained from the entries in the first two accounts of Table 7. It may be mentioned here that personal income before and after tax are other important aggregates. As no reliable information is available on undistributed profits of corporate enterprises, we may represent this by another symbol U. Personal income before tax can be then obtained by subtracting corporation tax and undistributed corporate profits from private income (or 87.3—0.65—U) = (86.65—U). Deducting 1.33 for other income taxes, personal income after tax is (86.65—1.33—U)=(85.32—U).

TABLE 8: RELATIONSHIP BETWEEN THE NATIONAL INCOME AND THE OTHER MAIN AGGREGATES OF INCOME AND PRODUCT FOR THE INDIAN UNION: 1948-49

	(2)
	Rs. abja*
1. net national product at factor cost = national income (3.1+3.2+16)	87.1
2. indirect taxes including miscellaneous fees (1.1+1.2)	4.9
3. *less* subsidies (−8)	0.3
4. net national product at market prices (4−2−8+16)	91.7
5. provision for depreciation (2)	D
6. gross national product at market prices (4−8+16)	D+ 91.7
7. net national product at factor cost = national income (3.1+3.2+16)	87.1
8. *less* net earned income from abroad (−16)	(—) 0.2
9. net domestic product at factor cost (3.1+3.2)	87.3
10. *less* income from domestic product accruing to government (−3.2)	0.7
11. income from domestic product accruing to private sector (3.1)	86.6
12. national debt interest (15)	0.5
13. net earned income from abroad (16)	(—) 0.2
14. transfer payments (17)	0.3
15. net donations from abroad (18)	0.1
16. private income	87.3

* Rs. abja = £75 million pounds sterling = $210 million U.S. dollars.
abja = 100 crores = 1 milliard = 1 U.S. billion = 10^9.

6.16. Accounts of public authorities summarising the activities of the Central and States Government, Municipalities, District Boards and Port Trusts have been presented below in Tables 9, 10 and 11. These have been culled from budget accounts, and presented here after reclassification of government revenue and expenditure between current and the capital transactions on the one hand and administrative and commercial activities on the other. These adjustments are purported to bring out the current costs of administration and its finance by different channels of revenue, the distribution of the expenditures on administration, and on commercial activities, and finally the capital transactions of public authorities as distinct from current transactions. Expenditure on defence is, by hypothesis, taken as an item of current expenditure, as capital outlay on defence is not supposed to increase or to maintain the productive resources of the community.

TABLE 9: CURRENT ACCOUNT OF PUBLIC AUTHORITIES: ADMINISTRATION: 1948-49*

(1)	(2)	(3)	(4)	(5)	(6)
expenditure			*revenue*		
current expenditure on commodities and services			*direct tax on income*		
1. civil administration	3.26		10. corporation tax	0.65	
2. defence	2.79		11. other income taxes	1.33	
3. miscellaneous	0.25		12. total direct taxes		1.98
4. total		6.30			
			indirect taxes		
5. subsidies		0.34	13. customs	1.39	
6. transfer payments to individuals		0.26	14. excise	1.07	
7. total current expenditure		6.90	15. stamps	0.20	
			16. land revenue	0.42	
			17. other taxes and duties	1.08	
saving			18. total indirect taxes		4.16
8. surplus on current account		0.20			
			fees & miscellaneous receipts		
			19. civil administration	0.38	
			20. miscellaneous	0.32	
			21. total		0.70
			22. total tax revenue		6.84
			transfer of operating surplus from current accounts of commercial enterprises		
			23. railways	0.25	
			24. others	0.25	
			25. total		0.50
			income from property		
			26. interest receipts	0.10	
			27. other receipts	0.12	
			28. total income from property		0.22
			29. *less* national debt interest		(—)0.46
9. total		7.10	30. total		7.10

* in Rs. abja = £75 million pounds sterling = $ 210 million U. S. dollars.
abja = 100 crores = 1 milliard = 1 U.S. billion = 10^9.

N.B.—Figures in Tables 9-14 are given correct to one crore (ten million) rupees, as these are based on reliable material.

TABLE 10: CURRENT ACCOUNT OF PUBLIC AUTHORITIES: ENTERPRISES: 1948-49*

(1)	(2)	(3)	(4)	(5)	(6)
expenditure			*revenue*		
purchase of commodities and services from other enterprises			*sale of commodities and services*		
1. railways	0.42		17. railways	2.32	
2. others	0.10		18. others	0.84	
3. total		0.52	19. total		3.16
Wages and salaries					
4. railways	1.19				
5. others	0.38				
6. total		1.57			
interest payments to private sector through government (debt services)					
7. railways	0.23				
8. others	0.05				
9. total		0.28			
provision for maintenance and depreciation					
10. railways	0.23				
11. others	0.06				
12. total		0.29			
operating surplus					
13. railways	0.25				
14. others	0.25				
15. total		0.50			
16. total		3.16	20. total		3.16

TABLE 11: CAPITAL ACCOUNT OF PUBLIC AUTHORITIES: ADMINISTRATION AND ENTERPRISES COMBINED: 1948-49*

(1)	(2)	(3)	(4)	(5)
expenditure			*revenue*	
commercial enterprises				
1. maintenance	0.23		8. surplus on current account	0.20
2. capital outlay	0.97		9. maintenance provision: commercial enterprises	0.29
3. total		1.20	10. net borrowing	1.59
administrative departments				
4. maintenance }		0.81		
5. capital outlay }				
6. net purchase of assets		0.07		
7. total		2.08	11. total	2.08

*in Rs. abja=£75 million pounds sterling=$210 million U.S. dollars.
abja=100 crores=1 milliard=1 U.S. billion= 10^9.

6.17. Table 12 given below brings together the different types of outflows of money (factor payments and other expenditures) of all government activities.

TABLE 12. NATIONAL INCOME GENERATED IN THE PUBLIC AUTHORITIES SECTOR: 1948-49*

	factor payments				other payments				
(1)	wages & salaries (2)	interest (3)	surplus (4)	total contribution to national product at factor cost (5)	purchase of commodities & services from other enterprises (6)	maintenance provision (7)	transfer payments (8)	purchase of assets (9)	total (10)
current account of public authorities: administration									
1. civil administration & miscellaneous	2.81			2.81	0.70		—		3.51
2. defence	1.17			1.17	1.62		—		2.79
3. subsidies	—			—	—		0.34		0.34
4. transfer to individuals	—			—	—		0.26		0.26
5. total	3.98			3.98	2.32		0.60		6.90
current account of public authorities: enterprises									
6. railways	1.19	0.23	0.25	1.67	0.42	0.23			2.32
7. post and telegraph	0.24	0.01	0.02	0.27	0.05	0.02			0.34
8. forest	0.04	—	0.10	0.14	0.01	0.01			0.16
9. road transport	0.02	—	0.01	0.03	0.01	0.01			0.05
10. industries	0.03	0.02	0.04	0.09	0.02	0.01			0.12
11. irrigation	0.04	0.02	0.08	0.14	0.01	0.01			0.16
12. others	0.01	—	—	0.01	—	—			0.01
13. total	1.57	0.28	0.50	2.35	0.52	0.29			3.16
capital account of public authorities									
14. administration	0.61			0.61	0.20			—	0.81
15. enterprises	0.64			0.64	0.56			0.07	1.27
16. total	1.25			1.25	0.76			0.07	2.08
17. grand total	6.80	0.28	0.50	7.58	3.60	0.29	0.60	0.07	12.14

* in Rs. abja=£75 million pounds sterling=$210 million U.S. dollars.
abja=100 crores=1 milliard=1 U.S. billion=10^9.

All the totals given in this table have already appeared in Table 9, 10 and 11. The purpose of this table is the delineation of the components of the totals given earlier. Also, this table shows the details of government expenditure on capital account into wages and salaries and other payments. These do not occur anywhere else in the report. The net contribution of government administration to national income may thus be derived from this table as the sum of wages and salaries in government administration's current and capital expenditures. For capital account of government administration, 75 p. c. of total expenditure is taken to be made up of wages and salaries, on the basis of percentages for civil works expenditure.

6.18. Details of expenditures of government commercial enterprises are also shown in Table 12. Mining and trading concerns have been lumped up under item 12 as they are not important enough individually. Breakdowns of capital expenditures between wages and salaries and other payments are not always available in the budget accounts of government, and hence arbitrary allocations are necessary on the basis of available ratios for railways, post and telegraph, etc. derived from analysis of railway and postal accounts. On this basis, wages and salaries have been taken at 50 p. c. of total expenditure, for railways, post and telegraph, road transport, electricity schemes, and iron and steel and industrial works. For forest, irrigation, industrial development and multi-purpose river valley schemes, wages and salaries have been taken at 60 p. c. of total expenditure arbitrarily. Since detailed information is available in respect of current expenditures under all these heads, the order of magnitude of arbitrary allocations is not significant in relation to the total, as will be clear from Table 12.

6.19. The last set of tables outlines India's balance of payments position with the rest of the world. Current transactions have been shown in Table 13 which gives the broad constituents of India's visible and invisible foreign trade. Table 14 gives a summary of the capital movements during the year, and outlines the finance of India's current deficit on trading account with the rest of the world. Errors and omissions have been shown under balancing short term capital movements.

TABLE 13: INDIA'S BALANCE OF INTERNATIONAL TRANSACTIONS ON CURRENT ACCOUNT: 1948-49*

(1)	(2)	(3)	(4)
expenditure		*revenue*	
1. merchandise imports (c.i.f.)	5.66	7. merchandise exports (f.o.b.)	3.96
2. government (not included elsewhere)	1.01	8. government (not included elsewhere)	0.26
3. investment income	0.32	9. investment income	0.13
4. donations	0.06	10. donations	0.16
5. other current payments for commodities and services	0.41	11. other current receipts for commodities and services	0.73
		12. adverse balance met by capital incomings	2.22
6. total	7.46	13. total	7.46

TABLE 14: INDIA'S BALANCE OF INTERNATIONAL TRANSACTIONS ON CAPITAL ACCOUNT: 1948-49*

(1)	(2)	(3)	(4)
expenditure		*revenue*	
1. private long term capital (excl. banking institutions)	0.35	6. private long term capital (excl. banking institutions)	0.16
2. other long term capital (official and banking institutions)	2.11	7. other long term capital (official and banking institutions)	—
3. balancing short term capital movements (including errors and omissions)	0.08	8. balancing short term capital movements (incl. errors and omissions)	4.60
4. finance of current adverse balance by net capital incomings	2.22		
5. total	4.76	9. total	4.76

* in Rs. abja = £75 million pounds sterling = $210 million U.S. dollers.
abja = 100 crores = 1 milliard = 1 U.S. billion = 10^9.

6.20. There are some gaps in the above tables. There are other gaps which made it impossible for us to study many important breakdowns of the national income to which we have referred in chapter 5. The statistical position is not satisfactory, and yet it is not too bad. The future outlook is promising and is considered in the next chapter.

Chapter Seven

THE FUTURE OUTLOOK

7.1. The national income estimates and related Tables for 1948-49 given in chapters 5 and 6 are provisional for two reasons. First, the figures are in many cases based on material the reliability of which is not known or in other cases on calculations involving assumptions the validity of which is uncertain. Secondly, as already noted in the two previous chapters it was not possible to make many of the desired breakdowns of the national income for lack of relevant material. It is necessary to improve the estimates in both respects. Continuing efforts must, therefore, be made to obtain statistical data which would be more accurate and more comprehensive in scope. Success depends entirely on the gradual improvement of statistical information in all sectors; and progress must be necessarily slow.

7.2. It is, however, encouraging to find that in the near future a good deal of new statistical data is likely to be available for the improvement of national income estimates. First, the field work for the decennial Population Census was completed during February-March 1951. The Registrar General (who is ex-officio Census Commissioner) has agreed to expedite the preparation of certain Tables (in some cases by sample tabulation,) which would be useful for national income estimation. The Census figures for the total population with breakdowns by sex, by urban and rural areas, and by important groups of means of livelihood are likely to be available by the end of 1951. These figures would relate to the Indian Union as it is now constituted and would provide up to date controlling totals for breakdowns by urban and rural areas, and for calculations based on occupational distribution.

7.3. In the Agricultural Labour Enquiry, which is being conducted by the Ministry of Labour, pilot studies were completed in 1948-49; the family budget data collected at this stage should give some useful indications. The main enquiry relates to 770 villages (selected at random after stratification and) covering the whole of India. The field work was started in 1949-50, and the collection of primary data covering 12 months in each village would be completed within a month or two. The general village questionnaire contains information on employment, wage rates, and retail prices of important commodities in the sample villages. The general family questionnaire covers all families in the selected villages

and contains information on housing, size of holding, employment of outside labour, livestock, and implements. This material should supply useful information for the work of the Committee.

7.4. A plan for a continuing National Sample Survey was approved by Government in January 1950. A little later, in March 1950, the National Income Committee recommended the use of sampling methods to fill up gaps in the data required by the Committee. It was accordingly decided that high priority would be given to these requirements. Financial sanction was given in May 1950, and field operations started in different villages in October and November 1950. The first round of field survey in about 1833 sample villages (selected at random after stratification) covering the whole of the rural area of the Union of India is expected to be completed by the end of April 1951. The first set of schedules covered both producing and consuming activities. Preliminary enquiries were also made on capital formation in rural areas. The tabulation of the primary material has already started and preliminary results are expected to be available at an early date.

7.5. The second round of the field survey would begin on 23 April, 1951, in which attention would be focussed on consumer expenditure. A proposal has also been submitted to Government to extend the enquiry to urban areas with effect from July or September 1951. The intention is to organize the tabulation work in such a way that a continuing flow of information would be available regarding different sectors of the national economy. The NSS is thus expected to supply a good deal of new material for the work of the Committee during the current year.

7.6. The annual Census of Manufactures covering large establishments (with a labour force of 20 or more with power) is restricted at present to 29 groups of industry out of a total of 63 groups. At the request of the Chairman, an *ad hoc* sample survey covering all groups of industries (with the exception of railways and defence establishments) is being conducted by the Directorate of Industrial Statistics. Information relating to a first sample of 795 establishments has been already collected and tabulated. A second sub-sample of about 1200 establishments is also expected to be available at an early date. Considerable improvements in the estimates for this sector should be possible with the help of the above material.

7.7. However, even when the results of the surveys described above become available the material would still remain inadequate in many respects. Capital formation may require a more direct approach on the basis

of goods and services used mainly for the formation of physical assets. Information is lacking on the distribution of incomes by size of income for the country as a whole. The income tax statistics give breakdowns by income classes for persons with earnings above the tax exemption limit which, however, cover only a small fraction of the total population. An extension of the NSS to urban areas would provide a more comprehensive picture, but it will take some considerable time to secure reliable estimates of the distribution of incomes. Distributive trade, both in urban and rural areas, is likely to remain a difficult sector for a long time and would require patient study. Current information on the gainfully occupied is an essential requirement, and arrangements will have to be made to secure this. In India the household is a highly integrated economic unit; and it will be desirable to separate the monetized transactions from the non-monetized. This involves both conceptual and practical problems, but exploratory studies in this field would be most desirable. These are some of the problems to which attention will have to be given in future.

7.8. It is the intention of the National Income Committee to submit its final report by the end of 1951 or early in 1952. This report will contain estimates for 1949-50 to be prepared generally on the same lines as the estimates for 1948-49. A broad indication has been given above of the new statistical material expected to be collected by the end of 1951. It is unlikely that all or even most of this material will become available in time for use in the final report. Nevertheless, attempts will be made to improve the estimates for 1948-49 and 1949-50 to the extent possible with the help of such new information as may become available. It is, however, recognised that whatever refinements might be introduced in the final report, the estimates for 1948-49 and 1949-50 would still remain subject to large revisions on the basis of fresh material which is likely to become available in future.

7.9. During the recent meetings of the National Income Committee in December 1950 and January 1951 preliminary consideration was given, as desired in the terms of reference, to "measures for improving the quality of the available data for the collection of further essential statistics" as well as to "ways and means of promoting research in the field of national income." It was decided to discuss these problems in greater detail before making definite recommendations. The members of the Committee and the foreign Advisers were, however, agreed about the importance of encouraging research in the field of national income in universities and research institutions which are specially fitted to take up this work. Analysis, historical studies, and current utilization of national income data in the

manifold fields of economic policy all are absolutely essential and can best be undertaken by non-official research workers and institutions. They were also agreed about the need of co-ordination in the field of statistics, and the importance of giving continuing attention to the improvement of the quality of the material which is being collected at present. They also decided that fullest information relating to sources and actual methods of calculation should be made available to all serious students of national income. With this object in view, detailed technical information relating to the estimates for 1948-49 is being given in the Appendix.

7.10. The National Income Committee hopes that by the time its final report is submitted a sound foundation will have been laid for the development of national income estimation in India. Improving the basic data in respect of both accuracy and coverage, and developing refined tools for economic analysis will necessarily take a good deal of time. It is not possible for the Committee to provide all the information urgently required for planning purposes or policy decisions. It would be foolish to encourage false hopes. The wise policy would be to proceed steadily with the work in hand with a firm conviction that difficulties, however great, will be overcome by hard work, seriousness of purpose, and intellectual honesty.

P. C. MAHALANOBIS
Chairman

V. K. R. V. RAO
*Member**

NEW DELHI
15 April 1951

M. MUKHERJEE
Secretary

* Professor D. R. Gadgil, the other member of the National Income Committee, agreed to the preliminary report being submitted to the Government of India with the statement that he participated in the preparation of the framework and the synopsis but was not able to be present at the time of the final discussion of the report owing to his absence from India.

APPENDIX

NOTES AND SOURCES*

A.1. The general method of estimation adopted in this report has been explained in chapter 4. This appendix gives supplementary technical notes and sources of statistical data. References to paragraphs in chapter 4 and tables in chapters 4, 5 and 6 are given within brackets.

A.2. *Occupation distribution* (para 4.7; Table 1). Working force estimated[1] separately for twelve census subclasses[2]: I exploitation of animals and vegetation, II exploitation of minerals, III industry, IV transport, V trade, VI public force, VII public administration, VIII professions and liberal arts, IX persons living on their incomes, X domestic service, XI insufficiently described occupations and XII unproductive.

A.3 Subclasses IX and XII dropped altogether as persons involved do not belong to working force. For subclasses II and VI more recent (and reliable) estimates available from other sources[3]. Estimates adopted in these subclasses larger than estimates based on 1941 data; increase supposed to come from outside the working force estimated on 1941 basis.

A.4. Subclass XI consists of (i) manufacturers, businessmen and contractors otherwise unspecified, (ii) cashiers, accountants, book-keepers, clerks and other employees in shops, (iii) mechanics otherwise unspecified, (iv) labourers and workmen otherwise unspecified and (v) means of livelihood exists but is completely unspecified. Working force in (i) and (ii) distri-

* For abbreviations used in this Appendix see A.117.

[1] Raw occupation data unsatisfactory. Pioneering work on analysis of gainfully occupied persons by V.K.R.V. Rao (*National Income in British India 1931-32* and *An Essay on India's National Income, 1925-29*) and B.G. Ghate (*Changes in the Occupational Distribution of the Population*). In present context, in analysing occupation data by provinces, wide difference noticed in percentage of occupied population between provinces for same year, and in same province for different years. For example, percentage varies from 29 (Bengal) to 55 (Madras) in 1931. Figures for Bengal, Bombay, Madras and U.P. for last three censuses cited below:

	1921	1931	1941
Bengal	35	29	36
Bombay	45	39	47
Madras	48	55	36
U.P.	53	49	34

While overall totals give impression of consistency, analysis indicates either wide inter-provincial and temporal diversity in economic life or lack of uniformity in interpretation of census occupation questionnaire between provinces and over time. This lack of inner consistency partially invalidates any projection.

[2] Occupational distribution in Indian census reports given by four broad classes: production of raw materials, preparation and supply of material substances, public administration and liberal arts, and miscellaneous, and by twelve subclasses. Each subclass consists of a number of orders and each order split up into a number of suborders.

