# Chapter – 3

## Research Methodology

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Chapter – 3

Research Methodology

3.0 Introduction:

India has a three tier set up for taxation. It includes the union government, the state government and the urban/rural local bodies. As per the provisions made in the constitution of India, the power of collection of taxes is apportioned between the union government and the state government. The state government may delegate the further powers to the local authorities also. Various kinds of taxes are collected in India by the central and the state governments. The power to collect the tax on agriculture is vested with the state government. Indian tax system is most complicated tax system of the world. The tax system includes the collection of both the direct taxes and indirect taxes. Direct taxes are the taxes in which the impact and incidence are at the same point and these taxes create direct burden on the common man. These taxes cannot be shifted. These taxes include income tax, corporate tax, wealth tax, gift tax, etc. On the other hand, an indirect tax is one in which the impact and incidence are at the different points and such taxes can be shifted forward or backward. The burden of such tax indirectly falls on the consumers/customers. Important types of indirect taxes are sales tax, VAT, excise duty, custom duty, etc.

The researcher has selected Taxation as a topic for the research. The researcher wants to analyze the changes in the tax system during the period of 1991 to 2017. The research can be completed only if it is done according to a proper methodology.

Research is an art of collecting the knowledge on a particular subject. It is also referred to as a process of contributing to the existing body of knowledge. It is advancement of the knowledge of the particular subject.

For the solution of any problem, a systematically designed method is required. This method of study is known as Research Methodology. The research methodology is rational and careful way of analysis of data through honest and hard work for critical evaluation. For the present research work the researcher has used following research methodology.
3.1 Title of the Present Research:

In order to design the proper path of the research work, it is required to give the title to the research work. On the basis of the title, the research work can be streamlined. The title for the present research work is as follows:

“AN ECONOMIC ANALYSIS OF CHANGES IN INDIAN TAX STRUCTURE AFTER ECONOMIC REFORMS”

3.2 Period of the Study:

As it is clear from the above given title, this research work is focused on the economic analysis of the changes that have taken place in the Indian tax structure after economic reforms in India. The economic reforms took place in India in 1991. After the economic reforms till now, the Indian tax structure has undergone several changes in both direct tax system and indirect tax system. The researcher wants to analyse the changes that have taken place in Indian tax structure after 1991. So, the time period for the present research is from 1991 to 2017 i.e. 27 years, both years inclusive. The researcher will apply various tools for the analysis of various changes that have taken place in Indian tax structure.

3.3 Scope of the Present Study:

This research work is focused on the economic analysis of the changes that have taken place in the Indian tax structure after economic reforms in India. So the scope of this study is the whole tax structure of India. The study will focus on both direct tax and indirect tax in India. Besides that, this research work will be focused on the tax structure of both the central and state government. The study will cover the changes in tax structure during 27 years i.e. the time period from 1991 to 2017, both years inclusive.

3.4 Type of the Study:

The present research is empirical in nature. It provides basis for external validation. The empirical study is based on observation or experience alone; it is also known as data based research. It is capable of being verified by observation or experiment. The researcher has made an attempt to answer the questions raised in quantitative investigation. So, the present research may be defined as quantitative and analytical
research. It is a functional study by nature and it focuses on the different aspects of tax structure in India. This study focuses on various changes that have taken place in Indian tax structure after 1991 to 2017. So, this research work is analytical in nature.

3.5 Method of Data Collection:

In order to make the research of any particular event or branch, it is required to have sufficient data available. There are two types of data, i.e. primary data and secondary data.

Primary data is the data which is collected on the first hand. This data is collected through observation, interview, examination, review, or through questionnaire. This data is tabulated and utilized for the purpose of research and finding conclusions from it.

Secondary data is the second hand data. It is collected by some agencies, researchers or any governmental or non-governmental organizations or departments. This data is published in some articles, newspapers, magazines, research papers or some websites. The researcher can use this available data for the purpose of research from another viewpoint.

This research work is fully based on secondary data. The research will utilize the data about the tax structure and GDP available on *Budget documents of the Government of India and Finance Account (various issues)*. Besides that, the researcher will also use various websites for collecting information and data about the tax structure in India.

3.6 Objectives of the Study:

No work is started without any objective. The present research work has also some objectives. If the work is started without any objective, there is no chance that the work will be completed. The work which is done without any objective is hardly accomplished. Every study must have an objective without which no research can be conducted and no result can be obtained. Objectives act as guidelines which give direction to conduct the research process and to keep it in proper track. Thus, the present study also has some specific objectives. The objectives of the present research work can be stated as follows:
- To analyse the Indian tax structure after economic reforms in 1990-91 to 2016-17.
- To analyse the changes happened in total tax revenue after 1991.
- To analyse the changes happened in direct tax system after economic reforms during the period of study.
- To analyse the changes happened in indirect tax system after economic reforms during the period of study.
- To analyse the trends of personal income tax and corporate income tax in India during the period of study.
- To analyse the correlation between direct tax revenue and total tax revenue during the period of study.
- To analyse the correlation between indirect tax revenue and total tax revenue during the period of study.
- To analyse the impact of direct tax, indirect tax and total tax revenue on the GDP of India during the period of study.
- To analyse the impact of total tax revenue on gross fiscal deficit and net fiscal deficit of India during the period of study.
- To analyse the impact of changes in custom duty and excise duty on the indirect tax revenue of India during the period of study.

