"Abstraction consists in the mental elimination of everything which is casual or accidental, i.e. occurring only occasionally, and in singling out the event which constantly under given conditions reappear, which constantly repeat itself, i.e. is essential or necessary."

Oscar Lange
(Political Economy)
THE SOURCES AND NATURE OF DATA

Reliable and comparable data is the foundation of any empirical study. Since, the scope of the present study stretches from state level income inequalities and their sectoral composition, to inequalities of per capita agricultural incomes and then, to the specific multi-variable study of the state of Madhya Pradesh at the level of the districts, a detailed discussion on the choice of data sources, their scope, nature and limitations is quite essential.

Data On Net Domestic Products:

As mentioned at the outset, the present study is concerned roughly with the two decades i.e. from 1960-61 to 1978-79 and identifies the income inequality and its inter-temporal, inter-regional patterns and trends. Reliable and comparable estimates of Net Domestic Products at both, the national and the state levels for the above period are necessary. Moreover, since the major objective of the study is to ascertain the inter-state variations over time, ideally speaking, the available data should be
at constant prices over time and also comparable between the different states.

Strictly comparable, continuous time-series, state-wise data on Net Domestic Products are not available for the entire period of study (1960-61 to 1978-79) covering the Third, Fourth and Fifth Five Year Plans. Estimates are however, available for different sets of years, from a number of sources, which need a careful evaluation. The data available can be classified into two broad categories i.e. (i) one from the 'official documents', and (ii) the other from the 'private estimates' and researches.

Official Sources:

The official estimates of state Net Domestic Products are available from two different sources. The State Statistical Bureaus presently known as the Directorates of Economics and Statistics (DES). The Directorates of Economics and Statistics are entrusted with the task of bringing out Annual Estimates of the Net State Domestic Products (after, the frustrating experience of the framing of the II Five Year Plan, due to the non-availability of data), from 1956-57 for 15 major states and for many of the newly formed states such estimates are not
available, even before 1970-71. The Central Statistical Organisation (CSO) has endeavoured in bringing about broadly two sets of estimates of Net Domestic Products for the period of study; (i) one is basically, compilation of the data provided by SSBs(DESS), both in current as well as constant prices (even with different base years) and (ii) the second set of comparable estimates, at current prices, especially prepared for the Fifth Finance Commission (1962-63 to 1964-65), the Sixth Finance Commission (1967-68 to 1969-70) and the Seventh Finance Commission (1970-71 to 1975-76). As it would become clear later on, the difference in both the sets of estimates becomes less and less significant in the seventies, due to the gradual switch over of methodology followed by DESSs of different states in following a common guideline provided for by the CSO in estimating the NSDP.

---

1 Meghalaya, for example, the NDP is not available for the preceding years, before the formation of the state; so, is the case of Sikkim, and varies at different length for Haryana, H.P., Nagaland and Mizoram.

2 Constant prices are in state terms. But, this apparently, is unavailable, even for the most developed countries.

But, a number of critics have already commented on the reliability and comparability of the estimates brought out by the various DESs. Most of the criticisms levelled against the DES estimates are apparently justified. If, agricultural sector alone is taken, which naturally, contributes the single most share of the Net Domestic Products of states, a number of anomalies are easily discernible. There seems to be a great deal of variation between different states in the manner in which the by-products are evaluated; in the manner in which the outputs are measured; and in the way in which the costs of inputs from other sectors are estimated to find out the 'value added' of the sector. Similar problems exist in the case of other commodity producing sectors also as in these sectors the method of estimation is the 'product method'. In case of those sectors in which income method is prevalently used, such difficulties in


5 M.D. Choudhury, Op. cit., highlights the variations in cost deductions from 37.8% in West Bengal to only 10.8% in Orissa.