[3] For subclass II data culled from *Statistical Abstract* (SA) and adjusted for under-coverage. For public authorities, figure relating to provinces taken from Ministry of Commerce estimates for 1948-49. For the remaining areas on basis of 1941 occupational distribution.

buted between subclasses III and V in proportion to number of workers in these groups; (iii) and (iv) all delegated to subclass III, and (v) distributed over subclasses I, II, III, IV and V in proportion to the number of workers in these groups. Subclass I further includes one third of rice huskers and pounders, flour millers etc.; and all butchers, butter, cheese and ghee makers and gur makers taken out of subclass II. This last allocation necessary because agriculture and animal husbandry defined to include ancillary activities (like grain husking, rice pounding, etc.); yet all people in this subclass not in above occupation but in industries also (e.g. flour milling etc.)

A.5. Washermen, barbers, and hairdressers and scavengers taken out of subclass II to form a separate group 'other services' within subclass VIII; workers in ordnance factories, mints, government printing presses, telegraphs and government railway workshops all estimated from data given in Indian Labour Year Book (ILYb) adjusted for absenteeism and salaried workers.[4] Ordnance factories go to subclass VI, mints and presses to subclass VII and telegraphs and railway workshops to subclass IV. Subclass III, however, includes film actors taken out of subclass VII, and bee keepers, silk growers and lac cultivators taken out of subclass I. Subclass VI includes 1 p.c. of lawyers, 5 p.c. of doctors etc., 367,000 teachers, and 10 p.c. of scavengers, first four being taken out of subclass VII and last from subclass III. Number of teachers in government employment obtained from official sources. Allocation in other cases arbitrary to allow for counting of some government employed professional people in 'Professions'.

A.6. Working force in subclass III split up between factories and small enterprises as follows: Employment in 2j and 5 (1) factories[5] taken from ILYb adjusted as described above (see footnotes 4 and 5) and taken out of estimated total in subclass III to give working force in small enterprises. As individual census suborder (92 in number) used for purpose of estimation, work involved meshing of census classification with classification adopted in ILYb.

A.7 Working force in small enterprises next split up into seven industrial groups: textiles; hides, skins and leather; building, stone and ceramics; metals and minerals; chemicals and dyeing; food, drink and tobacco; and miscellaneous. Each category then divided into purely cottage type, intermediate type and almost certainly of factory type industries by examining the 92 census suborders. This division necessary for purpose of estimation and should be regarded as approximate. Census subclass V also analysed by census orders for estimation purposes.

A.8. *Agriculture* (para 4.9; Table 1). The following table[6] gives an indication of the approximate coverage of different types of estimates for

[4] Employment figure given in *Census of Manufactures* (CM) or ILYb not comparable with number of gainfully occupied obtained from census. Figures of absenteeism culled from ILYb, and factory employment inflated for absenteeism in each industry. Similarly for salaried workers, ratio calculated from CM and applied to ILYb adjusted employment figure to get a figure comparable with number of gainfully occupied.

[5] See footnotes 78 and 80.

[6] Similar analysis for 1948-49 not possible as district-wise statistics of land utilization (unpublished Agst) are not available for later than 1947-48.

major (forecast) crops, for 1946-47. Columns 2 and 3 are covered by revised final forecasts; column 4 indicates conventional estimates; column 5 implies definite information in negative sense, and column 6 indicates the non-reporting area in respect of the crop.

TABLE 15: PERCENTAGE COVERAGE OF OFFICIAL ACREAGE STATISTICS, INDIAN UNION 1946-47

(Total area 1,220,011 sq.miles. Figures in the table are percentages of total areas)

crop	area covered by			no crop	no report	total
	fore casts	later reports	earlier year			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
rice	68.0	4.4	8.9	—	18.7	100
wheat	64.5	0.2	14.4	5.0	15.9	100
barley	54.4	0.1	16.1	7.1	22.3	100
jowar	72.6	—	2.5	4.3	20.6	100
bajra	72.9	0.2	2.2	4.3	20.4	100
maize	73.1	0.7	4.2	4.3	17.7	100
ragi	61.5	—	3.8	9.8	24.9	100
gram	67.7	0.1	12.3	—	19.9	100
sugarcane	65.9	2.1	13.8	0.1	18.1	100
groundnut	53.0	3.4	8.5	12.3	22.8	100
sesamum	59.2	5.1	16.3	0.1	19.3	100
rape & mustard	52.9	4.2	21.6	1.4	19.9	100
castor	55.7	—	13.5	5.8	25.0	100
linseed	49.0	4.7	23.4	0.9	22.0	100
cotton	77.6	0.6	4.4	0.1	17.3	100
jute	15.2	—	8.7	51.4	24.7	100

A.9. (paras 4.9 and 4.10). Value of agricultural output is built up for each crop for each State (class A, B and C). Gross crop outturn is estimated as follows: estimates of area under all 'forecast' crops received from Ministry of Agriculture, Directorate of Economics & Statistics (DESAg)[7]. Outturn estimates for rice and wheat for class A States taken from random crop-cutting surveys conducted by ICAR[8] and ISI[9]. As geographical coverage of ICAR experiments not complete for a few states, ICAR estimates of average (provincial) yield per acre is applied to balance of these areas. Similar procedure for States newly merged with class A States. For rice and wheat in class B and C States and for all other 'forecast' crops except cotton (for the entire Indian Union), available official estimates of outturn utilized[10]. Estimates made by DESAg for outturn of foodgrains only for part of the non reporting area, also utilized[11].

[7] DESAg: *Agricultural Situation in India* (ASI).

[8] Indian Council of Agricultural Research (ICAR) *Sample Surveys for the Estimation of Yield of Food Crops*, May 1950.

[9] Indian Statistical Institute, Calcutta (ISI) (Estimates for West Bengal only). For West Bengal, acreage statistics also based on ISI random crop-cutting surveys.

[10] ASI, Vols. IV and V. Revised final forecast figures.

[11] Latest estimates received from DESAg. Some conventional estimates available in the *Indian Food Statistics*, 1949.

A.10 For cotton, since official figures are known to be incorrect, trade estimates of cotton outturn based on post-mortem examination of cotton consumption, made use of. As trade estimates by the two accepted formulae[12] divergent, a simple mean of the two estimates adopted. Estimates of cotton outturn are allocated to different States (for purposes of valuation) on basis of ratio of cotton outturn in States as given by official forecast figures. For arhar, masur, urd, moong, moth, chillies, cardamom, banana, citrus fruits, grapes and cashew nuts, estimates of area and outturn are taken from published and unpublished Marketing Reports (MR) prepared by the Directorate of Marketing and Inspection (DMI)[13]. Estimates of area and outturn of small millets, coconut, potato, pepper, ginger, tea, coffee, rubber, indigo and sann hemp received from DESAg[14]. Estimate of outturn of other sugars derived from MR on sugar after adjusting for Indian Union area. Production figures for opium estimated from information furnished by Narcotics Adviser[15]. Outturn of cotton seed estimated on basis of outturn of raw cotton, assigning a ratio of 2:1 between seed and cotton (information supplied by DESAg). Outturn of rice husk and bran is estimated as 25.8 and 7.5 p.c. of paddy outturn respectively[16]. Of rice husk, 25 p.c. is assumed to be wasted or not collected at all; for bran, wastage is assumed at 5 p.c. Outturn of straw estimated for different food crops on basis of information on ratio of straw to grain for different crops, supplied by Director, Indian Agricultural Research Institute (IARI), and Principal, Government Agricultural College Kanpur (GAC). 25 p.c. of straw assumed to be wasted or not collected at all. Of the balance, 90 p.c. used as livestock feed and 10 p.c. for thatching of rural houses. For grass, Burns[17], estimates of dry grass outturn for British India adjusted for green grass outturn in Indian Union. Only 5 p.c. of grass outturn is assumed to have any market value, the balance being supposed to be a free gift of nature.

A.11. Valuation of above crops is made on the following lines. Outturn of each crop for each State evaluated at median provincial/State harvest

12 Formula 1: net exports of all cotton by all routes + mill consumption of cotton + estimated village consumption + increase in stocks.

Formula 2: cotton pressed + loose (unpressed) cotton received at spinning mills + net exports of loose cotton by all routes + estimated village consumption of loose cotton including *kapas*. Village consumption has been estimated at 450,000 bales annually. Indian Central Cotton Committee: *Report on Nine Enquiries into village or extra factory consumption of cotton in India*, 1938, p.37). Estimate conventional.

13 Agricultural Marketing Adviser to the Government of India, Ministry of Agriculture, Directorate of Marketing and Inspection (DMI).

14 DESAg, unpublished brochure: *Estimates of Area and Yield of some Non-forecast crops.*

15 Returns secured from provincial and district authorities by courtesy of the Narcotics Adviser to the Government of India, Simla.

16 Official conversion ratio (DESAg) 66.7 p.c. Unpublished MR on rice gives estimated (probable) conversion ratio as follows: rice 71 p.c., bran 6.5 p.c., husk 22.5 p.c. (weighted average of hand-pounded and machine milled varieties). On advice of Rice Adviser to Ministry of Agriculture (post recently abolished) and DESAg, 66.7p.c. accepted as proximate conversion ratio. Hence, balance of 33.3 p.c. must be husk and bran. Adjusting ratios given by MR, husk and bran estimated at 25.8 p.c. and 7.5 p.c. of paddy out-turn.

17 Ministry of Agriculture: Burns' *Report on the Technological Possibilities of Agricultural Development in India*, 1944, p.117.

price. Where number of available quotations small, mean harvest price utilised. Experimental work for a few States has shown median to be better suited than simple mean. R. C. Desai[18] finds that the use of median in place of weighted mean leads on an average to a 3 p.c. over-estimation of the value of product. Experimental work on this point gives the following results:

TABLE 16: PERCENTAGE OVER OR UNDER-VALUATION BY USE OF DIFFERENT (PRICE) AVERAGES

	value of product, by use of		
	weighted mean	mean	median
Uttar Pradesh (1948-49)			
rice	100.0	102.3	101.7
wheat	100.0	102.1	100.4
jowar	100.0	101.0	104.3
bajra	100.0	100.3	100.7
gram	100.0	103.4	99.3
barley	100.0	96.1	97.9
maize	100.0	103.6	103.6
Hyderabad (1948-49)			
gram	100.0	100.0	99.6
other foodgrains	100.0	98.3	97.6
groundnut	100.0	97.7	98.9
Madras (1946-47)			
paddy	100.0	103.8	100.6
ragi	100.0	102.5	98.4
M.P. & Berar (1946-47)			
gram	100.0	103.3	101.2

The above figures indicate percentage over or under-estimation involved in the use of mean or median value, for a few crops in a few states, where available number of quotations (district-wise) is sufficiently large. Although no idea can be formed about percentage over or under-estimation without an idea of total quantities involved, a straight average of values obtained by use of mean and median gives a percentage over-estimation of 1.1 and 0.3 respectively. No correction factor has been applied to allow for this because (i) above results are not sufficiently generalized, and (ii) the price data available are so inadequate that any corrections of above type can only be of theoretical interest.

A.12 Use of weighted average is not possible except for a few States since price quotations are not available for all crops by districts for all States, only choice being use of provincial or State average, or division of province into regions on basis of available price quotations. Latter procedure eschewed here as being largely subjective in respect of border districts.

[18] R. C. Desai, "Consumer Expenditure in India, 1931-32—1940-41", *Journal of the Royal Statistical Society*, 1948.

A.13 Where harvest prices are not available, average of two months wholesale prices (during harvest time) as given in provincial gazettes, etc., utilized. In a few limited cases, average annual wholesale prices utilized[19]. Experimental work on price differentials has shown that error arising out of use of two months averages of wholesale prices (during harvest time) is negligible. In U.P., for wheat, harvest prices in 1948-49 and two months wholesale prices for 47 districts show a mean difference of (-)0.611 rupees per maund, with a standard error of 2.194. Likely error due to use of annual wholesale prices not significant[20]. In such cases, annual prices preferred to prices applying for other areas. Where no price data available, prices in contiguous areas made use of[21].

A.14 Approximately 6 p.c. of foodgrains outturn procured[22] by govern ment at lower prices, and these (procured quantities) ought to be valued at procurement prices. In order to simplify estimation and to allow for procurement value, over-all deduction made in final estimate. Difference between State average value per maund and State procurement price maund multiplied by quantities procured in State, deducted from gross value of product[23]). For straw, price estimated at Rs. 2/- per maund, and for grass 12 annas per maund, on basis of information received from IARI and other sources[24]. For rice bran, Calcutta wholesale price, deflated by 20 p.c. for lower prices in rural areas, has been utilized. For rice husk, price taken at 8 annas per maund arbitrarily[25].

A.15. Since prices in all cases—even harvest prices—are market prices of crops after husking, cleaning and similar processing for market value of agricultural output has been defined to include these

19 Sources of price data : *Indian Agricultural Price Statistics*, ASI, *Statement of Agricultural Prices, Wholesale Prices of Foodgrains* (all prepared by DESAg) *Tad Gud Khabar, Calcutta Prices Current and Money Market Report*, provincial gazettes, various trade journals, and unpublished price data collected by the Ministry of Commerce for revision of all-India wholesale price index. Relative importance of different types of prices and methods of valuation used is as follows: procurement prices 2 p.c., harvest or producer's prices 47 p.c., two months' wholesale price 5.6p.c., annual average wholesale price 8p.c., prices (harvest) in contiguous areas 8.5 p.c., other sources 15.6 p.c., value per acre estimates 13.3 p.c.

20 Since extent of valuation by annual wholesale prices only 8p.c. of total gross value of output (see above, footnote 19), even a (maximum) error of 1p.c. due to use of such prices would lead to an over-all error of 0.1 p.c. in the estimate.

21 This was considered preferable to the use of all-India average.

22 Quantities procured: rice 9.8 p.c. of gross out-turn (1947-48 *kharif* crop procurement, later figures not being available), wheat 1.4 p.c. of gross out-turn (1948-49 *rabi* crop); all food-grains and gram taken together 5.7 p.c. of gross out-turn (1947-48 for *kharif* and 1948-49 for *rabi* crops).

23 Total deduction on account of procured quantities Rs.23 crores.

24 GAC, various research dissertations, etc. On basis of quantity and value of straw per acre, supplied by IARI and GAC, price of straw may be estimated. Green grass prices at Kanpur Re.1/- per maund. Deflating by 20 p.c. to allow for lower average prices for entire country, price is roughly 12.75 annas. Taken at round figure of 12 annas per maund. (One rupee=16 annas).

25 Rice husk is not generally fed to animals (except donkeys and other inferior animals) Hence, a lower price has arbitrarily been taken for rice husk.

ancillary activities[26] including marketing services performed by cultivator. Not possible to separately evaluate value of crops or services utilized in crop production, and value of these ancillary activities which prepare crop for market.

A.16. Where statistics of crop outturn not available, value of output derived from acreage returns, on basis of estimated value of output per acre. Area estimates taken from unpublished *Agricultural Statistics* (AgSt) for 1947-48 prepared by DESAg[27], no statistics being available for later years. For crops for which value per acre estimates are necessary, these acreage figures taken as the controlling data. Value of output per acre of different crops estimated as follows:

Other foodgrains and pulses—where foodgrains only, simple average value per acre of all foodgrains except rice and wheat. Where foodgrains and pulses, average value per acre of all food grains and pulses except rice and wheat. Latter two excluded because their average value per acre in general is much higher than other foodgrains, and because coverage of these two crops is more or less complete.

Other pulses—Mean value per acre of all pulses for which direct estimates of outturn and value possible[28].

Other oilseeds—Value per acre of castorseed (which has the lowest value per acre, among all known oilseeds). Average of all oilseeds not used here because 'other oilseeds' constitute of safflower, niger seed, etc. which are inferior to highly priced oilseeds like rape and mustard and groundnut.

Other drugs and narcotics—Value per acre of opium.

Other dyes—Value per acre of indigo.

Other fibres-Value per acre of sann hemp.

Other condiments and spices—Average value per acre of condiments and spices for which direct estimates of value available, and for which per acre value estimated from ICAR cost of cultivation reports[29]. Works out at Rs. 533 per acre.

Other fruits and vegetable—Estimated at Rs. 800 per acre, on basis of value per acre of fruits and vegetable for which direct estimates of value available[30].

26 The most important of these operations is hand pounding of rice. As the prices used are harvest prices of cleaned rice, all cottage industry workers in this and similar occupations have been treated as occupied in agriculture.

27 Estimates conventional, (i.e. relating to earlier years), for following areas: Area merged with Bombay—Aundh, Mundhal, Sachin and Kolhapur (1946-47), Dharampur and Ramdurg, (1945-46), Miraj-Senior (1944-45); for Jammu and Kashmir (1942-43); for Rajasthan (1946-47) estimates available for Marwar, Bikaner, Bundi, Alwar, Bharatpur, Dholpur, Jaipur, Jhalawar, Kotah, Kisangarh and Tonk; for Travancore-Cochin (1946-47); for Madhya Bharat estimates available for Gwalior, Indore, Rajgarh, Narsimgarh and Barwani only; for Saurashtra, estimate for Bhavanagar only; for Vindhya Pradesh, estimates for Orchha and Nagod only.

28 Mean value per acre of gram, arhar, mung, masur, urd and moth.

29 Estimates of value per acre for pepper (Rs.883), ginger (Rs.515), cardamom (Rs.213), chillies (Rs.539). For turmeric (Rs.515) value per acre estimated by deriving average per acre output as given in ICAR cost of cultivation reports (1935-36) and evaluating at current prices. Simple average Rs.533 per acre.

30 Estimates of value per acre for bananas (Rs.1971), citrus fruits (Rs.889), grapes (Rs.3643), potatoes (Rs.1003), cashew-nuts (Rs.157) simple average Rs.1553; scaled

Fodder crops—Estimated at Rs.55/- per acre, on basis of value per acre of small millets (grain and straw).

Miscellaneous food crops } Estimated at Rs.40/- per acre, on basis
Miscellaneous non-food crops } of findings of various enquiries[31].

A.17. (para 4.11). Net value of agriculture is derived by making the following overall deductions from gross value of output as obtained above:

A.18 Seed and wastage: taken from different MRs and G. Watt: *Dictionary of Economic Products in India*. For crops for which no information is available in above sources, average of seed requirement and wastage for similar crops. Thus seed requirement for 'other foodgrains' is taken at average seed requirement for rice, wheat, jowar, bajra, maize, barley, ragi and small millets; for 'other pulses' on basis of seed requirement for gram, arhar, mung, masur, urd and moth; for 'other oilseeds', on basis of seed requirement for linseed, rape and mustard, groundnut, sesamum, and castor seed. Seed for fodder crops: Rs. 4.96 per acre on basis of findings of research dissertations; for opium Rs.3/- per acre on similar basis. For coconut, other sugars, tobacco, indigo other dyes, bananas, citrus fruits, grapes, cashew nuts, other fruits and vegetables, and miscellaneous food and non-food crops, seed requirement is negligible or not separetely available and estimated together with wastage. For fruits and vegetables, wastage assumed at 10 p.c. of gross output; for condiments and spices and cotton seed, at 5 p.c.; for miscellaneous crops, wastage has been taken at 2 p.c. For tea, coffee and rubber, all deductions as below, under market charges. Total deduction for seed and wastage, Rs.313 crores.

A.19. Market charges: Since prices adopted for valuation purposes are in a sense market prices, certain 'market charges'—not marketing expenses—have to be deducted. Figures of octroi receipts of municipalities taken from *Statistical Abstract* (SA) 1949. As coverage of SA is not complete, total octroi estimated on basis of ratio of urban population covered. As no breakdowns of octroi receipts available, it is assumed that 50 p.c. of octroi receipts are on agricultural products. On this basis total deduction works out at Rs. 2.6 crores. For tea, coffee and rubber, marketing expenses have to be deducted as these services are not performed by producer;

down and fixed arbitrarily at Rs.800 per acre. Without grapes (which has a very high value), average works out at Rs.1005 per acre. Value of bananas, citrus fruits, potatoes (being commercial crops) likely to be higher than average.

