CHAPTER 3

RESEARCH METHODOLOGY

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3.1 Introduction

Methodology has been adopted as per the problems and objectives are concerned. As per the study demand secondary data has been used. Time period for selection of data has been selected with the concern of availability of data at total and disaggregated level because study demands data from macro to micro level. Data has been collected from different sources of database for different variables which have been used in study. The analysis has been covered period of 14 years from 2000 to 2014. Descriptive analysis has done to fulfil the objectives of study. There are two objectives of the study i.e. firstly, to find out the recent trend and pattern of service sector and its sub sectors. Secondly, to measure the labour productivity of service sector. Here labour productivity is taken as a proxy of employment productivity. Year to year wise analysis has done to make clear and efficient study of sector.

3.2 Techniques of Estimation

Different techniques are used to fulfil both objectives of study. To fulfil the first objective of the study, the methodology adopted to compute the trend and pattern is percentage and growth method. Further to fulfil second objective of measurement of labour productivity, Shift share analysis Proposed by Maddison (1952) has used. Both of techniques are described as follows:

3.2.1 Trend and Pattern of Service Sector and its Services

Growth and share of service sector in an economy has been seen in this section. To understand the growing nature of service sector it is essential to find out the trend. It represents the true picture of structural change of an economy since 2000. Growth and share has been taken as indicators of finding out the trend and pattern. For measuring growth, percentage growth method has been used. The percentage growth rate from one period to another is calculated from the formula:

$$GR = \left[\frac{Y_t - Y_{t-1}}{Y_{t-1}}\right] \times 100$$

Here GR is Percentage growth rate. Y_t and Y_{t-1} represent the value of present year and past year.

Growth rate of service sector indicates its growing pattern and which has helped to know about its importance in growth of an economy. Trend and pattern has been finding out by seeing off the growth rate and share of service sector at aggregate level in total GDP and for different services of service sector at disaggregate level.

3.2.2 Labour Productivity of Service Sectors

The effect of structural change has played a vital role in explaining the growth performance of an economy. When the movement of resources is towards the high productivity level from relatively low productivity level, then the effect of structural change would be positive. Differences in productivity levels between the sectors and the change in share of employment from low productivity to high productivity sector are needed for above analysis. In analysis labour productivity is taken as employment productivity. Overall growth can be described through the growth rate of sectors. To measure the effects of shifts and difference in sector shares on aggregate growth rates, consider the following decomposition of the proposed by Maddison (1952):

$$\Delta y/y = \sum_{j=1}^{k} \frac{Yj}{Y}\left[\frac{\Delta yj}{yj}\right] + \sum_{j=1}^{k}\left[\frac{yj}{y}\right]\Delta sj + \sum_{j=1}^{k}\left[\frac{yj}{y}\right]\left(\frac{\Delta yj}{yj}\right)(\Delta sj)$$

Where, Δ represents change, y is aggregate labour productivity of service sector (or GVA of service sector per worker), y_j is labour productivity of sector j, Y is initial GVA, Y_j is initial output of sector j, and S_j is employment share of sector j.

$$\sum_{j=1}^{k} \frac{Yj}{Y}\left[\frac{\Delta yj}{yj}\right] = \text{Total growth Effect}$$

$$\sum_{j=1}^{k}\left[\frac{yj}{y}\right]\Delta sj = \text{Total Shift Effect}$$

$$\sum_{j=1}^{k}\left[\frac{yj}{y}\right]\left(\frac{\Delta yj}{yj}\right)(\Delta sj) = \text{Total Interaction Effect.}$$

This is often knows as a 'Shift-Share Decomposition' of an aggregate growth rate. The first term in right hand side of equation represents the 'Growth Effect' it is that part of overall productivity change which is caused by productivity growth within the

sectors. The second term is called 'Shift Effect' and measures the effect of the change in sectoral employment share on overall growth. The last term is expressed as an 'Interaction Effect' and it depicts the joint effect of changes in employment shares and sectoral productivity. The effect of last is usually small as in most cases sectors which have a rapid productivity growth and decline in employment shares.

Some authors (including Maddison, 1996) infer the net shift effect and the interaction effect together as representing the structural effect. Though, it is useful to distinguish between these two effects, because former only represents the pure effect of shifts from low productivity to high productivity sectors, even though the interaction effect includes a 'Structural Effect' component as well.

3.3 Data Source of the Study

As per study requirement secondary data has been collected from different sources. Sources of study are as follow:

- Central Statistical Office (CSO)
- Ministry of Statistics and Programme Implementation (MOSPI)
- Economic Survey of 2015-16
- Director General of employment and training, Ministry of labour and employment
- National Sample Survey Organisation (NSSO)

Because of lack of availability of all data of employment as per study requirement (year to year wise), it has calculated through regression analysis with the help using SPSS software which shows quadratic form of data.

3.4 Variables Used in Study

To fulfil the objectives of study, the various variables have used at aggregate and disaggregate levels which are as follows:

- Gross Value Added (GVA) at base prices (2011-12)
- Sectoral GVA at base prices (2011-12)
- GVA of different services at base prices (2011-12)
- Growth rate of GVA

- Employment.
- Labour productivity
- Employment Share.

Gross Value Added: Difference between output and intermediate consumption is measured through Gross Value Added (GVA). It is a productive metric. It measures through deduction of the cost of all inputs and raw material that are directly attributable to that production from the value of amount of goods and services that have been produced.

Now the question is why GVA has considered in study to measure growth. Various reasons are cause to deal with GVA which are as follows:

GVA and GDP both are true indicators to represent the picture of economic activity from producer and consumer point of view. Net direct tax (NIT) is the reason of divergence between GDP and GVA. Net direct tax = Indirect tax − Subsidies. Net direct tax involves in GDP. GDP is summation of GVA and NIT. A strong increase in growth rate of 7.5 per cent year over year has noticed in terms of GDP during the first quarter of 2015while on the other hand GVA growth has increased with 6.1 per cent year over year.

But GVA carries greater significance for various reasons.

- GVA delivers better measure of economic activity; GDP represents the high growth rate because of consideration of sharp increase in tax collection due to better compliance not because of the increase in output.
- GVA replicates the productivity of producers as it ignores the indirect taxes which could misrepresent the production process. However, it can also be argued that GVA is distorted due to the presence of subsidies.
- GVA provides a sector wise breakdown which helps the policy makers to decide which sectors need inducements or vice versa.

However GDP still leftovers key measures to make cross country analysis and comparing the incomes of different economies.

Labour Productivity: Its represents the true picture of employment and economic growth of country. It measures the amount of goods and services produced by one hour of labour. Amount of real GDP by an hour of labour has been measured by labour productivity.

Though in study, output per worker has taken to measure labour productivity.