6 Generally, with the 3 ways of NDP estimation, the 'value added', the product and 'the income methods'; broadly the DESs follow the value added method for agricultural sector, 'product method' for productive sectors and 'income method' for service sectors.
estimation are even more serious. The method of working out sector-wise estimates of working force and of calculating per head earnings vary from state to state. The problem gets further accentuated as one comes across, the manner in which some sectors of this category are defined (not uniform) in all the States. The inter-temporal comparability of these estimates are also open to question since, in more than ten of the states, the methods used in estimation have undergone substantial change. Therefore, generally, two different series of DES data is available. One of these series is based on the earlier method of the fifties, (which are no longer useful to us) and the other is based on the CSO guidelines in the sixties and seventies. An additional difficulty is presented in the case of constant-price estimates because of the fact, that the base years for the constant price calculations are not the same for all the states.

The CSO estimates at current prices have been prepared with the specific intention of overcoming the comparability problem. This has been done on the basis

---

7 For example, the small industry sector is defined to include only hand pounding of rice in the state of Kerala, West Bengal and U.P., but includes construction in the case of Tamil Nadu and Karnataka.

8 With the availability of the current price figures, this problem can be overcome, in changing the base years of the data.
of the W.G.S.I. (1957) recommendations of using a standard methodology and sources, all over the country.\(^9\) From mid-sixties onwards, the SSBs (later DES)\(^{10}\) have been directed to follow a uniform methodology for estimation which has been adopted by larger part of the DESs. Consequently the major part of the data of late Sixties and early Seventies is fairly comparable. On the other hand, in periodic reviews the CSO goes on modifying the DES tabulations to bring them at par with the common methodology followed.

The CSO also, provides both state-wise and the national break up of the Net Domestic Products by the sector of origin. They are available in current prices and for reasons outlined earlier, the data upto the sixties are not comparable. However, the data compiled for the first half of the seventies (1970-71 to 1975-76) are based on standard methodology and is therefore comparable. Owing to their reliability, these statistics are used in the analysis in understanding the sectoral composition of NDPs (State-wise) and the structural

\(^9\) Working Group on State Incomes. The Group was set up after the inadequacies of income estimates were felt during the finalisation of the Second Five Year Plan, under the Chief guidance of Prof. P.C. Mahalanobis.

\(^{10}\) Directorate of Economics and Statistics. These were formed along with the formations of the State Planning Boards as a feed up organisations.
changes, thereof. The above sectoral data is classified into the following sixteen major sectors of origin. The sectors are:

(i) Agriculture and animal husbandry;
(ii) forestry and logging;
(iii) fishing;
(iv) mining and quarring;
(v) large scale manufacturing;
(vi) small scale manufacturing;
(vii) construction;
(viii) electricity, gas and water supply;
(ix) railways;
(x) transport by other means;
(xi) communication;
(xii) trade, storage, hotels and restaurants;
(xiii) banking and insurance;
(xiv) public administration;
(xv) real estates, banking and insurance; \(^{11}\)
(xvi) other services.

Private Estimates:

For the reorganised states of the Indian Union (vide, SRC 1956), a number of private or non-official estimates of state NDPS are available, largely, prepared either to overcome the shortcomings of the CSO and SSB as sources or for a specific project purpose. Naturally,

\(^{11}\)CSO, Ministry of Planning, Govt. of India, National Income Statistics, Jan., 1979, New Delhi.
they are based on different methodologies, of different sources and relate to different years. From the point of view of the number of years covered, these estimates are of two types. Firstly, there are estimates which give value of state-wise NDPs for a few years. There are three such estimates namely, the estimates by Verma,\textsuperscript{12} the Indian Institute of Public Opinion (IIPO);\textsuperscript{13} and the National Council for Applied Economic Research (NCAER).\textsuperscript{14} Verma's estimates are for the years 1951-52 to 1959-60 at constant prices (1948). This period does not come under our preview since, our main concern starts from the early sixties. The NCAER has estimated NDP of the states for the years 1950-51, 1955-56 and 1960-61 at constant prices (1960-61).\textsuperscript{15} These estimates also do not serve our purpose. The IIPO has brought out such estimates for the years 1950-51, 1955-56, 1958-59, 1960-61 and 1964-65 at constant prices (1955-56).\textsuperscript{16} Naturally, this concerns only less than 25% of our period of coverage and secondly, they are fragmentary in nature, while we are


\textsuperscript{14}NCAER (1967), Estimates of State Income, New Delhi.