31 Some important sources in this and other connections may be mentioned here. W. Roberts: *Text Book of Punjab Agriculture* 1947; Board of Economic Inquiry Punjab: *Family Budgets, 1948-49, of eighteen cultivators in the Punjab*, 1950; Board of Economic Inquiry, East Punjab: *Farm Accounts in the East Punjab 1945-46 to 1947-48*, 1949; various other farm accounts and publications of the Punjab Board of Economic Inquiry; D.R.Gadgil: *A survey of Wai Taluka* 1938; a number of research dissertations and field enquiries, of whom the following may be mentioned: G. D. Agarwal, *Agricultural Credit Problem in India* (Agra University, 1949); C.P. Shastri, *An Enquiry into the Costs and Returns of Government Farms, Private Farms and Cultivators Holdings in the district of Meerut* (Agra Univ., 1950); D. S. Chauhan: *Rural Economy of India* (Agra Univ., 1947); results from various other research dissertations tabulated for the NIU by D.S. Chauhan, and most important of all, data tabulated in NIU from ICAR cost of cultivation reports for cotton and sugarcane growing tracts in India, 1933-36.

deduction of 15 p.c., 7p.c. and 5 p.c. respectively made on basis of company balance sheet analysis[32]. Estimated expenses works out at Rs. 11.7 crores for tea, coffee and rubber. These may be taken to include all deductions relevant for these crops. For opium etc. no market charges, as valuation is made net of royalty paid by cultivator to government, and the produce is collected from farm at price fixed by statute. Fodder crops assumed not to be marketed at all. Similarly, for rice husk and bran, straw and grass, no deductions on account of market charges.

A.20. Land revenue and irrigation dues paid to government, taken over from estimate of land revenue collections and irrigation receipts of all governments[33]. Works out at Rs. 42.2. and 10.9 crores respectively.

A.21. Manure :Cowdung manure taken over from estimates in animal husbandry sector. For fertilizers etc. estimates of production and imports of all fertilizers during 1948-49, supplied by Agriculture Division of National Planning Commission. Valued at wholesale prices at Calcutta, and marked up by 15 p.c. to allow for trade margin. Works out at Rs.8.4 crores. For other manure, 25 p.c. of sann hemp crop, after deduction of seed and wastage, assumed to be ploughed in for manure. Other green manure has been ignored for lack of information. For bone manure, estimate of production net of exports taken from animal husbandry sector. Total deduction for manure checked up and found to be in reasonable agreement with estimated expenditure on manure derived from various research dissertation and field surveys. Works out at Rs. 52.3 crores.

A.22. Other costs on materials and miscellaneous expenses: Estimate of materials for fencing, etc., kerosene oil for crop watching at night, rope and miscellaneous accessories, implements, etc., taken from various farm costing accounts and field surveys for different years[34]. After adjusting for price change, per acre costs applied to total cultivated area. Works out at Rs.42.9 crores.

A.23. Repairs and depreciation of farm implements, etc.: Estimate derived from research dissertation, results of field studies, and numerous other sources. Average value of farm implements for more than a hundred holdings in U.P. tabulated on basis of size of holdings. Average value of implements per acre of cultivated land derived on basis of weights (distribution of holdings by size) given by *Zamindari Abolition Committee Report (1948)*[35]. Average value of *all* implements thus estimated at Rs.21.96 per acre, or roughly Rs. 22 per acre. Total value of all implements in entire country for 245 million acres of net cultivated

32 Joint Stock Companies' balance sheets and profit and loss accounts as analysed by the Dept. of Research and Statistics, Reserve Bank of India (RBI). Results for 1947, made available by RBI.

33 Derived from government budget accounts. These deductions necessary because land revenue and irrigation dues are considered here as indirect taxes. If former be considered a direct tax on capital, Rs. 42.2 crores may be added to the net value of agriculture.

34 In particular, D. R. Gadgil: *A survey of Wai Taluka*, W. Roberts: *Text Book of Punjab Agriculture*, and various Farm Accounts published by the Punjab Board of Economic Inquiry.

35 *U.P. Zamindari Abolition Committee Report*, 1948, Vol. II.

area[36] is thus estimated at Rs. 539 crores. On above basis, estimated annual repair and depreciation (at 20 p.c.) works out at Rs. 107.8 crores.

A.24. Above result may be an over-estimate in view of comparatively greater rural prosperity in Uttar Pradesh. D.R. Gadgil (*A Survey of Wai Taluka*) gives Rs. 10.6 as average depreciation of all farm implements and Rs.7 as repairs of all kinds for farm buildings, irrigation tanks, and wells etc., and all implements used in agriculture, in Poona, per cultivated area of 12.5 acres in 1937-38. 50 p.c. of above overall repair expenditure assumed here (arbitrarily) to apply for implements only. Adjusting Gadgil's estimate for price changes (All India Wholesale Index), and estimating for total cultivated area, total repair expenditure and depreciation of implements works out at roughly Rs. 105.4 crores. Closeness of above two estimates purely coincidental and does not necessarily imply accuracy of estimate adopted. Straight average of above two estimates taken as repair expenditure and depreciation of all farm implements in Indian Union in 1948-49.

A.25. Above results checked up on basis of total number of wooden and iron plough in India[37], their average price, expected life and annual repair costs, and estimated life and value of all other implements[38]. Repair and depreciation of only ploughs works out at roughly Rs. 21 crores. Value of all other implements roughly three times the value of ploughs (Punjab Board of Economic Inquiry: various Farm Studies and farm Ac-Accounts; W. Roberts: *Text-Book of Punjab Agriculture*, etc.) Total repair and depreciation thus works out at roughly Rs. 84 crores. All above calculations extremely rough, and estimate of depreciation necessarily subject to unknown error, since available data valid only for localised areas. Former of above estimates, namely Rs. 106.6 crores, accepted since (i) the U.P. survey relates to 1948-49, and (ii) the Poona survey, adjusted for price changes, gives fairly consistent results. Present estimate subject to error, not only in respect of error in estimate but also in divergence between actual and theoretical depreciation.

A.26. Repair and depreciation of carts and sugarcane crushers, estimated on basis of number of carts as given in *Livestock Census* (LC) for 1945, adjusted for Indian Union area. Sugarcane crushers assumed to have been included among farm implements. Average life and price of rural carts taken from results of field studies. Average price of a (farm) cart estimated at Rs. 200/- with an annual repair expenditure and depreciation of 10 p.c. Total deduction on this count Rs. 23.0 crores. Depreciation of equipment in tea, coffee and rubber plantations taken over from RBI company balance sheet analysis for 1947. Ratios of depreciation to sale value of product, applied to gross value in these sectors. Depreciation of tea, coffee and rubber factories thus estimated at Rs. 4 crores.

4.27. Maintenance of private irrigation works: Estimate of area irrigated by government canals, private canals, tanks, wells and other sources avail-

36 *Agricultural Statistics*, Indian Union, 1947-48. Unpublished data received from DESAg.

37 *Livestock Census*, (LC) 1945. Estimate adjusted for present Indian Union area, but no projection made and 1945 estimates taken over for 1948-49.

38 *W. Roberts: Text-book of Punjab Agriculture*; Baljit Singh: *Whither Agriculture in India*, etc. see also, footnote (31).

able. Expenditure on maintenance of government canal irrigation works culled from budget accounts for 1948-49. Assumed that maintenance costs of private irrigation works is proportionately half of government irrigation maintenance costs. In latter, certain current cost items, e.g. for supply of water, are also included. On above basis, maintenance cost for area irrigated by private irrigation, Rs. 4.6 crores.

A.28 Deduction for rice milling: Since rice is valued at cleaned rice prices, net value added by rice mills (as estimated in Factory establishments sector) deducted from value of rice in agriculture sector. Hand-pounding of rice etc. defined as an ancillary activity to agriculture, and hence included in this sector. Deduction for rice milling Rs. 2.3 crores.

A.29. Feed of livestock required on farm taken from estimates in the animal husbandry sector. Works out at Rs. 279 crores.

A.30. Net value of agriculture derived by making above deductions from gross value of agricultural output. Net product of government productive irrigation—wages and salaries paid by government in respect of current and capital expenditure on and surplus of productive irrigation works—added to net value of agriculture. This procedure is necessitated by separation of all government enterprises from government administration and re-allocation of net product of each government enterprise among relevant (industrial) sectors. Net value of productive irrigation thus added to agriculture, Rs. 28 crores.

A.31. Estimate as derived above relates to approximately 75 p.c. of Indian Union area (Source: DESAg). Area not reporting for AgSt is roughly 29 p.c. of total area. Of this, a part is covered by forecasts (crop forecasts as given in *Estimates of Area and Yield* are not identically related to area reported for land utilisation in AgSt) and a part by conventional estimates of outturn of foodgrains only, in respect of part of non-reporting areas. Of balance of AgSt area not covered by forecasts part is accounted for by use of conventional estimates; roughly 25 p.c. of Indian Union area remains completely non-reporting from point of view of national income estimation.

A.32. For the non-reporting area relevant for our purpose following estimate made: DESAg estimates for non-reporting areas based on estimates prepared in 1946 by V.K.R.V. Rao[39]. Additional area covered by special survey 49.3 p.c.of area then covered by AgSt; additional outturn estimated at 8.3 p.c. (for six foodgrains) of the then officially estimated outturn. On above basis, for increase in coverage of area by 25 p.c. additional outturn ought to be roughly 4 p.c. of existing estimates. But as coverage of statistics progressively increases newly covered areas likely to be increasingly more intractable and barren. Hence, likely increase in outturn by increased coverage estimated at 2 p.c. No reason why above increase should be restricted to foodgrains only; in fact, inadequacy of coverage more important for non-food crops. Hence, net value of agriculture arbitrarily increased by 2 p.c. to cover non-reporting areas. As above procedure arbitrary, estimates made in respect of net rather than gross value. No adjustment, therefore, necessary except in estimate of net output of agriculture.

[39] *Food Statistics of India*, 1946 p.66. Estimate for 1942-43.

A.33. (para 4.12) Latest data in respect of animal husbandry[40] relate to 1945[41]. Coverage of the census complete for class A States, and areas missed in class B and C States are negligible in importance. No information, however, is available in respect of reliability of census for States covered. Coverage of ouput statistics for more important products is supposed to be complete i.e. adjusted for lack of coverage, but no statistically sound data on yield rates are available for estimating population values. Price data are meagre and not available for all centres for which outturn figures are available. Prices mostly relate to urban centres and cannot be applied to rural areas without adjustment. Available statistical material is incomplete for estimation of net value of livestock sector and estimate presented is partly conjectural. Need for revision when NSS and 1951 LC material become available[42].

A.34. Population trends for various animals have been examined on basis of quinquennial livestock censuses and curve fitting tried for estimation of 1948-49 population[43]. Coverage of different censuses is not strictly comparable and adjustment made for comparable area. Trends have been observed over 1925-45. For example, $y=111.971+5.177x-1.360x^2$ (y=population, x=time) gave good fit to cow population. On above basis estimated cow population for 1948-49 is only 3 per cent below 1945 population. For other important animals changes are even smaller. Population projection is valid only when error due to projection may be assumed to be smaller than error arising out of accepting 1945 population for 1948-49. This assumption is considered not tenable and 1945 population is used for 1948-49 as controlling total for estimation of value of livestock products.

40 Animal hunbandry sector defined as composed of following :

(i) *Milk and milk products*—fluid milk, ghee lassi, dahi, butter, other products (ice cream, cream, chhana, casein, khoa and khurchan);

(ii) *Meat*—beef, buffalo meat, goat meat, mutton, pork, poultry;

(iii) *Other edible*—eggs;

(iv) *hides and skins*— cattle-hides, buffalo hides,goat skins and sheep skins;

(v) *Miscellaneous*—bone, horn, ivory, tip, blood, wool and dung (as fuel and manure and other uses). Note that game not included in group (ii) and bristle, feather, fur and hair left out in (v). Following services also considered for netting: cultivation, rural and urban carting, as pack animals, for oil crushing, and fertilising services of sheep and goat. For comparable lists, Shah and Khambata: *Wealth and Taxable Capacity of India* (1924) and Rao: *National Income of British India, 1931-32* (1940).

41 See note (42 below).

42 Statistical material on livestock population used: *Livestock Census* (LC) 1919-20 (non-simultaneous, coverage of states 38%); 1930 (simultaneous, Bengal Bihar and Orissa did not prticipate. Coverage of states 66%); 1940 (simultaneous, U.P. and Orissa did not participate, coverage of states 92% but increase mainly due to inclusion of Baluchistan states which go to Pakistan). Census data relate to pre-partition India. Next LC to be held in April, 1951.

Livestock Statistics (LS) prepared by DESAg, giving estimates for Indian Union area for 1940 and 1945.

Report of the Cattle Preservation and Development Committee, 1948. Paper on cattle population by Lall.

43 Evidence of fall available not only from fitted trends but also from informatiion received from different authorities (e.g. Secretary, Provincial Federation of Gaushalas of Kutch; Bihar Provincial Goshala Pinjrapole Federation; etc.) in reply to questionnaire sent out by NIU.

A.35. Close examination of data for different provinces and States reveals wide fluctuation over different censal years. This is presumably due to varying coverage even within individual States. No information is available on degree of coverage and hence no adjustment is possible for inadequacy of returns. Physical quantity of production of different types of product estimated as follows.

A.36. Total outturn of milk taken from MR on milk (based on 1945 LC). Error resulting from fall in cow population[44] likely to be partly offset by increase in efficiency of cows as a result of elimination of animals at margin. Quantity of milk production consumed fluid (36.15 p.c.[45]) taken from MR on milk. Urban production of milk estimated at 70 p.c. of urban milk consumption (MR on milk); latter is derived from per capita urban milk consumption (MR) and estimated urban population in 1948-49 (546 lakhs). Production of ghee, dahi, and butter is estimated by applying appropriate conversion factors to total quantity of milk utilised for preparation of these products[46]. Outturn of lassi and other milk products not directly estimated.

A.37. For meat, estimate of outturn based on information on slaughter and yield of meat per animal supplied by DMI from unpublished MR on meat. Estimates made separately for beef, buffalo meat, goat meat, mutton and pork. Data for poultry, fowl and duck population for 1945 available in Livestock Statistics (LS). Data given in LS preferred to data in MR on eggs[47]. Annual availability of ducks, hens, chicken and ducklings, for consumption as meat, and annual net supply of eggs is estimated on basis of information on laying of eggs for hens and ducks (MR on eggs, and Burns, op. cit.), percentage of eggs lost and hatched, and percentage of survivals (MR on eggs)[48]. For geese, turkeys and guinea fowl similar procedure is applied for estimating number of adult and young birds consumed.

A.38 For other livestock products, following procedure adopted: for hides and skins, MR on hides (1943) and MR on skins (1943), and unpub-

44 Independent application of overall ratio gives slightly different figure. Probably over-all ratio an average of unreleased State ratios.

45 Source: Marketing Report (MR) on milk, corroborated partially by replies to National Income Unit (NIU) questionnaire. Existence of approximate identity between value of milk consumed fluid and value of product prepared out of the same quantity of milk leads to very little alteration in total net value even when conversion factors are considerably wide off mark.

46 LC data adopted in preference to MR on eggs data on advice of experts in DMI. MR data based on sample enquiries but not on strictly random basis, hence unreliable. Adopted results approximately tally with preliminary findings of National Sample Survey (NSS).

47 Wide discrepancy between LC and MR data. MR figures based on a few case studies. On advice of experts in DMI, LC data accepted.

48 Applying Burns estimate of rate of egg laying to LC estimate of duck and hen population, annual egg production estimated at 11898 lakhs. Adjusting for eggs lost before collection (MR), eggs available 11595 lakhs. 2080 lakhs retained for hatching (MR ratios); 66 p.c. of eggs hatched produce chicken; 50 p.c. of chicken survive. Thus, roughly 7 crores of chicken survive annually. Total adult and duck population 295 lakhs. 50 p.c. of latter assumed to be slaughtered annually, and poultry population to be just replaced every year. Hence number consumed for meat annually, 148 lakhs of adult fowl and 538 lakhs of chicken.

lished data on hides supplied by DMI utilised for estimating outturn. Data on outturn of skins relate to 1935, and adjusted for 1948-49 by ratio of number of animals in 1945 to number in 1935. Unpublished data on outturn of hides relate to current period. Production of wool in 1940 is taken from data supplied by DMI and unadjusted figure used for 1948-49 in view of absence of any trend in sheep population. Estimate of dung production is obtained by taking 20 lbs, 30 lbs and 10 lbs as evacuation per day per adult cattle, adult buffalo, and young stock respectively[49]. Out of total production, 20 p.c. is assumed to be wasted or not collected at all. Of balance, 50 per cent is taken as fuel, 45 per cent as manure and 5 per cent for other uses[50]. Loss of weight in the process of conversion of dung into economically useful products is assumed to be 60 p.c.[51] For certain other livestock products like bone, horn etc. no estimates of outturn is possible, and direct estimate of value made.

A.39. Valuation of livestock products as follows: for evaluation of milk produced in rural areas, mixed milk prices in different States paid by *halwais* for their purchases from rural areas are taken from MR on milk. Prices for 1947-48 are adjusted for 1948-49 by wholesale index for 'other food items'. For States for which mixed milk price is not available, weighted average of cow and buffalo milk price taken, weights being cow and buffalo milk production. Percentage of cow and buffalo milk used for fluid consumption not available separately; percentage known only for mixed milk; hence necessity of evaluation at mixed milk prices. Separate evaluation would have entailed erroneous assumption that 36.15. p.c. of buffalo milk (which is more suitable for conversion into products) also consumed fluid; this likely to lead to over-estimation of gross value of milk since buffalo milk slightly dearer. For areas where price data not available average prices in contiguous areas utilised. Price used for rural areas compare favourably with producers prices obtained from first round results of the NSS. Urban production evaluated on basis of various price quotations given in MR on milk and other sources.

A.40. For ghee, prices used for evaluation are taken from LS and other official sources[52]. As total value of ghee works out at 78.9 per cent of value of its milk equivalent estimated on basis of rural prices alone, balance of

49 Adopted figures arbitrary. Comparable figures: MR on cattle—daily evacuation of an adult over 3 years, 25 lbs for oxen and 60 lbs for buffalo; corresponding figures for young animals below 3 years 18 lbs and 40 lbs. Burns' (*Tech. Possibilities of Ag. Dev. in India*) figures are 40 lbs per adult cattle, 50 lbs per adult buffalo and 20 lbs per young stock. A research dissertation (M.G. Joshi: *Problems of livestock in Poona district with special reference to marketing*) puts figure at about 20 lbs per adult animal per day, as given by village surveys. In view of poor condition of cattle stock, and inadequate feed of cattle generally, Burns' and MR figures appear to relate to high quality cattle only.

50 According to MR on cattle, 40 p.c. of dung used as manure, 40 p.c. as fuel and 20 p.c. wasted. Figures based on *Memorandum on Development of Agriculture and Animal husbandry in India*. According to Burns, (op. cit.) 66.6 p.c. used as fuel—but no authoritative source quoted, Hence earlier figures accepted with slight modification to incorpotate 'other uses'.

51 Source : Burns (op. cit.)

52 Source: *Indian Agricultural Price Statistics*, LS, *Monthly Statement of Wholesale Prices* and unpublished prices available from Economic Adviser's office, Ministry of Commerce. Prices used compare favourably with prices collected through NIU questionnaire and obtained from NSS.

21.1 per cent of value imputed to lassi or other by-product (depending on method of ghee production) obtained in process of ghee making. As milk evaluated at lowest possible price, a loss in value by conversion of milk to ghee to the extent of 21.1 per cent seems improbable. As lassi (or other by-product) mostly consumed by producer of ghee himself, this value has to be imputed to lassi. The price of dahi is estimated at 20 per cent above milk prices on basis of local enquiries and scattered information; coverage of available dahi prices is meagre. Estimated prices used compare favourably with prices obtained from first round of NSS, received too late for incorporation. Butter prices taken from MR on milk and LS and adjusted for 1948-49 by index number for 'other food items'.[53] Value of butter thus estimated works out at 16 per cent above value of its milk equivalent (estimated on basis of rural milk prices) and appears high in comparison with ghee. Plausible because butter consumed largely in urban areas; butter milk, however, not separately estimated and assumed to have been included in value of butter.[54]

A.41. As coverage of prices of other milk products meagre, quantity of milk converted into khoa, ice cream, cream, chhana, casein and khurchan evaluated at milk prices raised by 15 per cent arbitrarily. This is likely to lead to slight under-estimation because of presence of highly valued products like ice cream.[55]

A.42. Price data for meat obtained for urban centres in different States from DMI. Prices reduced by 20 per cent on advice of experts in DMI to allow for lower prices in rural areas. For States for which price returns are not available, prices in contiguous areas or overall averages used. Goat meat evaluated at mutton prices and buffalo meat at beef prices. Prices of all varieties examined and above identities empirically established. For poultry, etc. prices adopted on basis of available information are Rs. 2 per adult bird and Rs. 0-12-0 per chicken, duckling etc. No separate evaluation of high priced birds like turkeys has been made as the order of magnitude involved is insignificant. Egg prices are available for Calcutta, Bombay, Madras and Delhi. To allow for lower prices in rural areas, prices deflated for first three centres by 20 per cent following a procedure similar to meat. For Delhi since egg prices are available for best (selected) quality eggs, a deflation of 10 per cent applied first and then the overall deduction of 20 p.c. to allow for lower prices in rural areas. Average of all prices applied to other areas.

