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Continuing Education  
Tirunelveli – 627012, Tamil Nadu.**

**M.A.ECONOMICS  
(First Year)**

**Regional Economics  
(SECE12)**

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## **SEMESTER - I REGIONAL ECONOMICS**

1. To equip the analytical skills required to analyse the regional economic issues.
2. To understand Regional economic growth in India.

### **UNIT I: INTRODUCTION TO REGIONAL ECONOMICS**

Nature and scope of regional economics – Regional economics and regional science – Regional and Urban Economics: Need for a separate study of regional economics – Concept and types of regions: Administrative, Planning, Agro-climatic, Economic and Functional regions.

### **UNIT II: APPROACHES TO REGIONAL GROWTH**

Approaches to regional growth: Models of regional, inter-regional and multi-regional models; Export base models – Location Theory - Gravity models – Shift-share analysis

### **UNIT III: THEORIES OF REGIONAL ECONOMIC GROWTH**

Neoclassical models – Dualistic models: Social dualism – Labour surplus model of Arthur Lewis- Migration and development: Harris-Todaro – Core-Periphery models: Myrdal's Cumulative Casuation Hypothesis – Regional Input-output models - New Economic Geography models: Paul Krugman's model of industrial location and development

### **UNIT IV: REGIONAL ECONOMIC GROWTH IN INDIA**

Administrative regions in India: State, District, Taluk and Village; Urban and Rural regions - Concept, definition and measure of State Income (GSDP) – Rural and urban GDP – Differences in estimation of national income (GDP) and State Income (GSDP) - Measurement of interregional economic growth at State level

### **UNIT V: REGIONAL ASPECTS OF STABILIZATION AND GROWTH POLICY**

Post-war Regional Cyclical Behaviour and Policy Measures for Stabilization, Theories to Explain Regional Differences in Growth, Fiscal Programmes, Tax and Transfer Programmes, Fiscal Responses of Power Level Governments, Regional Orientation to Policy Programmes and Central Responsibility.

#### **Text books**

1. Capello Roberta. (2016). Regional Economics. Routledge (New York).
2. Temple, M. (1994). Regional economics. St. Martin's Press.

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1. Harry W Richardson (1973): Regional Growth Theory, Macmillan.
2. Harry W. Richardson. (1970). Elements of Regional Economics. Penguin Books (New York).

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## UNIT - I

### INTRODUCTION TO REGIONAL ECONOMICS

#### 1.1. Introduction

When we analyze economic issues by treating explicitly the spatial dimensions of those issues, we basically deal with 'regional economics.' In terms of semantics and detailed features, 'regional economics' may not be the same as 'regional science' or 'spatial economics.' Yet, they all basically share a common interest: how space affects — and is affected by — the economic behavior of agents (consumers, producers, government, and others). In general, regional economics focuses on the concepts, economic theories, and policy applications related to regional and spatial problems. Like in standard economics, in regional economics any spatial phenomena can lead to an outcome that reflects private optimum as well as non-private or social optimum. When the two do not coincide, and in most cases they don't, the system creates 'externalities.' For example, due to agglomeration economies, a spatial pattern emerges where activities tend to cluster in certain areas or regions, creating interregional inequality and urban centers. If left unattended, that pattern can create a series of 'externalities' such as congestion, pollution, social tensions, instability, and spatial inefficiency. This is where policy intervention is justified.

Decades after theories of regional growth and development had been advanced, the gap between what the theories and the models predict and the actual performance remained large. In some cases, it got even larger. It soon became clear that the institutional factor could play a major role in explaining the gap. It was Douglass North who emphasized the role of institutions in economic growth and development. His work on this subject was eventually acknowledged by the international community in 1993 when he was awarded the Nobel Memorial Prize in Economic Sciences (jointly with Robert William Fogel). The main argument made by North and other institutional economists is that the results of growth theory, especially the neo-classical type that relies on efficient markets, can only be achieved when transactions are costless during the process. When it is costly to transact, institutions matter. Indeed, the interplay of institutional factors is imperative for understanding the

sources and mechanisms of growth and development at both the national and regional levels. The discussions begin with the concept of decentralization, followed by the argument that regional development is not only about the outcome of a process but also the process itself, and it concerns economic and non-economic factors. These factors are interrelated through complex chains of events that can reinforce themselves through a feedback loop. In particular, when actors/players are multiple, and local capture is present, the coordination among them can produce different equilibrium outcomes under different scenarios of interactions.

The mechanisms showing how the interactions among institutional factors can influence the welfare outcome at the regional level are subsequently discussed by using the Institutional Model of Decentralization (IMD). An application of IMD is shown using the case of a country that has gone through a major shift in development strategy, namely from a highly centralized to a decentralized system of regional development with open local elections. Other institutional factors, including education and incentives to acquire knowledge, also determine the regional growth and development outcomes. They can be affected by monetary rewards and punishments which, in turn, are influenced by a society's tolerance of creative developments.