3.7 Hypotheses of the Study:

To justify the title of the present research study and broad objectives defined by the researcher, the researcher has made a few hypotheses. The hypotheses made by the researcher are mentioned in the table, as given below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Hypotheses</th>
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<tbody>
<tr>
<td>01</td>
<td><strong>Null Hypothesis (H₀):</strong> There is no significant impact of changes in direct tax revenue on the total tax revenue</td>
</tr>
<tr>
<td>02</td>
<td><strong>Null Hypothesis (H₀):</strong> There is no significant impact of changes in Indirect tax revenue on the total tax revenue</td>
</tr>
<tr>
<td>03</td>
<td><strong>Null Hypothesis (H₀):</strong> There is no significant impact of changes in personal income tax on direct tax revenue</td>
</tr>
<tr>
<td>No.</td>
<td>Hypotheses</td>
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<tr>
<td>04</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in Corporate income tax on direct tax revenue</td>
</tr>
<tr>
<td>05</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in direct tax revenue on the GDP</td>
</tr>
<tr>
<td>06</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in Indirect tax revenue on the GDP</td>
</tr>
<tr>
<td>07</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in the total tax revenue on the GDP</td>
</tr>
<tr>
<td>08</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in the total tax revenue on the Gross Fiscal Deficit</td>
</tr>
<tr>
<td>09</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in the total tax revenue on the Net Fiscal Deficit</td>
</tr>
<tr>
<td>10</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in custom duty on Indirect tax revenue</td>
</tr>
<tr>
<td>11</td>
<td>Null Hypothesis ($H_0$): There is no significant impact of changes in excise duty on indirect tax revenue</td>
</tr>
</tbody>
</table>

### 3.8 Tools and Techniques of Analysis:

The title of the present research work is “An Economic Analysis of Changes in Indian Tax Structure after Economic Reforms”. It means that the researcher wants to perform economic analysis on data of the changes in Indian tax structure after economic reforms in India. There are several tools for economic analysis such as, Economic Variables, Slope, Optimization Techniques, Linear Programming, testing of hypotheses, etc\(^1\). Out of these tools and techniques, the researcher has used Economic Variables, Slope, Trend Analysis, Testing of Hypothesis, Correlation Analysis, and Tabulation and Graphical presentation. The detailed discussion of all these techniques is given as under:

Economic Variables:

The main objective of an economic analysis is to identify the nature of economic variables and to determine the level of relationship between variables. An economic variable is any economic quantity whose value changes with the changes in its determinant or the changes in economic activity. For example, Direct Tax Revenue of the Central Government is an economic variable because it depends on the changes in the income of the tax payers. The economic variables are related and dependent on each other. Therefore, the change in value of one economic variable brings the change in the other economic variable.

Slope:

Slope is also one of the most useful tools for economic analysis. This is helpful to analyse the changes in one variable due to the change in another variable. Therefore, slope can be defined as the change in dependent variable due to the change in independent variable. This relationship between two variables can be represented through a graph. The slope can be calculated as follows:

\[
\text{Slope} = \frac{\text{Change in } Y}{\text{Change in } X}
\]

The shape of line defines the relationship between two variables. This is known as the slope of the line. If the line is positive and upward sloping and moving from the left to right, there is positive relation between two variables, for example, relationship between Direct Tax and Total Tax Revenue. If the direct tax revenue increases, it causes an increase in the total tax revenue. This means that both the variables move in the same direction.

If the line is negative and downward sloping and moving left side up to right side down, there is negative relation between two variables, for example, relationship between total tax revenue and deficit. If the total tax revenue of the government increases, the deficit decreases.

Trend Analysis:

A trend analysis is a type of technical analysis that predicts the future movement of an aspect based on the past data. Trend analysis gives an idea that what has happened in the past will be repeated in the future. Trend analysis tries to predict the trend for the
future time period. Trend analysis is useful for the decision making because moving with the trend and not against the trend is a sound decision. A trend is a general direction of the aspect that is taking place during a specified period. Trend analysis is the process of looking to the current trend in order to predict future ones. It is considered as the type of comparative analysis\(^2\). In this research work, the researcher has used trend analysis in order to find out the trend of changes that have happened in the direct tax, indirect tax and total tax revenue of the government.