A.43. For hides, value of cow hides worked out on basis of local price data for four States: Bombay, Bengal, U.P. and Madras. Declared value of exports deflated by 15 per cent to allow for distribution costs, have been used. Average of above for other areas. Since prices are available by

53 Prices used compare favourably with first round NSS results and data collected through NIU questionnaire.

54 Separate estimate of value of skimmed milk not possible due to lack of data. Variability of yield of skimmed milk per seer of milk, additional difficulty.

55 MR on ghee and other milk products, 1948, puts value of other milk products as follows: khoa Rs.19 crores, ice cream Rs.23 crores, cream Rs. 2 crores, chhana Rs. 10 crores and others Rs.1 crore. Figures relate to 1940 and obviously over-estimated particularly in case of ice cream.

weight, average weight estimated from weight and number of exported hides separately for cow and buffalo hides. Evaluation of raw buffalo hides similarly by prices in above four States and by declared value of exports reduced by 15 p.c.[56] Prices of sheep and goat skin are available for six States: Bengal, Bombay, Madras, U.P., Hyderabad and Mysore. Average of all applied to other States. For wool, average of prices at Bombay, Calcutta and Kanpur (received from DMI) applied to all States after deflating by 25 per cent to allow for rural areas.

A.44. Dung cakes have been evaluated at 6 annas per maund and dung for manure and other uses at 3 annas per maund[57]. Fertilising services of of goat and sheep evaluated on basis of results of enquiries by private investigators.[58] Total value of bone and bone manure assumed to be four times the value of export of these.[59] No information is available for directly estimating net value of horns, ivory, tips, blood etc. Value of these taken arbitrarily to be equal to value of bone and bone manure.

A.45. Net value of product: Several approaches are possible: (i) to estimate net value of all goods consumed by livestock population as a whole, allowing for distributive margins, (ii) to evaluate cost of upkeep per head of animal from sample studies and estimate for total livestock population, and (iii) estimate cost of production per unit of quantity of each individual livestock product from sample studies and thus estimate for total quantity of product. Method (i) finally adopted but no allowance made for distributive margins as almost entire material consumed comes out of agriculture and livestock sector. Procedure is not strictly valid and under-estimation likely. Method (ii) cannot be adopted even as a check as sample studies invariably relate to urban conditions where cost is disproportionately high.[60]

56 Figures of value of hides adopted compare favourably with value given in unpublished MR on hides.

57 NIU estimates of value considerably lower than value of dung manure estimated by Ware (Rs. 180 crores) and Oliver and Vaidyanathan (Rs.270 crores) (See R. D. Tiwari: *Indian Agriculture*).

58 M. G. Joshi (See note 49 above). Estimated value of fertilizing services of sheep and goats: Rs. 5 per year per flock of 100 sheep or goats.

59 Value of exports taken from *Sea-borne trade of India*. Multiplier taken on basis Rao's procedure for 1931-32; Shah and Khambata in *Wealth & taxable capacity of India*, 1924, followed a similar method.

60 Some examples of data on money cost of upkeep per animal detailed below: *Indian Journal of Agricultural Economics*, March 1950—cost of upkeep in recent times for urban and suburban areas in different parts of the country, minimum Madras Rs.33 p.m., minimum Bombay Rs. 45 p.m; local enquiries at Delhi Rs. 70-120 p.m. for buffalo, Rs. 50-90 p.m. for cow; MR on cattle (for rural areas) Rs. 110-412 for rearing cattle up to 3 years (pre-war); N. N. Agrawala: cost of rearing cow and buffalo calves under village conditions, average 1944-47, first year Rs.20.06, second year Rs. 46.50, third year Rs. 67.87 (first year cost exludes milk); ICAR cost of cultivation reports, Rs.37.1 (pre-war) per bullock (Data analysed from ICAR cost of cultivation reports for cotton and sugarcane growing tracts of India, 1933-34—1936-37); Singh & Singh: *Farm accounts in the East Punjab*, 1945-46 —1947-48, Rs.332 per year per bullock. Even lowest costs cited, roughly double the cost per animal calculated on basis of method of total value of livestock feed available.

Method (iii) not possible except for milk due to lack of data and used as a check.[61]

A.46. Method adopted detailed as follows: Cost of upkeep split up into cost of the following items: (i) roughages: green and dry fodder, straw and grass, (ii) concentrates: rice husk and bran, oil cakes and grains, (iii) others: salt, gur, sugarcane and medicine. Entire net value of fodder crops, 50 per cent of the value of rice husk and 75 p.c. of bran and 90 p.c. of the value of stalks and straws[62] and the entire value of grass assumed to go towards feed of all livestock taken together. Value of grain and oilcakes fed to cattle (in small quantities) derived from scattered information in MRs,[63] total value of grains and oilcakes thus fed being Rs. 30 crores and Rs. 19 crores respectively.

A.47. Expenditure on salt, sugarcane and gur is estimated at Rs.1-8-0 per year per head of cattle. Medicine 8 annas per animal per year. Non-food costs of other animals at comparable rates, e.g. Rs.1-8-0 per head of sheep and goat for miscellaneous items such as ghee, herb-spices, medicine etc. Total cost of upkeep Rs. 710.5 crores[64]. Total working population of cows and buffalos and the entire population of horses, ponies, donkeys, mules and camels is assumed as being kept for service, and the remainder for milk and milk products. Total cost split up as follows[65]: Service Rs.300.09 crores and non-service Rs.410.46 crores. Cost of fuel and material for ancillary (secondary) activities (e.g. ghee making) is estimated at Rs. 14.64 crores and depreciation of implements (e.g. churners etc.) put at Rs. 0.99 crores.[66]

61 Average cost of production of milk works out at 0.18 annas per seer on basis of material relating to M.P. and Gwalior given in *Indian Journal of Agricultural Economics*, March 1950 (see papers by Natarajan, Khurody, Sharma, Doshi and Sayana for this and other information). This gives a total cost of upkeep of milch animals at Rs. 34716 lakhs. Our calculations on other hand give Rs. 38787 lakhs as cost of upkeep of cows, buffalos and goats kept for milk purposes.

62 Only 50 p.c. of rice husk estimated as used for cattle feed because rice husk not generally fed to milch cattle, etc., and used largely as fuel for burning (in South India). For bran, 75 p.c. estimated as cattle feed as in poorer parts of country, rice bran is used for human feed, mixed up with rice. 10 p.c. of stalks and straws estimated to go towards thatching of rural houses, estimated roughly on basis of information on maintenance expenditure for rural houses as given by first round NSS results (see infra, A.112).

63 For example, MR on gram states that 12 p.c. of crop used as feed of livestock.

64 Total weight of roughages fed works out at roughly 16 lbs per animal per day. Corresponding figure for concentrates is roughly 0.14 lbs. Roughages figure includes part of grass *not* evaluated, and the magnitude is probable. Concentrates figure also is of reasonable magnitude.

65 For allocation of costs to different animals, following equivalence scale adopted: cow or ox 100.0, bull or buffalo 133.3, goat and sheep 10.0, camels 133.3, horses and ponies 133.3, mules and donkeys 100.0, pigs 10.0 and poultry 0.5. Young stock for bovine population and horses only taken at half rates. Scale arbitrary but roughly corresponds to one cited by D. R. Gadgil in *Economic Effects of Irrigation*. Error in scale would have no effect on total net national income, and would involve insignificant changes in sectoral net incomes.

66 Calculation of depreciation and cost of materials arbitrary. Available material meagre. To cite a few, fuel cost of boiling milk available in MR on milk; depreciation of churners in MR on ghee and other milk products; depreciation of fodder cutters in Farm Accounts in the E. Punjab (Punjab Board of Economic Inquiry), etc. Coverage of material not adequate for estimating national aggregates, hence certain percentages on value of product adopted on basis of scattered information.

A.48. *Hunting*: Net value of hunting is included in agriculture, animal husbandry and ancillary activities. For deriving working force engaged in hunting, 1941 occupational distribution adjusted for 1948-49 is used. Net output per worker evaluated at rate of fishermen.[67]

A.49. *Forestry* (para 4.13; Table 2) Area reporting in respect of forests as detailed below:

TABLE 17: COVERAGE OF FOREST STATISTICS

	Sq. miles	Per cent of Indian Union area
1. geographical area covered by *Indian Forest Statistics* (for 1946-47)	755,185	61.9
2. *additional* geographical area for which area statistics are available in *Agricultural Statistics*, (for 1942-43)	193,888	15.8
3. geographical area known to be not under forest	4,851	0.4
	953,924	78.1

Area under forest pertaining to row 1 is 140,962 square miles, and that pertaining to row 2 is 59,776 square miles giving a total forest area of 200, 738 square miles in the reporting parts. Assuming area under forest in non-reporting area to bear same proportion to total area as above, area unde forest in entire Indian Union works out at 256,732 square miles. Out of this, state forests cover 149, 752 sq. miles.

4.50. Estimate based on 1946-47 figures[68]. Area for which statistics of major forest products (timber and fuel) are available is 156, 629 sq. miles; statistics of value of minor forest products relate to 164,030 sq. miles. Outturn of timber per square mile for remaining area is assumed to be one third of outturn per square mile of area for which returns exist. Corresponding figures for fuel and minor products assumed to be two thirds. Timber is evaluated arbitrarily at Rs. 8 per cubic ft. and fuel at 8 annas per cubic ft[69]. For minor products value is taken from official records. Value of other products (all products excepts major and specified minor products) is estimated on basis of ratio (95:5) for all products to other products on advice of experts in Inspectorate General of Forests. An over-all deduction of 10 per cent made for costs and depreciation.

A.51. An alternative method is as follows: Revenue from government forests obtained from government records for 1948-49. Rate of revenue per sq.mile applied to rest of area, giving total net value of output of Rs. 27

67 V. K. R. V. Rao : *National Income of British India, 1931–32*. Rao used two-thirds the rate of fishermen's income for hunters.

68 Data for 1947-48 given in *Forest Statistics of India* (FSI) *1936–37 to 1947–48* and also in SA could not be used as the coverage relates only to class A States. Data for earlier years in FSI do not always tally in detail with data in other sources. As forest area and products not likely to fluctuate violently from year to year, effort made to secure maximum area coverage.

69 Available information indicates much higher prices. Prices of processed timber in urban centres vary between Rs.8 and Rs. 13 per cubic feet. Assuming Rs. 8 to be average price of timber (prices available relate to superior timbers), and allowing for value added by processing and trade, net value of timber fixed at Rs. 3 per cubic feet. Estimate largely conjectural, and subject to unknown error. Similar procedure about deflation of firewood prices to allow for trade margins.

crores in 1948-49. Latter method. though apparently more rigorous than other method, leads to obvious under-estimation of forest products, because of low government revenues out of forestry. Large part of products of government forests are used and sold illegally by private persons: even products sold by government are usually at rates much lower than market prices. Hence other method adopted.

A.52 *Fishery* (para 4.14; table 2). Relevant data on production, price and value taken from MR on fish. For sea fish and marketable surplus of fresh water fish, MR figures of value used. For portion retained by producer in case of fresh water fish, ratios received from DMI separately for States utilised for estimation of total value of catch. No adjustment necessary for sea fish for which value of total produce directly available. Net value arrived at from gross value after a deduction of 5 per cent (adopted arbitrarily) for depreciation of boats, nets etc[70]. Value added by secondary activities like salting and sun-drying[71] obtained directly from DMI and added to net value of fishing. Estimates checked up by income approach[72], and consumer expenditure approach based on first round results of NSS and available urban budget material[73]. While income and consumption approach based on inadequate data, both suggest that value of output approach results in under estimation.

A.53. *Minerals* (para 4.15; Table 2). Data on quantity and value of minerals from 1944 onwards examined. Data for 1944 and 1945 are available in the journal, *Indian Minerals*, (January, 1948 issue). However, material from 1944 to 1948 have been collected directly from Geological Survey of India (GSI) by State breakdowns. For 1944 comparison relating to area covered by British India made with parallel data available in *Report of Chief Inspector of Mines* (CIM). General agreement noticed, but discrepancies are observed in case of steatite, sand stone, clays and barytes. GSI data are consistently higher, indicating superior coverage, perhaps due to incorporation of estimates for mines not covered by Report of CIM. Present estimates for 1948 are based on former data. No attempt made for adjusting figures for financial year. Where 1948 figures are missing, figures for 1947 or 1946 used. Coverage of

70 Comparable figure used by V.K.R.V. Rao, 10%.

71 Available matrial on driage (40 per cent) and quantity of fish cured given in *Brochure on Marketing of fish* utilised for independent estimates of salting and sun-drying for year 1947. Value added by sun-drying taken simply as value of cured fish *less* value of raw fish sun-dried. Value added by salting taken as value of cured fish *less* value of raw fish consumed *less* value of salt used up. NIU estimates for 1947 of value added by salting very near DMI estimates for 1948. But NIU estimates for sun-drying for 1947 considerably higher than DMI estimates of sun-drying for 1948. NIU calculation made State-wise. While overall figures not untenable, figures for some States improbable showing dubious nature of available price statistics.

72 Income approach gives a higher figure than value of product approach. Plausible since number of fishermen likely to be actually declining since 1941 (see *Fisheries Sub-Committee report*) while assumed here to be increasing proportionately with population, on basis of occupation distribution derived from 1941 ratios.

73 Urban budgets used: Ministry of Commerce middle class family budget enquiry and working class family budget enquiries at various centres conducted by Labour Bureau. As retail and producers' prices not available for similar varieties of fish, exact estimation of net value not possible by this approach.

information used compares favourably with list given by Fox: Mineral Wealth of India[74].

A.54. For mica, export value is found to be much higher (roughly five times) than value of output as given by GSI. Export value includes processing and distribution costs (trade margins) almost impossible to allow for; estimate of production may be under-estimate. On advice of GSI, value of output given by them is accepted for present purposes. For lead, evaluation of metal itself has been made as no satisfactory price of lead ore is available. For salt, value given by Salt Controller and published in SA considerably higher than value given by GSI, but this mainly due to higher price used in former.[75] GSI endeavours to evaluate all minerals at pit head prices, and hence is more acceptable to alternative valuation by other authorities.

A.55. Gross value of production for country thus available for all minerals by States. Net value of product obtained from gross value after three deductions: (i) value of coal consumed in collieries or wasted, estimated on basis of overall percentage (6.4 p.c.) arrived at from figures available in *Report of the Advisory Planning Board*, 1947[76], (ii) provision for depreciation calculated on basis of RBI balance sheet analysis of mining companies[77] and (iii) cost of materials and electric current consumed in mines, assumed to be 5% of gross output arbitrarily.

A.56. *Factory establishments* (paras 4.16 and 4.17; Table 2). Two sets of data are available for statistics of employment in factory establishments[78]. Labour Bureau (LB): Statistics of factory employment for 2j and 5(1) factories separeately.[79] Source: provincial Chief Inspectors of Factories (CIF). Coverage of former (2j) is fairly adequate, though information for class B States relates to 1946. Roughly 90 p.c. factories covered for employment statistics for 2j factories, which implies that coverage for employment must be much higher as only remote and comparatively small factories are likely to be omitted. Nothing is known about employment coverage. For 5(1) factories, coverage is extremely inadequate and relates only to factories *notified* under Act.[80]

74 Records of GSI Vol. LXXVI, 1942. NIU list includes calcite, quartz, quartzite, quartz-mica schist, sillimanite, glass sand, silica, silica sand, and silica stone, over and above items in Fox's list, but excludes tungsten ore, sapphire, flourspar, acquamarine and tantalite given in Fox's list. Minerals excluded all of minor importance, e.g. tungsten ore valued at Rs. 30,000 in 1940, and four other minerals taken together valued at Rs. 1000 for same year.

75 Price of salt according to GSI Rs. 0.70 per md. and according to SA Rs. 0.95 per md. (weighted average of all given prices).

76 Estimate conventional, based on a few years' average.

77 Analysis of company balance sheets for 1947. Data made available by RBI.

78 Industries covered in this group are those covered by Indian Factories Act, 1934. The Act distinguishes between two types of factories: (i) employing 20 or more workers and using power [2j, or now 2m (i) factories], and (ii) employing between 10 and 20 workers and using power and employing 20 or more workers but without power [5(1), or now 2m(ii) factories]

79 Data made available by LB.

80 Under 1934 Act, all 2j factories had to register themselves with CIF; for 5(i) factories, the Act left the matter to discretion of provinces to notify any 5(1) factory, for registration. Hence, coverage of statistics for 5(1) factories inadequate, and no informa-

Until implementation of 1948 Act, notification left to discretion of provinces or States. No information available on coverage of 5(1) factories. Even for (all) factories covered [i.e., 2j and notified 5(1) factories], roughly 8.7 p.c. of factories [for 2j and 5(1) taken together] did not submit employment returns.[81]

A.57. Statistics of factory employment for all factories [2j and notified 5(1) factories taken together] taken over from LB,[82] and re-classified into the 29 CM categories.[83] LB data for 2j factories separately available by industrial categories for four provinces only, namely, West Bengal, Bihar, U.P. and Bombay.[84] Though desirable to keep 2j and 5(1) factories apart for purposes of estimation of value of product, not possible to do so for limitations of data available, and over-all deduction (for likely overestimation for 5(1) factories) made later on. Data for class B States conventional. Non-reporting of employment, though fairly large from point of view of number of factories,[85] not adjusted for in this connection on advice of LB, as factories missed for employment statistics likely to be relatively unimportant. Employment in ordnance factories, mints, indigo tea, coffee, dairy industries, and telegraphs omitted.[86] Industries not falling under any identical CM category lumped with similar industries (e.g., cement, lime and potteries factories in ILYb re-classified with cement factories in CM). All unclassifiable industries lumped into a miscellaneous group. Total labour force thus re-classified, 2.6 million.[87] For the 1.1 million extra workers thus apportioned to CM industrial groups, rates of net output per worker (gross value of output *less* materials and fuel etc. consumed, *less* depreciation) in similar industries as given in CM were applied. For miscellaneous group, consisting of all LB categories not

tion available on its proximate coverage. Number of 5(1) factories *notified*, for 1948, only 4515. Total number of 5(1) factories should, however, easily exceed 40,000 (gathered from discussions with experts in DIS). Above Act revised in 1948 and 2j and 5(1) factories [now called 2m(i) and 2m(ii) factories] have all to register themselves with CIF in entire Indian Union. Registration of 2m (ii) factories has been tardy, and is expected to be complete within next two years. Coverage of present estimates, all 2j factories and *notified* 5(1) factories.

81 Indian Labour Gazette (ILG), March 1950, p.51.

82 Indian Labour Year Book (ILYb), 1948-49.

83 Census of Manufactures (CM), 1948 (in press). Data made available by Directorate of Industrial Statistics (DIS). Out of 63 CM industrial categories, coverage relates to only 29 important categories. Though LB and CM employment data not strictly comparable, CM for 29 groups of industries (1948) covers (roughly) more than 70 p.c. of factory employment for all 2j factories as given by LB.

84 Unpublished data made available by LB. Total 2j factory employment covered 83.6 p.c.; total of all factory employment covered 76.5 p.c. (coverage on basis of number of factories).

85 8.7 p.c. See earlier footnote (81).

86 Ordnance factories are included under 'defence' (Government services: administration); mints also under government; telegraphs under communications (government commercial enterprises); indigo, tea and coffee under agriculture; dairy industries under animal husbandry.