## **1.2. Nature and scope of Regional Economics**

Economic systems are dynamic entities, and the nature and consequences of changes that take place in these systems are of considerable importance. Such change affects the well-being of individuals and ultimately the social and political fabric of community and nation. As social beings, we cannot help but react to the changes we observe. For some people that reaction is quite passive; the economy changes, and they find that their immediate environment is somehow different, forcing adjustment to the new reality. For others, changes in the economic system represent a challenge; they seek to understand the nature of factors that have led to change and may, in light of that knowledge, adjust their own patterns of behavior or attempt to bring about change in the economic, political, and social systems

in which they live and work. In this context, regional economics represents a framework within which the spatial character of economic systems may be understood. We seek to identify the factors governing the distribution of economic activity over space and to recognize that as this distribution changes, there will be important consequences for individuals and for communities. Thus, regional or “spatial” economics might be summed up in the question “What is where, and why—and so what?” The first what refers to every type of economic activity: not only production establishments in the narrow sense of factories, farms, and mines, but also other kinds of businesses, households, and private and public institutions. Where refers to location in relation to other economic activity; it involves questions of proximity, concentration, dispersion, and similarity or disparity of spatial patterns, and it can be discussed either in broad terms, such as among regions, or micro geographically, in terms of zones, neighbourhoods, and sites. The why and the so what refer to interpretations within the somewhat elastic limits of the economist’s competence and daring. Regional economics is a relatively young branch of economics. Its late start exemplifies the regrettable tendency of formal professional disciplines to lose contact with one another and to neglect some important problem areas that require a mixture of approaches. Until fairly recently, traditional economists ignored the where question altogether, finding plenty of problems to occupy them without giving any spatial dimension to their analysis. Traditional geographers, though directly concerned with what is where, lacked any real technique of explanation in terms of human behavior and institutions to supply the why, and resorted to mere description and mapping. Traditional city planners, similarly limited, remained preoccupied with the physical and aesthetic aspects of idealized urban layouts. This unfortunate situation has been corrected to a remarkable extent within the last few decades. Individuals who call themselves by various professional labels—economists, geographers, ecologists, city and regional planners, regional scientists, and urbanists—have joined to develop analytical tools and skills, and to apply them to some of the most pressing problems of the time.

### **1.3. REGIONAL ECONOMICS AND REGIONAL SCIENCE**

The history of regional economics is relatively short. The history of regional science is even more abbreviated. As an organized discipline, it is a little more than a quarter of a century old. Isard's hope, when he and a small number of supporters established the Regional Science Association, was to launch a new discipline, not just set up another interdisciplinary or multidisciplinary organization. The precursors of regional science were economists such as Hoover, Dean, and Garnsey, who wrote about regional issues before Isard had broached the idea of regional science as an amalgam of earlier disciplines. What I propose to discuss is the transition from conventional economics, including the small branch which dealt with regional matters, to regional science.

There would have been no point in establishing a new discipline called regional science if it were not to be differentiated in some way from economics. Papers presented to early annual meetings—the first published in 1955—were characterized by diversity of topics and disciplines represented. Among the contributors were geographers, demographers, planners, political scientists, an occasional historian, resource economists, and of course regional economists. This is true of recent issues of the Papers as well, but a cursory review suggests that there have been a preponderance of articles by economists. Most of the papers deal with spatial issues, but some might have been more appropriately published in a conventional economics journal than in a regional science publication. Conventional economics, excluding urban and regional economics, deals with space less phenomena. Regional science focuses on spatial systems.

Another difference between regional science and economics can be illustrated by a medical analogy. Regional scientists are interested in the anatomy (or structure) as well as the physiology (or functioning) of spatial systems. Conventional economists are interested in the way an economic system operates, rather than the way it is put together." The emphasis on structure helps explain the interest among regional scientists in linear systems, especially input-output and linear programming models.' Since regional scientists are interested in both the structure of spatial systems, and

the ways they function, one might be tempted to conclude that regional science has a broader focus than conventional economics. The reverse, however, is probably true. Regional scientists have little interest in monetary analysis, for example, since regions do not have independent monetary systems or policies. And monetary analysis continues to be the central concern of many conventional economists. In spite of the differences noted above, however, it is easy to exaggerate the differences between contemporary regional economics and regional science. Most of the textbooks in the field are still labelled "regional economics." In fact, there is only one well-known English-language regional science text, Izard's Introduction to Regional Science. And his book deals primarily with economic concepts, issues, and models. It does not follow the holistic approach which he and others propounded during the early days of the Regional Science Association.

