CHAPTER 3

RESEARCH METHODOLOGY
3.1 Objectives of the Study

1. To study the trends of economic growth and its sectoral composition.
2. To identify the factors of poor growth in agriculture and industry.
3. To study the linkage between economic and social development.
4. To identify the factors of regional disparity.
5. To study the nature of regional distribution of industries in Madhya Pradesh.
6. To study the regional distribution of poverty in Madhya Pradesh.
7. To study the nature of Poverty-HRD inter-relation in the study.
8. To identify the factors of poor economic development in the State.

3.2 Hypothesis of the Study

Research Hypothesis

1. Separation of Madhya Pradesh has enhanced the growth opportunities of the State.
2. Liberalisation policies have induced more diversification of economic activities across sectors.
3. Higher growth trajectory has led to more regional balance.
4. Economic growth induces social development.
5. Economic growth has led to improvement in fiscal health of the State.

3.3 Research Methodology

This thesis is an attempt to explore the dynamics of development strategy of Madhya Pradesh particularly after liberalization. Though it is often argued that piece-meal economic reforms made an entry into the Indian economic scene in late 1980s, but it was only in 1991 that the reformatory measures were adopted full-fledged. Moreover, as the state of Madhya Pradesh was bifurcated into Chhattisgarh in 2000, therefore we will restrict our analysis primarily to the

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post-bifurcation period of 2000 to 2011-12. We have tried to gauge the performance of the State on different economic and social indicators of development and have compared it with the All-India figures. The undertone of an inter-district analysis carries a more meaningful analysis because of its comparatively homogeneous structure. Moreover, with decentralised form of governance and planning, the administrative regions would present a better picture of the case under study.

3.4 Data Source and Variables

The study is entirely based on secondary data collected from various sources viz.:

i. Central Statistical Organization
www.mospi.gov.in

ii. Agriculture Statistics at a Glance. Department of Agriculture and Cooperation. Ministry of Agriculture
www.dacnet.nic

iii. Reserve Bank of India (Database on Indian Economy) www.rbi

iv. National Sample Survey Organization

v. Madhya Pradesh Economic Surveys

vi. www.mpkrishi.org


viii. www.indiastat.com

Variables used in the Study:

➢ Economic Indicators: To study the variables for economic indicators, we have used the following variables:

i. State Domestic Product: Gross State Domestic Product of Madhya Pradesh at Factor Cost was taken from 1993-94 to 2010-11 available at 1993-94, 1999-00 and 2004-05 base year prices to analyse the pattern of
growth in the study period. District Domestic Product available for the period 2004-05 to 2011-12 has been used for the inter-district analysis.

ii. **Per Capita Income**: Per Capita Income considered as a more appropriate indicator for economic development was analysed to gauge the economic welfare and living standards. It would further help to fathom the dissonance of growth among regions.

iii. **Components of State Domestic Product**: For an in-depth study of the economy, the sectoral composition has been taken into account which comprises of Primary, Secondary and Tertiary Sector. We have purposefully segregated the Primary Sector into Agriculture & Allied Sector and Mining & Quarrying to identify the changes in Agriculture Sector and further Mining & Quarrying has been included in the Secondary Sector.

iv. **Fiscal Indicators**: To examine the fiscal health of the State, we have tried to analyse the pattern of Fiscal Deficit, Revenue Deficit and Primary Deficit. Further tax-GDP ratio and debt-GDP ratio was also analysed.

v. **Social Indicators**: Here, we give a broad set of social indicators that covers health, education and demography.

  i. **Education**: Literacy rate
  
  ii. **Health**: Infant Mortality Rate, Full Immunization and Maternal Mortality Rate
  
  iii. **Demography**: Sex Ratio and Population
  
  iv. **Poverty**: Poverty estimates for districts based on Combined sample as calculated by the State Planning Commission
  
  v. **Indicators of Living Standard**: Toilet facilities and Access to Banking facilities
3.5 Models used in the Study

a. **Simple linear Regression Model**: The simple linear regression model has been used to analyse the growth in Cropping Intensity over the years. Indicators of fiscal health like Ratio of Fiscal Deficit to Gross Domestic Product and Ratio of Capital Outlay to Gross Domestic Product have also been regressed on time with the help of dummy variable wherein dummy has been used to analyze the impact of bifurcation on State finances.

b. **Semi-logarithmic Model**: The semi-log model has been applied to area, production and yield of 20 crops of M.P. from 1991-92 to 2000-01 and 2001-02 to 2010-11 to analyse the growth trend of these values over a period of time. Log ten base has been used for dependent variable in the model. Further, a semi-log function was also fitted on variables like Net Area Sown and Net Irrigated Area for Madhya Pradesh.

\[ \log Y = \beta_0 + \beta_1 t + u_t \]

c. **Quadratic Model**: To understand the nature of the growth, we have applied Quadratic Model to the log values of area, production and yield of 20 crops of M.P. from 1991-92 to 2000-01 and 2001-02 to 2010-11 wherein time, t as well as square of time, t are taken as independent variables.

\[ \log Y = \beta_0 + \beta_1 t + \beta_2 t^2 + u_t \]

d. **Sectoral Diversification**: We have tried to assess the economic diversification of sectors in Madhya Pradesh with the help of the following formula.

\[ \beta_1 = k \frac{100^2 - \text{(Contribution}^2)}{100^2(k-1)} \]

d. **Average Growth Rate**: The average annual growth rate of Gross State Domestic Product and Per Capita Income of M.P. has been calculated with different base periods. We have presented a comparative table of Per
Capita Income of M.P. and All-India and thereafter with the help of concentration ratio; we have tried to gauge the relative position of the State economy in All-India.

e. **Income Concentration ratio:** The relative position of M.P. is further assessed by the income concentration ratio of M.P. for the period 1993-94 to 2012-13.

f. **Coefficient of variation:** The average statistics of the State do not tell about the inherent disparities among the districts which are shadowed by the average figures. Coefficient of variation, as a measure of dispersion attempts to bring this variability into light.

g. **Structural Ratios:** We have calculated structural ratio to assess the performance of the industrial sector in M.P.

   i. **Value Added to Output:** \[
   \text{Net Value Added} \quad \frac{\text{Output}}{}
   \]

   ii. **Capital Output Ratio:** \[
   \text{Fixed Capital} \quad \frac{\text{Output}}{}
   \]

**Limitations of the Study**

The dynamics we intend to study for Madhya Pradesh after liberalisation was bifurcated in 2000 therefore our major focus will be after 2000. Besides that, this period is also relevant from the viewpoint of making policy suggestions for the current state of Madhya Pradesh. Nonetheless, a serious attempt has been made to study the entire period starting from 1991 to 2010-11 to analyse how the economy has evolved over the years in terms of economic and social development. Though the macroeconomic nature of the study eludes the intricacies that exist at the micro-level, but it surely serves as a policy guide for planners. One of the major limitations of this entire study has been the paucity of data that has restricted our exploration of more stringent issues. Nevertheless, we have earnestly tried to analyse the labyrinth that exists between growth and development dynamics of Madhya Pradesh economy.