87 Following details may be interesting. Coverage of CM 1.55 million; excess of LB employment 0.2 million, extra LB employment figures re-classified and distributed over CM categories 0.7 millions; employment in government factories (see below, A. 62.) 0.15 million, treated in same way as private factories. Total factory employment accounted for 2.6 million.

classifiable into any one of 29 CM categories, simple average of net output per worker for all 29 groups was applied,[88] subject to following adjustments.

A.58 For electricity generation, data supplied by Central Electricity Commission,[89] used for estimating net value of output. Gross sale value of all electricity generated, *less* fuel and lubricants used, *less* depreciation, gave net value of electricity generation.[90] Net output of government electricity schemes (derived from government budgets) separately estimable from above total but for purposes of industrial break-down of national income, both are included in industries sector. Number of workers employed in electricity generation (as given in ILYb, 1948-49) have been taken out of workers re-classified into CM categories. For film (cinematograph) industry, following procedure adopted: estimates of gross box office collections net of entertainment tax in cinema houses in 1947-48, and capital investment by producers, distributors and exhibitors, available from trade and other sources.[91] Rough estimates of different costs in motion picture production also available.[92] Allocating gross box office earnings between producers and others on basis of capital invested, and deducting for value of raw film imported (source: import statistics) and sundry other costs, net income of film industry estimated. Employment figures in industry sector adjusted for workers in film industry also.

A.59. For notified 5(1) factories employment statistics taken from data supplied by LB. Net output of workers in 5(1) factories assumed to be 25 p.c. below net output of 2j factory workers (covered by CM). As employment in 5(1) factories is not available by industrial categories (except in four States), deduction in value of output is possible only on over-all basis. Mark-down has been applied to true (weighted) average output per worker in factory establishments. Mark-down purely arbitrary and estimate, therefore, subject to unknown error, Over-all average net output per worker on this basis works out at Rs. 2193, in comparison with Rs. 2275 per worker before adjustment.

A.60. Sum of net value added in all 2j factory establishments and notified 5(1) factories, as above, gives net value of this sector (factory establishments), subject to limitations as noted earlier. To derive actual net contribution of this sector to national income, deduction made for esti-

[88] Present (rather unsatisfactory) procedure of estimation for all 2j and only notified 5(1) factories (and not *only* 2j or *all* 2j and 5(1) factories) is due to the fact that CM covers only 29 groups of industries, and LB data on total factory employment (by industrial categories) is available only for *all* factories (i.e., 2j and 5(1) taken together). No other satisfactory method of estimation is available for remaining 34 groups of 2j factories. In present estimates, all remaining 5(1) factories are relegated to the 'small enterprises' sector.

[89] Revenue and Appropriation accounts of all electricity generating companies available in *Public Electricity Supply, All India Statistics*, 1949, p. 23. Details of operating expenses made available by Central Electricity Commission (CEC), Simla.

[90] CEC estimate of net value is subject to slight error in as much as break-downs of maintenance expenditure between wages and salaries and purchase of materials, are not available, and entire maintenance expenditure has been treated by CEC as wages and salaries. In opinion of CEC experts likely over-estimation is negligible.

[91] *Handbook of Indian Film Industry*, 1950. Also, official sources.

[92] *Journal of the Film Industry*, Sept., 1950.

mated insurance premiums paid to fire and miscellaneous insurance companies[93] by manufacturing industries. Further deduction made for imputed payment to banking sector in lieu of services performed free or at a nominal charge.[94] A last deduction made in respect of certain operational costs not allowed for in net value added by manufacture as given in CM (see earlier chapter 4). To allow for these costs a deduction of $\frac{1}{2}$ p.c. of net value ($\frac{1}{4}$ p.c. for stationery, advertisement, etc. and $\frac{1}{4}$ p.c. for miscellaneous expenses like furniture etc.) made on basis of a few case studies of balance sheets of joint stock companies, and conditions in a few factories and industries.[95] Above deduction is very rough, and subject to revision.

A.61. To allow for non-reporting of employment in *notified* factories, the following procedure is possible. Since entire available working force accounted for, number missed under factory employment automatically considered under 'small enterprises'. Thus, possible under-estimation in view of lower per capita net output or earnings in latter sector. For the number of factory workers missed (due to non-reporting of employment)[96] difference between weighted average net output per worker in factory employment (i.e., total net value/total number of workers) and weighted average value of net output per worker in 'factory type' cottage industries, considered to be the under-estimation per worker in respect of the omitted factories. This difference (per worker under-estimation multiplied by approximate number of workers missed) added to net output of factory establishments, to cover lack of coverage of factory employment statistics. Total addition on this count roughly Rs. 14 crores. This kept distinct from main body of estimates, as being largely conjectural and therefore not to be mixed up with estimates of value of output derived more directly.

A.62. Employment in government factories[97] (except for ordnance and other factories included under defence, and printing presses etc. included under government administration) also analysed in precisely same way as for 2j and 5(1) factories above. Possibility of slight double counting for workshops in technical colleges and government training schools etc.; these included for employment under Factories Act, and thus affect estimate of total industrial employment; and yet, as no commercial accounts kept for such workshops, expenditure in respect of these shown under government administration. However, magnitude of such double counting likely to be insignificant in relation to total. Net output of government industries analysed in same way as other industries, on basis of net output per worker in similar CM industrial groups. Output of government factories added to value of product of industries sector.

A.63. Net output of factory establishments as described above relates not to all factory production but to 2j and to *notified* 5(1) factories only.

[93] See A.74.

[94] See A.72.

[95] Scattered information available in Tariff Board Reports on various industries, in respect of contingent office expenses, insurance charges, etc.

[96] See earlier footnote (85). As non-reporting factories likely to be remote and unimportant, average employment estimated at 50 p.c. of average employment per factory (in respect of factories furnishing returns).

[97] Source: ILYb. In respect of Table 2, government enterprises are all considered in their respective industrial categories.

Un-notified factories not considered in this sector but relegated to small enterprises group. In view of wide difference[98] between net output per worker in factory establishments and in small enterprises, possibility of under-estimation.

A.64. *Small enterprises* (para 4.18; Table 2): Estimation of working force explained elsewhere. All available material on daily, weekly, monthly and annual earnings of workers in these activities tabulated.[99] Daily, weekly, and monthly earnings converted into annual earnings, multipliers[100] being 270, 52 and 12. When data not current, adjustment made taking the rate of increase in earnings of factory workers.[101] Data available relate to Madras, U.P., Bengal, Orissa, M.P. (including Berar), Punjab, Travancore and Mysore and cover 60 different industries. However, all industries not covered in every State, and coverage in this respect satisfactory only for first three States. Since estimates in this sector are neither by complete census nor by random sample survey, but largely built up from scattered information available, some notional estimate of error involved in estimation may be made. Out of 540 cells, (60 industries for 9 States) figures are available only for 104 cells. Though in many cases, the figure in a cell is based on large number of independent observations, effect of this on overall variability insignificant, and estimate of error of aggregate earning will depend almost entirely on variability of 104 figures. Coefficient of variation exhibited by figures less than 50%, showing that error in average earning is of the order of 5 per cent. As sample not random and as estimates of number of workers also subject to error, overall error of aggregate earnings of workers in small enterprises likely to be larger. Though other income payments adopted entirely arbitrary, the error of net value in the sector should not be above 15 per cent.

A.65. Procedure adopted as follows: Figures classified into seven broad industrial groups: (1) textiles, (2) hides, skins, leather, (3) building, stone,

[98] See Tables 4 and 4.1

[99] Statistical material used summarised below:

Report of the Bidi Industry Committee, C. P. & Berar, 1941; *Report of Bombay Economic & Industrial Committee*, 1938-39; Statement received from Chief Com. of Coorg; *Cottage industries of India*, 1948 by Chitra and Tekumalla; *Rural Economy of Gujrat* by Desai; *Survey of Hosiery industry in U.P., Development of cottage industries in Mysore* July 1945; *Development of industries in U. P.*, 1949; *Let figures tell*, 1949 (U.P. Govt. publication); Aligarh Harduaganj survey 1949-50 (Directorate of Industrial Statistics); *Report of the Industrial Survey Committee*. M.P. 1942; *Rural Problems in Madras* by Krishnaswamy; *Cottage and small scale industries of India*. Mukhtar Singh; *Report on bidi, cigar and cigarette and glass industries* by Labour Investigation Committee, Govt. of India; *Report of the court of enquiry into labour conditions in bidi, cigar, snuff etc. industries* 1947 by Naidu (Madras); *A rough survey of cottage industries in Orissa* 1945 by Patnaik; Punjab Board of Econ. Enq. Reports; *Report of the fact finding committee on mills and handlooms*, by Thomas; and statement received from the joint registrar for co-operative societies and village industries (Poona).

[100] On basis of the recent survey of cottage industries at Aligarh. Also roughly by number of days worked for factories in a year given in CM, 1946 and 1947.

[101] Unpublished report of committee on minimum wages of agricultural workers indicates that rise in earnings of this class is much higher than that of factory workers between 1938-39 to 1949-50. It is, therefore, expected that earnings of cottage industry workers would not increase at a rate lower than that of factory workers.

ceramics; (4) metals, minerals; (5) chemicals, dyeing; (b) food, drink, tobacco; and (7) miscellaneous others. Each subdivided into three major categories (purely cottage type, intermediate type and almost entirely of factory type.) Unweighted averages calculated for each group. Average earnings calculated per member of working force for above seven groups respectively Rs. 442, Rs. 575, Rs. 650, Rs. 724, Rs. 472, Rs. 461, Rs. 471 and adopted irrespective of the broad categories. Multiplied by working force in each group to give estimates of earnings. In cottage industries proper, earnings per worker taken as net output per worker. For establishments of intermediate type, earnings inflated by 12 per cent and in factory type by 24 per cent, to allow for income payments other than wages and salaries, inflation being respectively at about $\frac{1}{8}$ and $\frac{1}{4}$ the rate of such income payments in factory establishments as given by CM.[102] Final results presented below: Category (i), working force 68 lakhs, net output per worker Rs. 509 per annum; category (ii) working force 52 lakhs, net output per worker Rs. 600 per annum; and category (iii) working force 28 lakhs, net output per worker Rs. 720 per annum.

A.66. Estimate of net output also independently obtained as follows. Available material on gross output per worker[103] analysed. Data relate to Bengal, Madras, U.P., Mysore, Bombay and Coorg. Altogether 169 independent observations in respect of 25 different industries made use of. Gross value observed to be lowest in the miscellaneous group of industries and highest in chemicals and dyeing. Coefficient of variation of the figures roughly 100 per cent. Observations classified by seven groups of industries, and straight averages worked out for each industrial group. The national aggregate built up by multiplying each class average by number in working force.

A.67. Available data on cost of materials and some other costs tabulated. Data comprise of 189 independent observations for some 50 different industries. Other costs include depreciation, excise duties etc. While data in respect of cost of materials available for all industries, the coverage is less in case of other cost items. Percentage of cost to gross value of product worked out for each individual industry and then averaged for different industrial groups. Straight averages used in every case. Coefficient of variation of the percentage deductions works out at less than 50 per cent. The national total of deductions worked out in a manner exactly similar to one adopted for earnings and gross value.

A.68. Net value of product obtained by applying above deduction to estimated aggregate gross value. Gross value and net valued calculated separately for all seven groups (textiles etc.) and not by broad categories (by types of industry) formulated above. Where basic material on percentage deductions comprehensive, e.g. in case of textiles, on basis of Fact Finding Committee report on mills and handlooms, the two methods give close estimates of net value of output. For classes of industries for which material meagre check not so exact. Average gross value of output and percentage deductions adopted given by seven industrial groups

[102] Actual figure for other income payments in factories is 97.3 per cent of wages and salaries.

[103] See earlier (footnote 99).

below : textiles Rs.810.01 (deduction 41.91 p.c.); hides, skins and leather Rs. 1661.96 (deduction 59.68 p.c.); building, stone and ceramics etc. Rs. 1259.74 (deduction 45.24 p.c.); metals and minerals Rs. 1969.84 (deduction 57.75 p.c.); chemicals & dyeing Rs. 2389.86 (deduction 75.40 p.c.); food, drink and tobacco Rs. 1777.53 (deduction 68.82 p.c.); and miscellaneous Rs. 806.87 (deduction 33.90 p.c.).

A.69. *Communications* (para 4.20; Table 2) : Net output of this sector has been culled from government budget accounts. For derivation, see infra, A. 106.

A.70. *Railways* : Net output of this sector has been culled from accounts of the Railway Board. For derivation, see infra, A. 106.

A.71. *Banks* : Balance sheets and profit and loss accounts of 611 scheduled and non-scheduled banks for 1948, analysed by RBI.[104] Operating and appropriation accounts have been set up from these returns, and wages and salaries, directors' fees, and surplus, taken over as net product of these banks. Banks thus covered account for about five-sixths of paid-up capital of banking companies for 1948. In respect of banks not covered by RBI analysis, imputation made on basis of paid up capital ratios; for exchange banks, similar imputations made, on basis of size of deposits. For co-operative societies,[105] also costs of management for 1948-49, *less* 10 p.c. deduction for cost of stationery, etc., assumed to represent salary and wage payments and surplus. For banking department of RBI, wage and salary payments derived from profit and loss accounts for year ended June 1949,[106] have been taken as net product of RBI. For RBI banking department's operations, net value estimated at cost (i.e., wages and salaries), since RBI does not accept deposits from private individuals, and all deposits are from banks etc., only. To avoid imputing a surplus to RBI and then offsetting the entire surplus of RBI by an imputed charge on other banks, above procedure has been followed.

A.72. Since banks income is largely of the nature of interest and investment income, and since, for national income purposes, dividends and interest receipts are counted in the sector where such income is generated, the net value of product of the banking sector would appear to be made up of only miscellaneous bank charges. These will in general be much less than wages and salaries paid out. To overcome above difficulty, an imputed sum (equivalent to the *net* investment income of banks) is credited to the operating account as imputed bank charges received from depositors[107] (for services normally rendered free or at nominal cost). Hence, necessity of making corresponding deductions from income of all depositors. Imputed deduction made on basis of ratio of deposits held. To the extent

[104] Data made available by Dept. of Research and Statistics, RBI. Total paid-up capital of banks covered Rs. 45.6 crores of out total paid-up capital of Rs. 55 crores for all banking companies excluding RBI. Proportionate mark-ups applied for under coverage.

[105] *Statistical statements relating to the Co-operative Movement in India*, 1948-49.

[106] Profit and loss accounts for the year ended 30th June 1949 given in the *Annual Report of the Central Board of Directors* of RBI.

[107] R. Stone in *U. N. Memorandum on Measurement of National Income and Construction of Social Accounts*, 1947.

that deposits are private, this is considered to be consumer expenditure; to the extent of business deposits, deduction necessary in business sector. Break-down of all deposits (of scheduled banks only), into business deposits available for 1949.[108] Relevant percentages used for apportioning imputed charges on different types of depositors in respect of total imputed income of banking sector (net investment income of banks). On this basis, following deductions necessary in different sectors.

TABLE 18: IMPUTED DEDUCTIONS FOR BANKING SERVICES

	imputed deduction (Rs. lakhs)
(1) factory establishments (depositor class: manufacturing concerns)	249
(2) other commerce and transport (depositor-class: trading and transport concerns)	842
(3) mining (depositor-class: mining concerns.)	20
(4) agriculture (depositor-class: plantations)	33
(5) organized banking and insurance (depositor-class: banks, insurance companies, co-operative societies).	308
	1452

A.73. *Insurance companies* (para 4.21; Table 2). From information given in *Indian Insurance Year Book*, 1949, revenue, operating, appropriation and capital and reserve accounts for 1948 of all life insurance companies and Indian non-life insurance companies have been set up. For non-Indian non-life companies it has been possible to draw up only a combined revenue and operating account. For Provident societies registered under Insurance Act, revenue account, combined operating and appropriation account and capital account have been constructed. From these accounts, payments of wages and salaries taken to be given by expenses of management *less* 10 p.c. deduction for purchase of goods and services (since no further break-downs available).[109] Wages and salaries *plus* operating surplus (transferred to appropriation account), consisting of dividends, provision for direct taxes and transfer to capital and reserve of surplus, treated as net contribution of insurance companies to national income.[110]

A.74. An imputed deduction in respect of business insurance premiums paid by different sectors of productive activity, needs be made in these sectors. Information is available on total premiums paid to fire and miscellaneous insurance companies (Rs. 750 lakhs) in 1948 (*Indian Insurance Year Book*, 1949). On basis of ratios of paid up capital of all joint stock

108 RBI Annual Report for year ended 31st December 1949.

109 Deduction arbitrary. No details available. 10 p.c. of total expenses of management supposed to cover all contingent expenses like postage, office furniture and stationery etc.; wages and salaries and commissions 90 p.c.

110 See R. Stone: *Memorandum on Measurement of National Income and Construction of Social Accounts* (United Nations, 1947).

companies (in provinces and States), following allocations of deductions made:

TABLE 19: IMPUTED DEDUCTIONS FOR INSURANCE PREMIUMS

	imputed deduction (Rs. lakhs)
(1) banking and insurance	93
(2) railways	8
(3) trade & transport (other than rys.)	212
(4) manufacturing	311
(5) mining	40
(6) plantations	34
(7) other (navigation)	52
	750

A.75. In respect of above, banking and railways net output has been taken after *all* deductions; hence deduction of Rs. 2.1 crores in trade, (output method), Rs. 3.1 crores in factory establishments, and Rs. 0.3 crores in agriculture (plantations) has been made in respect of business insurance premiums. No deduction for mining because 5 p.c. of gross output arbitrarily deducted to cover *all* such expenses (see earlier); similarly, no deduction made for navigation because of 5 p.c. deduction on value of foreign trade in value of product approach for trade sector. Allocations arbitrary; any errors in imputation, however, likely to affect only inter-sectoral distribution and not total.

A.76. (Para 4.22; Table 2). Income method adopted here. Estimate of all persons engaged in commerce and transport taken from estimate of distribution of total working force in country. For incomes assessed for tax purposes, statistics secured from Central Board of Revenue (CBR). Occupation classification by CBR inadequate for present purposes, hence re-allocation made on *a priori* grounds.[111] For untaxed incomes, distribution of all workers among employers and employees made on basis of some evidence for Bombay for pre-war years.[112] Ratio adopted may not be strictly valid. On basis of estimated average incomes for different types of workers, average rates of earnings applied. Average earnings of all employers estimated at Rs. 2400/- per annum. Above, though seemingly high, not really so, in view of proximate evasion of tax, particularly by traders. Average earnings of employees estimated on basis of earnings in comparable occupations and scattered information on the incomes of shop-keepers, and petty traders, etc. Different sources of data utilized for this purpose,[113] Since available data not by any means representative, and

[111] Taxed incomes taken from CBR records, all taxed trading incomes (plus 10 p.c. of 'salary' incomes, plus 5 p.c. of salary incomes assumed as earned intransport).

[112] *Report on an Enquiry into Wages, Hours of Works and Condition of Employment in the Retail Trade of Some Towns of the Bombay Presidency*, (Labour Office, Government of Bombay), 1936.

[113] Average income estimated at round figure of Rs. 720 per annum, based on 'Enquiry into wages. . . . in the Retail trade (in). . Bombay', 1936 (see footnote 112) and available data on shopkeepers incomes (Board of Economic Inquiry, East Punjab): *Social and Economic Survey of Refugee Camps in East Punjab*, 1949 and *Economic Condition of Displaced Persons settled in East Punjab*, Part I, 1949. Latter two indicate a much higher average income of petty shopkeepers, the first one indicates a slightly lower average *wage* paid to shop assistants (figures adjusted for price changes).

relate to localized enquiries, the figures of average earnings adopted have been put at round notional figures. Publishers, booksellers, brokers, commission agents, etc. evaluated in the same manner as all other in the trade sector. Average earnings estimated at Rs. 720/- for employees generally, except for palki bearers and messengers (Rs. 360/-) and owners and tenders of pack animals, elephants, camels, etc. (Rs. 480/-). Average rate of wages for employees in trade sector appears high in comparison with some other sectors, but it needs be noted that trained technical assistants etc. also included in this sector; also, some miscellaneous self-employing traders included among employee category (e.g., hawkers etc.). Total income of all persons occupied in commerce and transportation thus estimated at Rs. 14.2 abja.