\textsuperscript{15}The NCAER (1963) also has made estimates earlier for the years 1955-56 and 1960-61, separately in inter-district and inter-state income differentials NCAER (1965). But, according to NCAER the estimates for 1950-57 to 1955-56 and 1960-61 together are their best estimates. Occasional paper, No.6, New Delhi.

\textsuperscript{16}IIPO, Op.cit.,
searching for continuous timeseries information.

On the contrary, there are estimates which give values covering just one year of this study. There are three such estimates and all these are for the year 1958-59. These are the ones by Raj,\(^{17}\) by Ojha\(^ {18}\) and by Tiwari and others.\(^ {19}\)

A distinction can also be made between the estimates on the basis of the method used for estimates. The NCAER estimates are the only ones based on the 'direct method' in which the estimates are made directly for each state on the basis of data for these states. The estimates of Varma, Raj and Ojha are based on the 'allocation method' in which the estimates are made by allocating the national totals of income among the various states on the basis of indicators, considered suitable for the purpose. The estimates by IIPO and by Tiwari and others are based on direct method for some sectors and by the allocation method for others.

As it seems clear, direct method is more reliable


\(^{19}\) B.G. Tiwari (1962) "State income estimates at the net values of goods and services of the Indian Economy, Paper at ICRNI, New Delhi."
as compared to either allocation or consumption methods. Methodologically speaking, therefore, the NCAER estimates of NDP are the most reliable and the detailed procedures are also available for critical verification.  

But, it does not suffice the period of coverage of the present study. With the limitation already outlined about the CSO’s direct estimates as well as the compilation of DES data, three sets of CSO data is utilized in the present study for two broad reasons, i.e., (i) that it is the only source which provides with continuous data of State NDPs from 1960-61 to 1978-79, as per the latest informations, and (ii) secondly, it is the only source which provides with the sectoral break-up of state NDP by the industry of origin.

Therefore, the limitations are rationalised on the following basis that (i) since, gradually from the mid-sixties onwards, the DES data is based on a progressively common methodology and corrected from time to time by the CSO (through their independent sources), the limitation for most part of seventies are only negligible; (ii) secondly, the independent estimates prepared by the CSO for the Fifth Finance Commission, Sixth Finance Commission and the Seventh Finance Commission.


21 In fact, after the Seventh Finance Commission, the CSO has only one methodology, since the gap of compilation and independent estimates being progressively bridged.
in current prices are at least as good as the NCAER estimates and these estimates have also been used in the study as a cross checking method, after converting them into constant prices (1960-61), on the basis of the price indices provided by the CSO. (iii) Thirdly, the CSO estimates of state NDPs, in their sectoral composition (from 1970-71 to 1975-76) have been used in this study. In fact, this data is in constant prices of 1970-71 and to bring them at par with rest of the estimates the base has been changed to 1960-61. There is little doubt about the credibility of this part of the CSO statistics.

Data on Population:

Largely, two sets of population data is used in the present study, i.e. (i) the state-wise population statistics for the Census years of 1961, 1971 and 1981 and (ii) district-wise rural population figures for the years of 1961 and 1971. Obviously, at least, for such total figures provided by the Registrar General of Census are quite reliable.* On both counts, the Final Population Tables (for 1961, 1971) and Provisional (1981) 22

22 Only the provisional figures are as yet available.

* The post 1961 Census of India needs special praise for generating a wide range of social demographic and economic statistics, thanks to the erstwhile Registrar General (Professor Asok Mitra).
estimates have been used in the present study.\textsuperscript{23}

On Agricultural Statistics:

For the purposes of studying regional inequality over a fairly disaggregated level of regional units, districts are being used as the lowest units of study. In fact reliable and comprehensive data is not available for any other conceivable regional units of India. In the absence of any useful per capita district-wise SDP estimates,\textsuperscript{24} the available course open is to use a fairly accurate proxy and therefore, an attempt at estimating the per capita agricultural output has been made.