**Testing of Hypothesis:**

The main use of statistical analysis in any research work is testing of hypothesis. A hypothesis is an educated guess about something in this world. It should be testable, either by experiment or by the observation. Hypothesis testing in the statistics is a way of testing the results of the survey or experiments. Hypothesis can be tested by using several tests such as T – Test, F – Test, Z – Test, Chi Square Test, ANOVA, etc\(^3\). In this research work, the researcher has used ANOVA to test the changes in the government deficit due to the changes in the tax structure of India after economic reforms.

**Correlation and Regression Analysis:**

In correlation analysis, the estimate of correlation of co-efficient of a sample is found out through Pearson Product method of correlation of coefficient. The sample correlation of coefficient is denoted as ‘r’. It ranges between -1 and +1. It quantifies the linear relationship between two variables. The correlation between two variables can be positive or negative. The sign of correlation indicates the direction of the association between two variables. The magnitude of correlation coefficient indicates the strength of association\(^4\).

Regression analysis is a widely used technique which is useful for evaluating the multiple independent variables.

In this research work, the research has used both the correlation and regression analysis. Correlation analysis between total tax revenue, direct tax revenue and

\(^2\) https://www.investopedia.com/terms/t/trendanalysis.asp#ixzz5AwYc2LCh
\(^3\) http://www.statisticshowto.com/probability-and-statistics/hypothesis-testing/
\(^4\) http://sphweb.bumc.bu.edu/otlt/mphmodules/bs/bs704_multivariable/bs704_multivariable5.html
indirect tax revenue is calculated in this research work. Regression analysis between total tax revenue and net deficit of the central government is calculated in this research work.

Tabular Analysis:

In the general sense, tabular analysis means any analysis that uses tables. Any form of quantitative analysis requires tables. In order to make analysis of any data, it must be presented in the systematic tables. With the help of tables, the data becomes comprehensive and systematic. With the help of tables, the analysis of such data can be easy. It is also useful for applying various statistical or accounting techniques for the analysis of any data when it is properly tabulated. In this research work, the researcher has used the tabular analysis for the direct tax, indirect tax, total tax revenue and the government deficit.

Graphical Analysis:

Graphical analysis is the method of analysis which performs graphing by using the data inputs from the tables. Graphical analysis is used to calculate the statistics, integrals, tangents and interpolations. Graphical analysis can be done by creating graphs, histograms, data tables, etc. It is possible to compare two parameters through graphs. Comparison of various parameters can also be understood by graphical analysis. In this research work, the researcher has used line series graphs and histograms to identify the changes that have happened in the tax system of India.

3.9 Chapter Plan:

To carry out the research work systematically, this research work is divided into the following five chapters.

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<th>Chapter No.</th>
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5 https://www.chegg.com/homework-help/definitions/graphical-analysis-4
3.10 Significance of the Study:

For the economic development of any economy, the effective tax structure is required. Without appropriate tax structure, the economic development cannot be possible. This research work is significant for the government to identify the changes to be made to make the tax structure more effective.

This research work is useful for the policy makers, because it gives the idea about the changes that have happened in the India tax structure during the 27 years after economic reforms. On the basis of that, the lacking can be identified and proper solution can be applied.

This research work is significant for the central government and state government in order to identify the reforms required to be made in the Indian tax structure.

This research work is useful to the board of direct taxes and indirect taxes for making appropriate reforms in the tax system.

This research work is useful to the law makers in the field of taxation, because this study gives the information about the changes that have taken place in the Indian tax structure after economic reforms.

The researchers in the field of taxation will also get the help from this research work, because this research work has included the changes in both direct and indirect tax structure.

The teachers of the taxation subject will also get the help from this research work, because it discusses the tax reforms in India in an extensive manner.

3.11 Limitations of Present Research:

However significant this research work is, it has some limitations. No research work can be inclusive and perfect. There is always the scope of some limitations in the research work. In this research work also, the researcher is aware of the limitations of this research work. The limitations of this research work are as under:
- This research work considers the changes took place in the India tax structure after economic reforms. It does not consider the time period before economic reforms.
- This research work is based on the changes took place in Indian tax structure from 1991 to 2017. It means that it focuses on the time period of 27 years. Research on the data of such a long period may become tedious.
- The research is completely based on the secondary data. So, if the available data has some faults, the conclusion drawn from that data can also be faulty.
- The tools and techniques applied for the economic analysis of the changes in the tax structure may have some limitations of their own. All those limitations are applied to this research work.
- The views of experts may be different. So, it may create the differences in the interpretation of this research work.
- This research work may not be applicable for the future policy making, because the situation of the past may not remain same in the future.
- This research work uses the trend analysis as one of the tools for research. There are chances that the trend may not be repeated in future.