A.77. Alternative estimate in respect of net value added by trade and transportation, as follows. Method of approach: analysis of distributive costs. Trade margins, derived from price spread between producer and consumer for different products, and for certain sectors on basis of directly available information on net trade margins, are applied to gross value of product entering into trade, for all commodities available in the country, and adjusted for various costs and other deductions. Method briefly detailed below. Trade margins adopted here refer to all trading incomes; net income from trade relates not only to trading profits but also to all wages and salaries earned, and also all interest income generated in this sector. Since a good part of trade is financed out of short term borrowing, the income of financiers and bankers, money lenders etc. originating in trade sector, may be considerable.

A.78. Detailed procedure of estimation as follows:

Trade in agricultural products: From estimate of gross value of product in agriculture, approximate value of marketable surplus has been built up for each crop on basis of information in MRs. Where no MRs available, average rates of marketable surplus for similar crops applied. Evidence in various research dissertations also made use of. On gross value of product entering into trade, average net trade margins (including labour charges for handling, packing, transportation, etc.), estimated at 5 p.c. for wholesale and 8 p.c. for retail trade, applied on basis of information available in *Foodgrains Investigation Committee Report*.[114] Assumption here that net margins allowed by government apply for all traders in grains and other agricultural products. Information is available by different crops, for different provinces, and in respect of locally grown and imported food grains; but above refinements not adopted in estimation, for reasons that (i) information relates to margins allowed by government to rationed grain dealers, which may not apply for normal trade channels, and (ii) as exact *disposal* of commodities and trade movements not accurately known, over-all simple average margin for estimated total crop disposal has greater validity than weighted average, where weights are unknown.

A.79. All estimates are based on theoretical marketable surplus, and no allowance (for trade margins) made for estimated re-purchase of grains,

[114] *Report of the Foodgrains Investigation Committee*, 1950. Detailed information available on trade margins at different levels, for a number of foodgrains all over India.

especially by owners of small holdings[115], for two reasons: (i) existence of (interest free) crop loans[116] in rural areas makes difficult any assessment of amount of re-purchase at higher price by cultivator, and (ii) these re-purchases are largely of nature of loans from village *bania*, and interest income arising out of such loans independently estimated, as income of money lenders (see below).

A.80. Detailed check of above trade margins is not possible by analysis of price differentials because available retail prices of foodgrains collected by Labour Bureau (LB) generally relate to subsidized prices (especially for Bombay, coal fields of Bihar, etc. Coverage of LB statistics also relates generally to these areas). Above estimate of trading incomes of foodgrains likely to be under-estimate, as no allowance made here for black market transactions. Some scattered information on spread between controlled and open market prices for a few commodities available for about a dozen centres,[117] simple average percentage differential for all commodities in all centres being roughly 40 p.c. (maximum differential observed, roughly 300 p.c.). No allowance made for these mark-ups as total quantities purchased at black (or open) market prices unknown. However, since these prices relate to only a few urban centres, degree of under-estimation not likely to be very great when considered in background of total transactions in country. Present estimates, however, subject to above under-estimation.

A.81. In respect of other agricultural products, for oilseeds, cotton, jute, etc. no retail margins allowed, as these products largely sold direct to factories by wholesalers; in view of large number of middle-men, however, wholesale margin applying for foodgrains (i.e., 5 p.c. of value of product) doubled for trade in cotton and jute (i.e., estimated at 10 p.c.). Margin for oilseeds estimated at 5 p.c. on basis of MRs and other sources.[118] For fruits and vegetables, trade margin of 8 p.c. for wholesale and 13 p.c. for retail applied arbitrarily, on basis of scattered price differential analysis and MRs.[119] Comparatively lower margins allowed here as compared to MRs because value of product in present estimates based on harvest/wholesale prices; corresponding producers' prices in MRs much lower, and allowance therefore made for above likely over-estimation in value of product. (As actual producer's net prices not available in sufficient detail, difficulty overcome by defining value of agriculture as including ancillary activities, including crop marketing.) For sugarcane, no trade margin allowed on quantities supplied to factories and evaluated at statutory

[115] D. S. Chauhan (Unpublished Ph.D. thesis, Agra University) finds that in U.P. in 1944-45 season, roughly 198 p.c. of marketable surplus sold after harvest, requiring a (theoretical) re-purchase of 98 p.c.

[116] E.g., paddy loans in Bengal. See *Bengal Paddy and Rice Enquiry Committee Report*, 1939. See also mimeographed *Report on Rural Indebtedness, West Bengal*, 1946-47 (ISI).

[117] For open market prices for cereals, sugar, etc. data made available by LB. These are prices collected in connection with working class cost of living index.

[118] E.g., J. C. Bahl: *Oilseeds Trade in India*, 1938.

[119] MR trade margin figures consistently higher than margins adopted here; reason, use of different producers' prices. Work on price spreads also reveals larger gap between producer and consumer prices. However, since fruits etc. are perishable commodities, lower margins adopted in view of high distributive *costs* (to seller) and losses due to deterioration in quality.

prices; for balance (i.e., for *gur*) a trade margin of 18 p.c. applied. Among drugs and narcotics, for tea, coffee and rubber, marketing expenses deducted in agriculture (see earlier) included here as trade (and transport) incomes subject to over-all deduction for goods earnings of railways (see below). Above allows for wholesale margins only; hence, percentage mark-up of 5 p.c. for retailing of these products. For other drugs and narcotics, and for all other crops, over-all margin of 15 p.c. applied. For drugs and narcotics, a 15 p.c. margin likely to be serious under-estimate because of unusually high profits in trade in narcotics. Trade in intoxicants (like toddy) included under trade in products of small enterprises (as toddy brewing etc. treated as a small enterprise).

A.82. Similar procedure applied for all other products. For livestock and livestock products, value of net product entering into trade estimated for all livestock products (except for meat etc.[120]) on basis of estimates of marketable surplus as given in MRs. 35 p.c. of marketable surplus assumed to have been sold locally or in nearby village *hats* with a trade margin of 20 p.c. on producers' price. For balance of 65 p.c. of marketed product, margin of 50 p.c. applied. Above margins applied on basis of evidence in MRs, technical studies on milk distribution and dairying, etc.[121]

A.83. For minerals, entire gross product of industry (*less* coal consumed in coalfields, etc.) is assumed to have been marketed, with a trade margin of 25 p.c. (on basis of trade margin on small enterprises in mineral products). This may lead to over-estimation in so far as in industries like iron and steel, iron ore is converted into pig iron and later into steel by same company, and as such, no trade margin may arise for the mineral product. However, order of magnitude, not significant.

A.84. For forest products, 75 p.c. of produce assumed (arbitrarily) to have been marketed, with trade margin of 60 p.c. on basis existing profits in timber industry,[122] and because timber is largest item among forest products.

A.85. For products of factory establishments (manufactures), estimates of trade margins on basis of information relating to margins under various price control ordinances, received from Ministry of Commerce and Industry,[123] scattered information in various *Tariff Board Reports*, and lastly, information supplied by certain well-established business and trading houses, on promise of secrecy of names and profit margins for individual products. Some average trade margins may here be indicated: textiles 14 p.c.; engineering 40 p.c.; minerals and metals 25 p.c.; food, drink and tobacco 20 p.c.; chemicals and dyes 25 p.c.; paper and printing 20 p.c.; wood, stone and glass 40 p.c.; skins and hides 25 p.c.; miscellaneous 20 p.c. Figures rounded off, as data available at best rough approximations. In

120 No trade margin on meat because little wholesale-retail trade in meat but trade in animals. Value of meat, however, includes (largely) all intermediate value (in shape of trade) embodied in meat.

121 *Indian Journal of Agricultural Economics*, March 1950.

122 On available information, (gross) profit rates higher (roughly 100 p.c.). 60 p.c. has been taken (as a conservative estimate) since available information relates to large well-established concerns at Kanpur, and may not be quite representative.

123 Information received from Ministry of Commerce and Industry and taken out of gazette notifications and price control ordinances.

most cases information on one or two industries generalized for entire group, as information on all products or even all industries, not available. All margins on ex-factory prices. Analysis of differential between ex-factory and retail prices (on basis of ex-factory values given by CM) possible only for a few commodities as (i) coverage of available retail prices limited[124] and (ii) product values given in CM relate generally to heterogeneous products and not to specific qualities.[125]

A.86. For small enterprises (factories not covered above and cottage industries) scattered information has been taken over from a number of sources;[126] where no trade margins available, those for factory establishments assumed to hold good. For products of small enterprises, following estimates made: 15 p.c. of gross product of textiles (handloom etc.) assumed to have been retained by producer; of balance, 50 p.c. sold locally with margin of 20 p.c. and 50 p.c. sold in urban market with margin of 35 p.c. For hides and skins, trade margin put at par with margin for factory products (i.e., at 25 p.c.). For buildings etc. 25 p.c. of value of output assumed to have been contributed by building and constructional activity. Of balance, half sold locally at margin of 20 p.c.; margin for urban sales 40 p.c. For metals etc. over-all margin of 15 p.c. For chemicals and dyes, margin taken at 12.5 p.c. For food etc., retention estimated at 15 p.c. of product, and entire balance sold with margin of 15 p.c. All others lumped together as miscellaneous and insufficiently described industries; retention of these 10 p.c.; balance sold with over-all margin of 25 p.c.

A.87. For all imports, over-all margin of 40 p.c. has been applied, except for articles wholly manufactured, living animals etc., for which margin of 10 p.c. applied.[127]

A.88. No trade margins allowed on value of product of electricity generation,[128] as production and distribution functions combined by electricity companies, and valuation of output on basis of sale value of electricity. For film industry, estimate of income of distributors and exhibitors made on basis of figures of gross box office takings, *less* taxes, allocated between producers (including *artistes* etc. employed) and distributors and exhibitors. Deduction of 10 p.c. for costs etc.

A.89. Analysis of available data on different types of prices of same product indicates in general higher ratios than accepted here. Likely underestimation of income in trade sector may be offset by depreciation (of furniture etc.) and (minor) costs on materials (e.g., for packing) etc. No

[124] Retail prices available for about 55 centres, but composite commodity not satisfactory from present point of view. Data collected by LB for purposes of working class cost of living index.

[125] Retail prices available by specific qualities (usually coarse quality goods used by working classes).

[126] See footnote (99). Information on trade margins available especially in Krishnaswamy, *Rural Problems in Madras*, and B. V. Narayanaswamy Naidu, *Report of the Court of Enquiry into conditions in Bidi, Cigar, Snuff, Tobacco curing and Tanning industries*, 1947.

[127] *Net* trading profit margin allowed by government on imports of controlled goods between 5 and 10 p.c. Allowing for other income payments, margins much higher. Percentage mark-up on landed c.i.f. cost much higher.

[128] Data available on value of sales of electricity to ultimate consumers (gross receipts). *Public Electricity Supply, All India Statistics* 1949.

deductions made in respect of these costs of distribution, as all estimates above, biassed towards under-estimation. On overall basis, possibility of under rather than over-estimation for trade sector.

A.90. Apart from above trade margins, certain other incomes added to net value of trade and transport, namely, passenger earnings of air, road and river transport, mails earnings of air transport, and earnings of private railway companies, earnings of hotels and hotel keepers etc., earnings of palki bearers and messengers in transport sector, publishers, book-sellers and stationers. Income of money lenders in respect of non-agricultural debt, and brokers and commission agents, etc., also in this sector.

A.91. Above incomes estimated as follows: Passenger earnings of motor transport (including taxis) assumed to be half of passenger earnings of railways. Passenger earnings of river transport assumed to be 2 p.c. of railway passenger earnings. Passenger earnings of air transport estimated on basis of passenger mileage of Indian air transport companies evaluated at standard rate of 4 annas per mile. Earnings of airways companies from mails etc. carried, estimated similarly @ Rs. 1-8-0 per pound of mail carried. Freight earnings of all transport companies omitted as trade margins assumed to have included such earnings. For private railways, total employment estimated;[129] estimate of taxed incomes taken out of income tax statistics from CBR; for balance of employment, income estimated at Rs.720 per worker per annum[130]. Above likely to be an underestimate as interest, undistributed profits, rents, etc. completely missed. However, not justified in accepting per worker net output rates for government railways. Earnings of hotel keepers etc. estimated as follows: esti mate of number of hotel keepers and others employed in this trade taken from census occupation returns; income method adopted for estimate of earnings of this category, (see earlier). Estimates of income of palki bearers, messengers and similar persons enumerated under transport, publishers and booksellers, brokers and commission agents otherwise unaccounted for, similarly based on income approach. (For method of estimation, see earlier).

A.92. Income of indigenous (rural) money-lenders also included under this category because burden of rural debt on agriculturists either for productive (agricultural) purposes or for consumption; interest on former treated as income generated in agriculture, but consumer debt interest needs be reckoned as income generated in indigenous banking sector[131]. In respect of indigenous money-lenders, no more refined technique possible than to take interest income as net income; estimated as follows: estimate of debt in rural areas taken from various official enquiries and findings of research dissertations.[132] Of total rural debt, estimated at Rs.913.8 crores,

129 *Labour Investigation Committee Report on non-gazetted railway services*, 1946. Estimate on basis of occupation analysis adjusted for employment in government railways gives comparable figures.

130 See earlier, footnote (113).

131 Since a large part of rural debt is contracted for consumption purposes, the interest on such loans is not accounted for in interest income generated in productive activity. Hence, necessity of taking into cognizance consumer debt interest.

132 Total rural debt estimated on basis of ISI, *Final Report: Rural Indebtedness Enquiry* (1946-47) West Bengal; S. Nagappa, *Resurvey of Indebtedness of Selected Villages* (1945,)

roughly 83.1 p.c. found to be for non-productive purposes. On this unproductive debt of Rs. 758.5 crores, annual interest @ 12 p.c.[133] gives an annual interest income of Rs. 91.0 crores. Approximately 5 p.c. of total rural debt supplied by co-operative societies; adjusting for this gives net annual income of Rs. 86.5 crores to indigenous money lenders. Necessary to remember that not all of this income accrues to money-lender class; landlords and larger tenants frequently lend to smaller holders. Entire income, therefore, cannot be assigned to money-lenders only, but to money-lending activity in rural areas.[134]

A.93. Following deductions necessary for deriving net value of trade and transport. Trade margins adopted for all traded articles except agricultural products are inclusive of value of transport. Since railway earnings separately estimated, railway earnings on all goods traffic (*less* traffic in all agricultural products[135]) excluded. Information culled from Railway Board report.[136] Repairs and depreciation of urban bullock carts[137] and feed of all animals engaged in transport deducted (Estimates taken over from agriculture and livestock sectors respectively). Repairs and depreciation of all heavy vehicles (lorries and buses) estimated on basis of number and average value of these.[138] Repair expenditure and depreciation of commercial airplanes estimated from balance sheets and profit and loss accounts of civil avaition companies made available by Directorate of Civil Aviation.[139] Repair and depreciation of boats estimated arbitrarily at 10 p.c. of passenger earnings. A deduction on account of smaller trading margins for exports—since trade margins applied to total domestic

Mysore; B. V. Narayanaswamy Naidu, *Report of the economist for enquiry into the rural indebtedness of Madras province*. 'A report on a socio-economic survey carried out by the Bureau in the Sarvodaya area of Ratnagiri district', *Bulletin of the Bureau of Economics and Statistics*, Bombay, Oct., 1949; G. D. Agarwal, *Agricultural Credit Problem in India* (data for U.P.; Unpublished Ph.D. thesis, Agra University). Average of findings of all above used after weighting for regions covered by them. Weighted average debt Rs. 31.9 per capita. Estimates relate to West Bengal (1946-47), Mysore (1945), Madras (1945), Bombay (1948-49), U.P. (1948-49). All data unadjusted and subject to revision.

133 *Average* interest extremely difficult to arrive at, varying from interest free loans to 50% or higher rates of interest. *Modal* rate of interest, 12 p.c. Corroborated by experts in the RBI. No attempt to estimate weighted average (on basis of loans) as data on debt classified by rates of interest not available except for West Bengal (*Rural Indebtedness Enquiry*, 1946-47).

134 Estimate relates to rural areas only. Urban (consumer) debt interest (especially for working classes) missed for lack of information. Since likely tendency to reduction in rural debt (in view of high agricultural prices) no allowance made for under-estimation in respect of urban debt interest. Error involved unknown.

135 For agriculture, margins adopted from *Foodgrains Investigation Committee Report* net of transport costs. Labour incomes (for handling etc.) included in trade margin.

136 Actual receipts for different types of goods carried, taken over from *Report by the Railway Board on Indian Railways*, 1948-49, Vol. II (Statistics).

137 See earlier, under notes on agriculture.

138 Number of lorries trucks etc. derived from SA 1949, adjusted for Indian Union (data for 1947-48) adjusted for 1948-49 on basis of past trend). On estimated average price of Rs. 10,000 per vehicle, repairs and depreciation estimated at 15 p.c.

139 Actual repair and depreciation estimated at 15 p.c from balance sheets for Air India, I.N.A., Airways India, A.S.I., Bharat, Deccan, Indian Overseas and Kalinga airways. Rough estimates made for Air India International, Ambica, Jupiter, and Himalayan aviation.

product entering into trade, and retailing absent for exports, although wholesale profit rates higher—made @ 5 p.c. on total value of merchandise exports.[140] Finally, imputed deduction made in respect of banking services performed free to trade sector. Net value of trade and transportation estimated after above deductions.[141]

A.94. *Professions and Liberal Arts* (para 4.23; Table 2): Method based on net earning per worker, as follows: all available material on monthly and annual earnings brought up to date by making use of rate of increase in factory earnings. Available information[142] diverse and regional and not to be construed as representative sample. Coverage in respect of number of activities, however, large as indicated by list below: Professors, doctors, lawyers, teachers, hakims, vaids, petty physicians, medical officers, house surgeons, matrons, public health nurses and sisters, ordinary nurses, compounders, midwives, sanitary inspectors, trained dais, pharmacists, dentists, orthodental surgeons, civil and mechanical engineers, chemists, astrologers, jugglers, washermen, barbers and scavengers.

A.95. Data on earnings arranged by census suborders[143] whenever possible and weighted averages for census orders obtained, weights being percentage of number (working force) in suborder to number in order (obtained on basis of Y-sample results). While activities within suborders exhibit wide regional diversity in respect of qualitative characteristics, earnings per worker supposed to be comparatively stable and likely to have a population coefficient of variation not generally exceeding 50 per cent, as can be surmised on analogy of earnings of workers in small enterprises.[144] This, cannot, however, be claimed in respect of variation of incomes within orders, by which estimation ultimately made, and here population variability may be much larger.

A.96. Thus, apart from error arising out of mistake in occupational distribution, error in respect of greater variability affects estimate in this sector more than in small enterprises. Statistical material not adequate for estimation of population variability, and as a result, notional estimates of average earnings in orders obtained by drastic rounding off

140 Value of merchandise exports worked out for 1948-49 from Monthly Abstract of Statistics, April 1950.

141 Black market profits not allowed for in present estimates. Apart from lack of information, black market incomes may also be treated as "transfer" earnings, and hence omitted from national income estimation (same as incomes of thieves, burglars, etc. Adulteration may similarly be put on the same plane as black market incomes. However, present calculations likely to lead to under-estimation on above counts in respect of expendable personal income.

142 Some important sources used given below: (i) Rao: *National Income of British India, 1931-32*; (ii) Desai: *Consumer Expenditure in India*, JRSS, Vol. CXI, Part IV, (iii) ILG, Sept. 1949; (iv) *Report of U. P. Pay Commission for employees of local bodies* (1949); (v) *Farm accounts of East Punjab*, 1945-46 to 1947-48 (Punjab Board of Economic Inquiry, 1949) (VI) *Social and economic survey of refugee camps in East Punjab*, 1949 (Punjab Board of Economic Inquiry); (vii) Bihar minimum wage legislation, Minimum Wage Act (notification of March 14, 1950); (viii) Report of the Health Development Committee (1946); (ix) *Socio-economic survey of Poona*, Gokhale Institute of Politics and Economics; (x) Thomas: *A resurvey of some South Indian villages:* (xi) *Labour Investigation Committee Report* on labour conditions in municipalities; etc.

143 See earlier, footnote (2).

144 See earlier, A.64.

of averages actually obtained. Procedure used arbitrary but round figures of average earnings preferred to averages given by unrepresentative and biassed small samples. While above generally true, detailed procedure and exceptions in certain cases noted below.