The data available at the district level, regarding the output, area and yield is fairly accurate. The main source being publications of the Ministry of Agriculture, through their reporting journal, Agricultural Situations in India as well as the compiled, periodic publications titled Estimates of Area & Production of Principal Crops. The methods of collection of information (both seasonal and annual) regarding the crops cultivated, their coverage and level of output, are often found faulty,

\textsuperscript{23}Census of India (1981), Govt. of India, Provisional Population Estimates, 1981, New Delhi. Till date, only provisional figures are available, of which the information of the States of Assam and Jammu & Kashmir are only estimates, no census (of 1981) could be carried out there for various administrative reasons.

\textsuperscript{24}NCAER (1956), Estimates of District Incomes, New Delhi.
because of the over dependence on the Patwari (lakhpal) records. The changes brought forward in seasonal 'crop-cutting methods' in mid-sixties onwards are found to be relatively reliable. On the other hand, no other source, particularly, the NSS (National Sample Surveys) is stated to be much less reliable compared to the above mentioned source.25

As the detailed methodology will be discussed in the subsequent Chapter, it will be worth mentioning that the task of standardizing 19 principal crops at the district level for two trienniums, the 1962-65 and 1970-73 periods are formidable enough, and in this regard the standardized data for the above period compiled from sources outlined earlier are used from already published project report of the Planning Commission, the Perspective Planning Division and the Centre for the Study of Regional Development (JNU) under the Directorship of G.S. Bhalla.26

Prices:

Data on standard prices of the selected crops

25National Sample Survey (NSS) Organisation operating under the aegis of Central Statistical Organisation collects agricultural, as well as a number of industrial and infrastructural data on a sample basis, from each district. But, for planning purposes, even the CSO & Planning Commission uses data of the Ministry of Agriculture for that sector only.

for conversion purposes are the moving averages for 1970-73 period. These prices were obtained by first adding the all India value of output of each crop at current prices for 1970-71, 1971-72 and 1972-73 and dividing this aggregate value by the sum of physical output for that crop for these years. Value of output figures were obtained from National Accounts Statistics, disaggregated tables 1960-61 to 1972-73,\textsuperscript{27} while physical output data is taken from the source cited above.

Data on Socio-Economic Indicators of Madhya Pradesh:

Since, a full length case study of the state of Madhya Pradesh is contemplated, regarding the intra-state inequality, comprehensive and reliable data is required for the purpose. The study involves fourteen district-wise indicators for socio-economic development in the state, under the broad categories of population, workforce, agriculture, industries, electrification, health and education over a continuous period from 1960-61 to 1972-73. The Directorate of Economics and Statistics (DES) of Madhya Pradesh was one of the pioneering organisations to prepare the annual districtwise indicators.

\textsuperscript{27}C.S.O., Ministry of Planning, Govt. of India (1975) and National Accounts Statistics, Directorate of publications, New Delhi.
based on data generated by them and compiled from a number of Central and State Governmental sources. The other sources used for compilation purposes are as the following:

a) Census of India 1961, 1971;
b) The Directorate of Land Records, Madhya Pradesh, Gwalior;
c) The Registrar of Co-operative Societies, Madhya Pradesh, Bhopal;
d) Chief Inspector of Factories, Madhya Pradesh, Indore;
e) The Directorate of Employment and Training, Madhya Pradesh, Jabalpur;
f) Madhya Pradesh Electricity Board, Jabalpur;
g) The Directorate of Health Services, Madhya Pradesh, Bhopal; and
h) The Directorate of Public Instructions, Madhya Pradesh, Bhopal.

The compilations carried out are not full proof, but, can be said to be the best available in the situation. In fact, the DES of M.P. is one among the few DESs, like of Maharashtra, Gujarat and Punjab, which at least prepares and publishes such informations. On the otherhand, other sources like the Census Registrar General's office, the NCAER etc. do publish certain indicators at the district level, but they are largely, for one point of time

and therefore, has restrictive use in intertemporal studies.

So, looking at the retrospective the data base is vast and covers a wide range of information from NDP and SNDP, to the agricultural data at the district levels and then, comprehensive coverage of district-wise indicators for one state, Madhya Pradesh. As in the case of using all such secondary information, it can be said the best possible has only been selected for the purpose, but as inherent in such exercises it is not expected, that the limitations of data used would affect results of the study in any significant adverse manner.