A.97. Income in *law* taken as equal to income in *medicine* on basis of evidence supplied by Poona survey as no material available for its estimation apart from above. In *medicine* material available is thorough and procedure indicated earlier fully applied. But abundance of material led to intra suborder combination of figures (e.g., incomes of orthodental surgeons, qualified dental surgeons and just dentists, and this done by arbitrary weighting by 1,24 and 75). Similar procedure adopted also for other suborders but need not be detailed here.[145] Data on income in *religion* meagre and comparable figures based on work by Rao and Desai put in use after adjustment by earnings index.

A.98. In *letters, arts and science*, material available for only four suborders out of nine suborders given in census. Activities covered as follows: (i) architects, surveyors and engineers; (ii) scientists etc; (iii) horoscope casters, astrologers, fortune tellers etc. and (iv) conjurors, acrobats and jugglers etc. For *teaching* material taken entirely from Ministry of Education and income of teachers arrived at by taking 65 per cent of direct expenses of education on advice of the Ministry. Average income of persons other than teachers in this order taken at 80 per cent of teachers. Apart from five orders of census subclass VIII considered above, three suborders of subclass III also considered here. Variability within each suborder low as noted earlier and hence estimation more accurate in these cases.

A.99. For *scavengers*, material on lowest paid conservancy staff available for 14 municipalities[146] and this almost invariably relates to scavengers though there are a few exceptions. Some other sources also used as check.[147] For *barbers* and *washermen* material collected from various sources such as net income generated in the sector obtained by multiplying average income for an order (or suborder in case of washermen etc.) by number in working force. Sum of all above professional earnings gives net income generated

145 Some details of calculation given below: In religion adjustment for data not relating to 1948-49 by half the rate of rise in earnings of factory workers. Average income in medicine worked out as follows: earnings data first grouped under categories (i) registered medical practitioners, (ii) other persons practising healing art, (iii) dentists, (iv) midwives, nurses etc. and (v) veterinary surgeons. Earnings of other persons practising healing art estimated by taking straight average of earnings of hakims, vaids, compounders, pharmacists and health assistants. Method followed for dentists already explained. Earnings of midwives, nurses, etc. calculated by taking straight average of all relevant information, while earnings of veterinary surgeons equated to those of midwives in absence of separate data. In letters, arts and science, out of 9 suborders adopted in census, data available for only four, viz. (i) architects, surveyors, engineers, etc., (ii) scientists etc., (iii) horoscope casters, astrologers, fortune tellers etc., and (iv) conjurers, acrobats, jugglers etc. Income of 50 per cent of engineers taken at Rs. 3139 per year being straight average of earnings data used. Remaining 50% assumed to earn Rs. 1168 per year on basis of income of lower paid persons. Income of scientists taken as equal to that of engineers. Income in category (iii) estimated by taking straight average of all earnings in the category, and income of conjurers etc. worked out on basis of average earnings of jugglers furnished by Punjab Board of Economic Inquiry, on assumption that on an average such persons are effectively employed for only six months in a year.

146 ILG September 1950.

147 See infra, A.110.

in this sector. Income estimated relates both to taxed and untaxed persons. Taxed income amounts to Rs. 31 crores taken from income tax revenue statistics for 1949-50 (since business income of any year assessed to tax only next year) and part of taxed non-government salaries relating to 1948-49 (since all salaries taxed on PAYE basis); exact amount of taxed (salary) incomes, however, not known as no break-downs available in CBR tax data.

A.100. Alternative method as follows: NSS data on average income from all services (except domestic service) per household available from 307 random villages all over India for 1949-50 adjusted for 1948-49 prices, used to estimate entire rural income of professions and services. Urban counterpart for religion, medicine, scavengers, barbers and washermen estimated from data on consumer expenditure in urban areas for middle class and working class families (Ministry of Commerce middle class family budget survey of government employees, and working class family budget surveys conducted by Ministry of Labour). A straight average of expenses taken in each case to take cognisance of higher income groups not covered. Number of urban households obtained on basis of estimated urban population and average size of household in 1941 census; this is regarded as population parameter estimated by corresponding statistic and hence immune to sampling error. Validity of procedure, however, partially vitiated by lack of complete identity of concepts of census houses and households as defined in budget surveys. Estimated consumer expenditure adjusted for costs in suborders medicine, washermen and barbers, deductions being 20 per cent, 10 per cent and 6 per cent respectively, the first figure arbitrarily and next two calculated on basis of data given by V.K.R.V. Rao. No cost associated either with religious service or with scavenging.

A.101. Basic material used so far is completely independent of that used for income approach, but independence of two methods not complete in as much as urban incomes for remaining items dependent on income approach followed earlier. For law, letters arts and science, and medicine, aggregate estimate arrived at earlier split up between urban and rural areas by making use of occupational distribution for such areas given by Rao and assuming average urban incomes double the average rural income. Figures given by Rao adjusted by a shift of 5 per cent towards increased urbanization. Method adopted very unsatisfactory because current position as regards level of urban and rural incomes, as well as distribution of professions between urban and rural areas may be widely different. Net effect of considerable error in both would, however, result in small error in sector aggregate. Income in *instruction* split up between urban and rural areas more satisfactorily by making use of total expenditure on education in urban and rural areas (source: Ministry of Education). All urban incomes summed to give urban aggregate which added to rural aggregate gives income generated in the sector. Estimate arrived at by this method not widely different from estimate obtained in first method.

A.102. *Public authorities' sector* (Para 4.24; Table 2) Public authorities, for present purposes, defined as including central government, class A, B, and C States, local authorities including municipalities, district and local boards, and port trusts. Accounts of central government based on figures of actuals for 1948-49 given in budget of central

government for 1950-51 and *Demands for Grants*, 1950-51. These also include accounts of centrally administered areas of Delhi, Ajmer and Andaman and Nicobar Islands. For all class A States and four class B States (Mysore, Hyderabad, Saurashtra and Travancore-Cochin) budget publications for 1950-51 give actuals for 1948-49. For Rajasthan and Madhya Bharat, budget estimates for 1949-50, for PEPSU revised estimates for 1949-50 and for Jammu and Kashmir budget estimates for 1948-49 utilized in absence of accounts for 1948-49. Vindhya Pradesh, Bhopal, Himachal-Pradesh, Manipur, Tripura and Bilaspur which have since become centrally administered not covered by accounts of the central government for 1948-49. Similarly Baroda (now merged with Bombay) and Rampur and Tehri Garhwal (now merged with Uttar Pradesh) not covered by accounts of Bombay and U.P. Information obtained directly from these States. Details inadequate. Order of magnitude, however, insignificant, being less than 2% of total. For municipalities and district and local boards latest figures of income and expenditure available for 1947-48 (SA, 1949). Data for 1947-48 incomplete as they exclude U.P., East Punjab Madhya Pradesh, Assam, Ajmer-Merwara, Delhi and Bangalore. Figures for 1946-47 therefore taken instead. Even so, available statistics for 1946-47 cover roughly 70 per cent of urban population. All figures therefore proportionately marked up for under-coverage. For port trusts detailed information available from annual accounts of Port Trusts of Bombay and Madras and Port Commissioners of Calcutta. Total magnitude of all local authorities and port trusts contribution (to national income), roughly 6 p.c. of total government sector.

A.103. Classification of government transactions,[148] for purposes of national income estimation slightly different from that followed in budget accounts. Each item of government revenue and expenditure examined and re-classified, in order to bring out government's net contribution to national income, government's share in gross capital formation, government's subsidies and transfer payments to augment private income, and finance of all government activities of above types. Thus, for instance, increased note-issue being an instrument of tapping 'forced savings' —treated as *borrowing*. Building and construction activity, even when included in revenue account of budget, treated as capital expenditure. All defence expenditure even when of a capital nature, treated as current expenditure, since capital assets acquired for defence assumed not to form part of productive resources of community. All outlay on civil works (debited to revenue account in budgets) treated as capital expenditure; all income from civil works treated as income from property. Distinction also

148 Valuation of government activities and share of government in national income generation is complicated by fact that product of government services are not directly paid for, and part of these may be intermediate services embodied in product of private sector. At outset, therefore, government activities split up into administrative and commercial activities. Latter comprise of all schemes intended to pay their way ultimately. Hence apart from enterprises run by government, trading departments like forests, railways, post and telegraph, also treated as commercial activities, in the sense that products of these activities have to be paid for before use; these, therefore, obviously enter into national product. Government (administration) appears primarily as consumer. However, income of persons employed in government administrative departments needs be reckoned. Hence, output of government, by convention, taken to equate wages and salaries paid by all government administrative departments. Government services thus valued at *cost* of these services.

made between expenditure on commodities, expenditure on services and transfer payments. Government's administrative functions and commercial activities also distinguished. All government revenues re-classified on economic basis, as direct or indirect taxes, fees, transfer receipts, income from property, and borrowing.

A.104. Government expenditure on wages and salaries culled from budget accounts. Segregation of government (administrative departments) expenditure on services from expenditure on commodities to some extent arbitrary. Where establishment expenses not specified as wages and salaries and purchase of materials, or where miscellaneous or contingent expenditure not elaborated, rough allocations of expenditure between commodities and services necessary. For some class B and C States where only heads or departments of expenditure given without further details, average percentage distribution in all other States adopted.[149] Order of magnitude of such arbitrary allocations not significant (roughly 3 p.c.). Wages and salaries paid out by all government administrative departments estimated as follows: (i) civil administration and miscellaneous departments Rs. 2.8 abja, (ii) defence Rs. 1.2 abja, and (iii) government (administrative departments) capital expenditure Rs. 0.6 abja. (Total wages and salaries Rs. 4.6 abja). Details of derivation of each table as follows.

A.105. *Current account of public authorities : administration* 1948-49 (Table 9): Details of each item[150] as follows:

Civil administration: (9,1) Cost of collection of taxes (budgetary definition: direct demands on revenue) (Centre Rs. 8 crores, class A States Rs. 11 crores, class B and C States Rs. 7 crores; total Rs. 26 crores); expenditure on civil administration (general administration, administration of justice, jails and convict settlements, police, ports and pilotage, scientific departments, education, medical, public health, agriculture, veterinary, co-operation, industries and supplies and miscellaneous departments. Expenditure under these heads shown net of all transfer payments) and currency and mint, net payments in aid of superannuation and pensions (Centre Rs. 37 crores, class A States Rs. 147 crores and class B & C States Rs. 58 crores, total Rs. 242 crores); administration of municipalities district and local boards and port trusts (Rs. 58 crores). Currency and mint have been treated as administrative departments. Pensions etc. shown as item of current expenditure because (i) no separate pensions fund maintained, contributions to which could be treated as current expenditure, and (ii) pensions are related functionally to period of service and pay of incumbent while in service, and hence cannot be treated as old age pensions, but have to be treated as deferred payment for past services. Political pensions, however, excluded and shown as transfer payment.

Defence (9,2): All defence expenditure, including defence capital expenditure (Centre Rs. 268 crores, class B States Rs. 11 crores; total Rs. 279 crores).

149 Wages and salaries and purchase of commodities of government civil departments in class A States, roughly 80 p.c. and 20 p.c. respectively. Allocations made on above basis. For defence, pay and allowances of armed forces derived as a residual after deducting purchases of stores etc. from total expenditure.

150 The derivation of important items (in tables) is explained below. The first number within brackets gives the serial number of the Table, and the second number gives the serial number of the item. Thus, for instance, (9,3) designates item (3) of Table 9.

Out of this, pay and allowances of armed forces estimated at Rs. 117 crores as residual after deduction of all purchases of stores and materials from total expenditure.

Miscellaneous (9,3): Expenditure on stationery and printing; miscellaneous and extraordinary expenditure; privy purse to rulers and allowances to the members of the royal family (Centre Rs. 2 crores, class A States Rs. 11 crores, class B & C States Rs. 12 crores; total Rs. 25 crores).

(9,4) Total expenditure on commodities and services Rs. 6.3 abja. Broken up into expenditure on commodities Rs. 2.3 abja, and on services Rs. 4.0 abja. For central government and class A States, distribution of expenditure between commodities and services for civil departments deduced from analysis of budget accounts. Percentages for Centre and class A States applied for allocation of expenditure of class B and C States and local authorities; see earlier chapter 6, Table 12.

(9,5) Grants-in-aid to industry, agriculture and co-operation; grants for civil aviation; losses on supply of imported foodgrains (Centre Rs. 28 crores, class A States Rs. 2 crores, class B & C States Rs. 4 crores; total Rs. 34 crores). Losses on imported foodgrains shown here as subsidy rather than as transfer payment (to consumer).

(9,6) Famine relief; educational scholarships and stipends; transport of and relief to displaced persons (Centre Rs. 15 crores, class A States Rs. 10 crores, class B & C States Rs. 1 crore; total Rs. 26 crores).

(9,8) Surplus on current account shown here, different from budgetary surplus. Denotes only surplus of funds drafted by government (for administration) over administrative departments' current expenditure.

(9.10) Corporation tax : Includes Excess Profits Tax (Centre Rs. 63 crores, class B States Rs. 2 crores; total Rs. 65 crores).

(9,11) Taxes on income other than corporation tax; agricultural income tax; immovable property tax; (Centre Rs. 78 crores, class A States Rs. 49 crores, class B & C States Rs. 6 crores; total Rs. 133 crores). Urban immovable property tax actually a direct tax on capital, but magnitude too small to be shown separately, and hence lumped here.

(9,13) (Centre: Rs. 126 crores, class A States Rs. 1 crore and class B & C States Rs. 12 crores; total Rs. 139 crores).

(9,14) Includes rent of excise shops. These payments not treated as rental income (income from property), as in effect, these rents realized under Excise Act for licence to sell liquor. (Centre Rs. 52 crores, class A States 33 crores class B & C States Rs. 22 crores: total Rs. 107 crores).

(9,15) (Centre Rs. 2 crores, class A States 16 crores and class B & C States Rs. 2 crores: total Rs. 20 crores).

(9,16) Treated conventionally as an indirect tax. Shown net of all rent receipts (Centre negligible; class A States Rs. 25 crores, class B & C States Rs. 17 crores; total Rs. 42 crores).

(9,17) Registration; receipts under Motor Vehicles Act; entertainment tax; sales tax; petrol cess, rates and fees of municipalities, district and local boards and port trusts. (Centre negligible; class A States Rs. 55 crores; class B & C States Rs. 6 crores, local authorities Rs. 47 crores; total Rs. 108 crores). All municipal tax receipts classed here as 'Other indirect

taxes and duties'. Alternative classification possible for some items (e.g., taxes on houses and land may be treated as direct capital taxes). Present procedure, following U.S.A. practice (source: Unpublished mimeographed notes on method of national income estimation supplied by National Income Division, U.S. Deptt. of Commerce; also *Supplement to Survey of Current Business*, July, 1947).

(9,19) Receipts of various civil administration departments of central and State governments (justice, jails, police, ports and pilotage, education, medical, public health, agriculture, veterinary, rural development, animal husbandry, co-operation, industries etc.) and of municipalities and port trusts. (Centre Rs. 7 crores, class A States Rs. 17 crores, class B & C States Rs. 6 crores and local authorities Rs.8 crores; total Rs. 38 crores). This, and the next item miscellaneous fees (i.e., 9,20) create difficulties in classification for following reason. Large part of civil administration receipts of nature of fee, in return for some service performed. These, according to accepted international practice, treated as receipts of government's commercial activities, a corresponding deduction being made from expenditure side of department concerned, the fee being treated as falling under purview of government commercial activity. Difficulty in following above procedure: (i) these payments not always separable, and (ii) fees may often include elements of indirect taxes as well as payments for services rendered. Hospital receipts case in point, where free treatment provided to poor; on other hand, fees realized in educational institutions not of nature of tax. For above reasons, all fees cannot be classified as indirect taxes; nor as receipts for services rendered on commercial basis. Hence in present context, fees shown independently of other revenues of government; for purposes of accounting, categorized as a type of indirect tax. For purposes of clarification, all miscellaneous fees and civil administration receipts analysed in detail, item by item for all States, and categorized as indirect taxes and as fees for services rendered. Details available for all class A States and all major class B States; for others, ratios obtained from these States applied. On this basis, receipts of the nature of taxes Rs. 29 crores, while receipts of the nature of fees Rs.42 crores (Rs. 0.3 abja and Rs. 0.4 abja respectively). For States for which detailed information available, receipts of nature of taxes Rs. 539 lakhs; fees Rs. 766 lakhs; unclassifiable items Rs. 1024 lakhs. Above break-downs i.e. (Rs. 0.3 and 0.4 abja) on basis of ratio of taxes to fees as above (539:766). However, above analysis is not carried to logical conclusion because (i) facilities like education, health, etc. now recognized as duty of state to provide, and facilities for these may not be treated as state enterprises. For present purposes only projects expected to pay their way treated as commercial activities; (ii) treatment of these fees as receipts of commercial enterprises would necessitate corresponding (offsetting) deduction under these heads from government expenditure, and both receipts and expenditure shown under commercial enterprises. This procedure would vitiate picture of both administrative expenditures and activities of commercial enterprises (fees' part of enterprises being valued at *cost* —a definition valid for government administration only). However, alternative accounts easy to set up from broad details given above regarding break-downs of miscellaneous fees, into indirect taxes and fees.

(9,20) Miscellaneous and extra-ordinary receipts of central and State governments and port trusts; defence and civil defence receipts; receipts

from stationery and printing (Centre Rs. 16 crores, class A States Rs. 7 crores, class B & C States Rs.7 crores, local authorities Rs. 2 crores; total Rs. 32 crores). Textual discussion under (9,19) applies for this item also.

(9,23) See under (10,13)

(9,24) See under (10,14)

(9,26) (Centre Rs. 2 crores, class A States Rs. 3 crores, class B & C States Rs. 4 crores, local authorities Rs. 1 crore; total Rs. 10 crores).

(9,27) Receipts from civil works and buildings; rent of fisheries; receipts from investments, rent of lands and receipts of municipalities from market and slaughter houses; ground and shed rents received by port trusts (Centre Rs. 1 crore, class A States Rs. 3 crores, class B & C States Rs. 2 crores, local authorities Rs. 6 crores; total Rs. 12 crores.)

(9,29) Interest payments on (unproductive) national debt treated as transfer payment and not part of national income and hence shown as negative item on revenue side of government's current account. Forms part of personal income. Net unproductive debt interest only shown here, interest on railway and other productive debt being interest income generated in railways etc. Gross government interest payments (Centre Rs. 63 crores, class A States Rs. 5 crores, class B & C States Rs. 2 crores, local authorities Rs. 4 crores; total Rs. 74 crores) *less* interest transferred to railways Rs. 23 crores, post and telegraph Rs. 1 crores, industrie Rs. 2 crores and irrigation Rs. 2 crores; total deduction Rs. 28 crores; net national debt interest payments Rs. 46 crores.

A.106 *Current account of public authorities : enterprises*, 1948-49 (Table 10). Gives the operating (and appropriation) account of government enterprises, comprising of all schemes which are intended to pay their way ultimately. They cover central, State and port trust railways, post, telegraphs and telephones of central and State governments, forest departments, productive irrigation works, water works, commercial transactions of salt department, operations of government opium factories, road transport schemes, electricity schemes, government industrial and mining concerns, state enterprise in sericulture (Jammu and Kashmir), commercial activities of port trusts other than port railways, and all other commercial and trading undertakings operated by governments. Accounts of railways shown separately and others lumped together being of small order of magnitude individually. Table 12 given in chapter 6 shows the accounts of enterprises separately. Details of each item as below:

(10,1) Cost of coal and other fuel; purchase of stationery and stores and other materials (Rs.42 crores).

(9,2) Purchase of stationery and stores by post and telegraph department (Rs. 5 crores), of materials by forest department (Rs. 1 crore), of petrol and other materials by government transport service (Rs. 1 crore), of materials by industrial concerns (Rs. 2 crores) and of materials by irrigation departments (Rs. 1 crore); total Rs. 10 crores.

(10,4) Pay, allowances and contributions to provident fund of the staff of Railway Board and central, State and port trust railways, and loss on grainshops providing grains at concessional rates to the employees of the railways (Rs. 119 crores).

(10,5) Salaries and allowances paid by all other government enterprises. Post and telegraph Rs. 24 crores, forest Rs. 4 crores, road transport Rs.2 crores, industries including electricity schemes Rs. 3 crores, irrigation Rs. 4 crores, mining and trading concerns Rs. 1 crore; total Rs. 38 crores).

(10,7) Interest on capital paid by central and State railways. These payments shown as part of working expenses in the accounts of railways and as deduction from 'interest on debt on other obligations' in the budgets of central and State governments. These, therefore, treated as payments to private sector through government debt services. (Rs. 23 crores) see also (9,29).

(10,8) Of the same character as (10,7) above. Post and telegraphs (Rs. 1 crore), industries including electricity schemes (Rs. 2 crores) and irrigation (Rs. 2 crores). For others, interest payments negligible, total: Rs. 5 crores.

(10,10) Transfer to Railway Depreciation Reserve Fund and 20 p.c. of expenditure on repairs and maintenance, treated as capital expenditure and carried over to capital account (Rs. 23 crores).

(10,11) Post and telegraphs: provision for maintenance of assets and contribution to the Renewals Reserve Fund (Rs. 2 crores), forests: provision for conservancy taken as actual expenditure (Rs. 1 crore), road transport (Rs. 1 crore), industries including electricity schemes (Rs. 1 crore), irrigation (Rs. 1 crore); total Rs. 6 crores.

(10,13) Operating surplus of government railways transferred to government (administration) revenue account. (Rs. 25 crores). See (8,24).

(10.14) Operating surpluses of all other government enterprises transferred to government (administration) revenue account (Rs. 25 crores). See under (9,24)

(10,17) Gross earnings of passenger and goods traffic and miscellaneous receipts (Rs. 228 crores). Miscellaneous receipts too small to be shown here separately.

(10,18) Gross receipts (post and telegraphs Rs. 34 crores, forest Rs. 16 crores, road transport Rs. 5 crores, industries including electricity schemes Rs. 12 crores, irrigation Rs. 16 crores and mining and trading concerns Rs. 1 crore; total Rs. 84 crores).

A.107. *Capital account of public authorities: administration and enterprises combined,* 1948-49 (Table 11): Not possible to present separate capital accounts for number of reasons. Since large number of commercial enterprises shown here separately taken out of government revenue budget (e.g., productive irrigation works), surplus on administration's current account, though useful concept, cannot be allocated to administration's and enterprises' capital accounts; similarly with borrowing. Combined capital account shows all elements that are separately estimable, e.g. commercial enterprises' maintenance provision. Details of each item as below:

(11,1) Railways: appropriations from Depreciation Reserve Fund and 20 p.c. of expenditure on repairs and maintenance treated as capital expenditure; expenditure out of Post and Telegraph Renewals Reserve Fund; maintenance work of forests, irrigation and electricity schemes and expenditure on repairs by government electricity schemes. (Centre: Railways Rs. 18 crores, Post & Telegraphs negligible; class A States: forest,

irrigation and electricity Rs. 4 crores; class B & C States: forest, irrigation and electricity Rs. 1 crore; port trusts negligible; total Rs. 23 crores).

(11,2) Capital outlay by Centre: Railways: works Rs. 13 crores, rolling stock Rs. 4 crores, general charges Rs. 2 crores, stores, Rs. 15 crores, appropriation from Betterment Development Fund Rs. 7 crores; Multipurpose river schemes Rs. 1 crore; forest, irrigation etc. Rs. 1 crore (total Centre Rs. 49 crores; class A States: irrigation Rs. 16 crores, electricity schemes Rs. 8 crores, iron and steel, cement and other industrial works (Mysore) Rs. 2 crores; total class B & C States Rs. 14 crores; total all public authorities Rs.97 crores).

(11,4 & 5) No clear distinction between maintenance expenditure and net capital formation possible in respect of government (administration). Expenditure on building and construction by administrative departments treated here as capital formation. Minor repairs and annual contingent replacements not included. Mainly civil works, original and maintenance; capital works of various administrative departments; capital outlay on lighthouses, roads; economic development of rural areas; expenditure for new capital at Delhi (Centre Rs. 14 crores; class A States Rs. 41 crores; class B & C States Rs. 16 crores and local authorities Rs. 10 crores; total Rs. 81 crores).

(11,6) Purchases by the central government of shares of RBI and assets of Delhi Transport company (Rs. 6 crores); purchase by State governments of shares of industrial companies (Rs. 1 crore); total: Rs. 7 crores. The item represents no net addition to capital formation for the community as a whole but of a transfer of capital from private to public sector. There is, therefore, a corresponding negative capital formation in private sector.

(11,8) See under (9,8)

(11,9) See under (10,12)

(11,10) Net increase in permanent debt, floating debt and unfunded debt of central and State governments, in note issue by RBI and in loans raised by port trusts (Centre Rs. 245 crores, class A States Rs. 35 crores, class B& C States Rs. 31 crores, local authorities negligible; total Rs. 311 crores); Debt raised in England [Rs.(—)6 crores] and purchase of sterling pensions annuities by central government [Rs.(—)214 crores]; net receipts of deposits and advances, suspense and remittance, net transfers from various funds *less* net advances relating to schemes of state trading; *less* net increase in cash balances of all governments (Centre Rs. 73 crores, class A States Rs.(—)3 crores, class B & C States negligible, local authorities Rs.(—)2 crores; total Rs. 68 crores; total net borrowing Rs. 159 crores).

A.108. *Domestic service* (para 4.25; Table 2): Sector defined as persons covered by census subclass X. Income generated by domestic service estimated by both income and consumer expenditure method. In first method, average income of domestic servants, cooks, ayahs etc. collected from various sources[151] and national average of these adjusted for price change where data not current. Motor drivers, cleaners etc. included in

151 Ministry of Labour, unpublished data relating to Agricultural Labour Enquiry, 1948-49; *Labour Investigation Committee Reports* 1944-45. Earnings in comparable occupations made use of. See also footnotes (88) and (112).

subclass, however, have been segregated and average income arrived at similarly by making use of available data. Aggregate of income in sector obtained as product of average incomes and number in working force.

A.109. Alternative method though not homogeneous (i.e., not based on purely consumer expenditure approach) is completely independent. NSS first round data based on 307 random villages adjusted to 1948-49 used to estimate rural income in domestic service. Derivation of the number of rural households explained elsewhere. Consumer expenditure in urban areas based on middle class family budget enquiry conducted by Ministry of Commerce. Average expenditure adjusted for price changes and multiplied by number of urban households (see A.110). No deduction for cost necessary in this case to equate consumer expenditure with income. National aggregate, sum of urban and rural aggregates. Estimate thus arrived at not satisfactory particularly because of assumption that average expenditure per household in middle class families is representative of the population under consideration. Working class budgets do not show any expenditure under this head and hence not used, and upper class budgets not available. Method can give correct result only if effect of absence of this expenditure in large number of working class families counterbalanced by high expenditure in smaller number of upper class families by lucky accident. Otherwise scope of considerable error. Approximate identity of two completely independent estimates, however, adds to validity of of aggregate, on assumption that this is not merely fortuitious.

A.110. *Net income from house property* (para 4.26; Table 2). Net income from house property estimated as follows: trends of growth of urban population fitted to data available for undivided India over 1921-1941, and extrapolated for 1948-49. Proportion of urban population in Indian Union area in 1941, 13.8 p.c. as compared with 12.8 p.c. in undivided India. Adjusting for increased urbanization in Indian Union (but applying same *rate* of urbanization as in British India), urban population in Indian Union in 1948 estimated at 15.6 p.c. of total population. Allowing for increased urbanization during war, urban population scaled up to 16.p.c. of total population in 1948-49. Total population thus divided between urban and rural.

A.111. Estimate of number of occupied houses in 1941, separately for urban and rural areas for each State, taken from Census Paper No. 2. Estimate adjusted for area corresponding to present Indian Union. To adjust for increase in number of houses since 1941, following procedure adopted: taking ratio of houses to population in 1941, expected number of houses estimated for 1948 population. On advice of Census Commissioner's office, number of houses assumed to have increased by only 25 p.c. and 50 p.c. of expected increase for urban and rural areas respectively. Total number of urban and rural houses thus estimated for each State. Estimate of number of houses in urban areas, however, not used directly for estimation but only for checking. For urban areas, following U.K. practice and method used by V.K.R.V. Rao, direct estimate of annual rental made on basis of collection of local rates and house taxes. Tax collections on houses and land in 360 municipalities during 1947-48 (Rs. 705.33 lakhs) taken from SA, 1949. Estimate for 1947-48 assumed to hold good for 1948-49 for lack of more recent data. Population of said 360 municipalities available for 1941; estimated at 20128 thousand in 1948, out of

total (estimated) urban population of 54566 thousand. On basis of replies received from municipalities to NIU questionnaire, and similar enquiries by V.K.R.V. Rao,[152] average municipal tax rate estimated at 7½p.c. of assessed annual rental value of house property. On above basis, estimated rental for all urban areas Rs. 255.02 crores. Deducting 10 p.c. for annual maintenance and house repair expenditure, net income from house property in urban areas estimated at Rs. 229.52 crores.

A.112. For rural areas, average cost of building a house during 1949-50 (Rs.877) derived from first round NSS results for 125 villages. Data adjusted for 1948-49. Total value of rural house property thus derived for estimated number of rural houses (56696 thousand), and estimated at Rs.4857 crores. Average rate of interest in rural areas, 12p.c.[153] However, for imputing rental value of rural house property, current value of rural houses obviously an over-estimate as most rural houses built before present inflationary rise in prices. Hence, value of imputed rental, arbitrarily halved (i.e. estimated at 6 p.c. on Rs. 4857 crores) On this basis, gross (imputed) rental of rural house property estimated at Rs.292.4 crores. Estimate of average annual house repair and maintenance expenditure based on 1552 households for 97 villages, also available from NSS. (Rs.12.65 per household for 1949-50). Number of rural households estimated on basis of average size of rural households in 1948-49 as given by Agricultural Labour Enquiry (5.2 per household), and total rural population as estimated earlier. Adjusting for 1948-49, total annual maintenance expenditure for all rural households estimated at Rs. 68.1 crores. Deducting above from gross (imputed) rental, net income from all house property (urban and rural) thus estimated at Rs. 452.8 crores.

A.113. *India's balance of international payments* (para 4.27; Tables 13 & 14): Figures given here taken over from post-mortem analysis of India's balance of payments, based on Exchange Control Department (ECD) records.[154] Procedure subject to a number of limitations. ECD records are on a 'payments' basis not on 'accrual' basis. Hence, substantial differences between value of exports shown by customs and by ECD documents. Besides error due to lag between accruals and payments, error also due to under-statement in value of exports given by wholesale price of products as recorded in customs forms, which is less than ECD valuation generally on f.o.b. or c.i.f. basis and reflecting *foreign exchange payments expected including commission for wholesale*, etc. Imports, c.i.f. suffer from defect that payments for insurance get included under payments for merchandise. RBI analysis also lumps together a number of ECD categories into a summary statement, with fairly large sums under unclassified items and errors and omissions. No information available for remittances from labour incomes earned abroad.

A.114. For national income purposes, adoption of RBI analysis involves three defects: lag between ECD values and current values of exports and imports, incomplete information about items like donations and remittances.

152 V. K. R. V. Rao : *National Income of British India*, 1940, p.177.

153 See earlier, footnote (133).

154 ECD statements are available in categories entirely different from those used for balance of payments analysis by RBI. ('General Notes on Compilation of Balance of Payments Statements', Papers received from Dept. of Research and Statistics, RBI.)

and error in estimate of investment income, part of which may be ploughed back in industry, and be completely ignored in balance of payments statistics. RBI report on *Census of Foreign Assets and Liabilities* may give better information on 'accruals' of investment income to foreigners, but incorporation of this information presents difficulties on two counts: (i) relation between capital stock and dividends neither known nor fixed, and (ii) nothing known about holding of assets abroad by Indian nationals. Adjustment for one side of Accounts, therefore, difficult, and not attempted here.

A.115. Figures shown under Tables 13 and 14 culled from RBI balance of payments analysis.[155] For deriving accounts for fiscal year 1948-49, figures for Jany-June 1948[156] were halved and added on to figures for Jany.-March 1949, and July-Dec. 1948. Derivation of each item, as follows.

(13. 1 & 7) Imports c.i.f. values, exports f.o.b. Receipts on account of freight and insurance estimated and transferred under respective heads. Merchandise trade excludes transactions under government barter deals.

(13.2 & 8) Under payments, includes Rs. 72 crores for purchase of British defence stores in India from U.K.[157] paid out of blocked sterling balances under Financial Agreement of July, 1948. Above shown as current transaction because (i) corresponding payments shown in government's (capital) budget accounts, and (ii) all defence expenditure treated conventionally as current expenditure.

(13.3 & 9) Estimates of investment income subject to limitations outlined earlier. Under receipts, interest on foreign investments of RBI included. As rate of interest of these sterling holdings etc. very low, current payments negative despite India's foreign assets being larger than foreign liabilities. Under payments side, estimates provisional and likely to be under-estimates.

(13,4 & 10) Includes maintenance allowance and receipts of missionaries.

(13,5 & 11) Includes foreign travel, transportation, insurance, miscellaneous and unclassified items. Payments and receipts of Indian steamship companies abroad, and of foreign ships in Indian ports, included under transportation; miscellaneous payments include remittances for services such as education, film rentals, agency services and maintenance of estates. Unclassified items constitute a large chunk and it is not possible to allocate this item. Payments under this item usually transactions in small amounts, and are, therefore, not easy to classify into factor payments or transfers, etc. In absence of any further evidence, better to lump these transactions with the biggest total, namely, payments for commodities and services.

155 RBI Bulletin, Aug. 1950. '*India's Balance of Payments, Jan. 1949-June 1950*' by S. D. Deshmukh. All figures used here derived from above source. See also, RBI Bulletin, July and Nov. 1949 papers by K. N. Raj on India's Balance of Payments.

156 No quarterly figures being available for 1948, all figures for period Jan.-June 1949 were arbitrarily halved.

157 Figures shown in government accounts different (Rs. 100 crores) due perhaps to lag between government budget accounting and exchange control accounting. Since all estimates in respect of Rest of the World sector adopted from RBI analysis, accruals basis accounting not done for this item in isolation. On balance of payments basis, therefore, the purchases shown at Rs. 72 crores.

(13,12) Adverse balance on current account; residual item.

(14,1 & 6) Items shown here different from those shown in RBI balance of payments analysis (capital account). In latter, increase and decrease in assets and liabilities estimated from actual capital receipts and payments. Figures shown here, actuals.[158]

(14,2 & 7) *Net* change in asset position shown here as expenditure, implying capital outgoings.

(14,3 & 8) All other items lumped here; include official and bank loans, movements of portfolio securities, amortization, other contractual payments, payments to I.M.F. and I.B.R.D, and all other short term capital movements. Largest chunk in RBI analysis, under 'other' capital movements. Errors and omissions shown in current accounts in RBI analysis, also included under this head on advice of RBI experts on the subject. Errors and omissions likely to arise out of undefined (short term) capital movements. For this item also only *net* flow of capital shown here (Rs. 0.1 abja under expenditure side shows *net* errors and omissions).

(14,4) Residual item, same as (14,12).

STRUCTURAL RELATION BETWEEN ITEMS IN DIFFERENT TABLES

A.116. The derivation of some important items in the tables in chapters 5 and 6 is given below. The table and the item referred to have been identified by three numbers within brackets, the first giving the serial number of the table, the second the serial number of the column, and the third the serial number of the row or the item. The relation between the items is shown in the form of an equation. An example is given below:

$$(5,2,1) = (12,5,13)+(12,5,15)$$

The above implies that Table 5 column 1 item 2 (i.e. net output of government enterprises) is equal to Table 12 column 5 item 13 (i.e., contribution to national product at factor cost by government enterprises on current account) *plus* Table 12 column 5 item 15 (i.e., contribution to national income at factor cost by government enterprises on capital account). The structural relations, thus defined, between some items is given below:

$$(5,2,1) = (12,5,13)+(12,5,15)$$
$$(5,2,2) = (2,2,15) = (12,5,5)+(12,5,14)$$
$$(5,2,3) = (5,2,4)-(5,2,1)-(5,2,2,)$$
$$(5,2,5) = (9,3,4)$$
$$(5,2,6) = (11,3,4)+(11,3,5) = (12,10,14)$$
$$(5,2,7) = (11,3,3)+(11,3,6) = (12,10,15)$$

With reference to (5,2,7) it should be noted here that *net* purchase of assets by government (i.e. 11,2,6) has been shown under this item, although strictly it ought to be allocated between (5,2,6) and (5,2,7). The same qualification has to be borne in mind in respect of (12,10,14) and (12,10,15).

158 RBI Bulletin, Aug 1950, footnote, 2 page 531; footnote marked (*) page 534.

(5,2,8) = net national expenditure at market price is equated to national income at market price = national income *plus* indirect taxes *less* subsidies = (8,2,4)

(5,2,12) = national income *minus* government income from enterprise and property = (8,2,16)

(5,2,13) = (9,3,8)+(10,3,12) = (11,5,8)+(11,5,9)

(5,2,14), (5,2,15) (5,2,15), } see A.107 note on (11,5,10)

(5,2,17) = (11,3,7)
(6,2,1) = (13,4,7)+(13,4,8)+(13,4,11)
(6,2,2) = (13,2,1)+(13,2,2)+(13,2,5)
(6,2,3) = (8,2,1)+(6,2,2)
(6,2,4) = (13,4,9)−(13,2,3)
(6,2,5) = (13,4,10)−(13,2,4)
(6,2,7) = (14,4,6)−(14,2,1)
(5,2,8) = (14,4,7)−(14,2,2)
(6,2,9) = (14,4,8)−(14,2,3)
(6,2,10) = (14,2,4)
(6,2,11) = (13,2,1)+(13,2,2)+13,2,5)−(13,4,7)−(13,4,8)−(13,4,11)
(6,2,12) = (13,4,9)+(13,4,10)−(13,2,3)−13,2,4)
(6,2,13) = (13,4,12)
(7,2,1.1) = (9,6,18)
(7,2,1.2) = (9,6,21)
(7,2,3.1) = derived as a residual after deducting government income from enterprise and property from domestic product = (2,2,19)−(7,2,3.2)
(7,4,5.2) = (9,3,4)
(7,4,6.2) = (11,3,7)
(7,4,7) = (6,2,11)
(7,4,8) = (9,3,5)
(7,2,11) = (9,6,12)
(7,4,15) = (9,6,29)
(7,4,16) = (13,4,9)−(13,2,3)
(7,4,17) = (9,3,6)
(7,4,18) = (13,4,10)−(13,2,4)
(7,4,28) = (9,3,8)
(7,2,31) = net surplus on current account in balance of payments for all items except donations = (13,4,7)+(13,4,8)+(13,4,9) +(13,4,11)−(13,2,1)−(13,2,2)−(13,2,3)−(13,2,5)

Glossary of Abbreviations

A.117. Abbreviations used frequently in the appendix are given below;

AgSt	—Agricultural Statistics, India
APS	—Indian Agricultural Price Statistics
ASI	—Agricultural Situation in India
CBR	—Central Board of Revenue

CEC	—Central Electricity Commission
CIF	—Chief Inspector of Factories
CIM	—Chief Inspector of Mines
CM	—Census of Manufactures
DESAg	—Directorate of Economics & Statistics, Ministry of Agriculture
DIS	—Directorate of Industrial Statistics, Ministry of Commerce & Industry
DMI	—Directorate of Marketing & Inspection, Ministry of Agriculture
ECD	—Exchange Control Department, Reserve Bank of India
FSI	—Forest Statistics of India
GAC	—Government Agricultural College, Kanpur
GSI	—Geological Survey of India
IARI	—Indian Agricultural Research Institute, Pusa
ICAR	—Indian Council of Agricultural Research
ILG	—Indian Labour Gazette
ILYb	—Indian Labour Year Book
ISI	—Indian Statistical Institute
LB	—Labour Bureau, Simla
LC	—Livestock Census
LS	—Livestock Statistics
MR	—Marketing Report
NIU	—National Income Unit
NSS	—National Sample Survey
RBI	—Reserve Bank of India
SA	—Statistical Abstract