The nation's regional problems are not purely economic. They are multi-dimensional. I can think of no issue that is more consistent with the original concept of regional science than that of regional change in the United States. To view regional change entirely as an economic problem is to ignore important social, psychological, and political issues. To believe, with devout Neoclassical Moonies, that the market will take care of all of these problems, is to wish them away. It would also, in my view, negate the foundations of regional science. If regional science is not going to evolve beyond the narrow confines of conventional economics, why bother with a different name? I have a hunch—although it is nothing more—that after a period of seeking a new identity, regional science has been regressing toward regional economics. If it is to fulfill the promise of its founders and early practitioners, however, regional scientists will have to break out of the constraints and methodological limits imposed by a predominantly economic focus, particularly if that focus is further narrowed by reliance on the space less assumptions of Neoclassical theory.

#### **1.4. Features of Regionalism:**

1. Regionalism is a psychic phenomenon.

2. It is built around as an expression of group identity, as well as loyalty to the region.
3. It presupposes the concept of development of one's own region without taking into consideration the interest of other region.
4. It prohibits people from other regions to be benefitted by a particular region.

### **1.5. Definition of Region**

A region is a homogenous and sustainable spatial unit having distinguished characteristics differentiating it from the other spatial unit. In addition, a planning region is a portion of territory over which economic decisions, made by government, can be applied for economic growth and development. Let's disaggregate this definition. There are four important keywords in this definition as discussed below.

#### **1. Homogenous Parameters**

Homogenous means similar or comparable. So, the region must have a binding parameter which makes it a single unit and also differentiates it from other regions. For example, if temperature and humidity are parameters then an area having high average annual temperature with low humidity can be described as a Desert Region. Similarly, language is also a parameter and we can describe an area with same language, say Tamil, as Tamil region. A student should note that one can delineate a region based on single or multiple factors depending on the purpose of regional delineation.

#### **2. Distinguished Characteristics**

The selected parameter or characteristics of the region should be distinguishing. A scholar should not choose a parameter for regionalization purposes which is common at very large scale and does not differentiate one region from another. For example, if we use Hindu religion as a parameter for defining region, whole India will become one region and it does not serve the purpose of planning. The distinguishing characteristics for regionalization in India can be Agro-Ecological Characteristics i.e. regionalization of India based on type of cultivation, irrigation availability, rainfall and soil type. In short, distinguishing characteristic may be of cultural, natural and artificial nature.

### **3. Spatial Unit**

Spatial unit is different from area and location. Location has no dimensions. For instance, location of iron and steel industries in relation to coal and iron ore is a singular concept. Location is a singular point. Area is a two dimensional feature, a person can move forward, backward, sideways and diagonally over an area. Space is a three dimensional feature. A person can move forward, backward, sideways, diagonally and vertically in a spatial unit. There are infinite locations and areas within a spatial unit. The size of spatial unit is based on the purpose of planning. For instance, the management of mineral resources need smaller size of spatial units whereas the climatic regions are of large size.

### **4. Sustainable Unit**

The region must be sustainable spatial unit. It means that region should not be so small that it has to depend on other regions for most of their needs. It should have certain resource base which can, sustainably, support the nutritional, cultural and economic needs of its population.

#### **1.6. Types of Regions**

Although, there might be various types of regions such a natural, climatic, botanic, cultural, demographic, economic etc. but regional planners divide them into three broad categories.

##### **1. Formal Regions**

- a) They are also known as Uniform Regions.
- b) Formal region is separating in nature and signify independence as a region.
- c) Formal region is a segment of territory having a definite boundary.
- d) There are two types of boundaries i.e. natural and artificial.
- e) Certain natural features such as rivers, mountain range, climate, vegetation etc. constitute the natural boundaries of geographic regions.
- f) Similarly, the artificial boundaries are purely based on administrative considerations such as district boundary, state boundary, international border etc.

##### **2. Functional Regions**

- a) They are also called Nodal Regions.

- b) Functional regions are of integrative nature and signify inter-dependence of different units of region. For example, dependence of city on hinterland for milk and vegetables and dependence of hinterland on city for education, hospitals, market etc.
- c) Their boundaries are often formed by railways and bus routes.
- d) Hierarchy of Nodal Points: Functional regions have various nodal points arranged in hierarchy i.e. metro city, smaller cities around metro, towns around smaller city etc. In short, there is organization of functions between different nodal points within a functional region.
- e) Flow of Goods and Services: There is flow of people, goods and services between various nodal points. The flow may be diurnal (daily), monthly, seasonally or annually.
- f) The boundaries of functional regions are changing with the development of modes of transport and communication because they change the range of interaction between different cities (nodes).
- g) A planning region is a functional or nodal region e.g. NCR region of Delhi.

### **3. Naive or Vernacular Regions**

Vernacular regions are informal regions which are not recognized by either government or planners but they are recognized by people. These are territories which form a single large region in the perception of people. There is no scientific method for delineation of such regions. For instance, the people of Punjab perceive Uttar Pradesh, Bihar and Jharkhand as one single region because most of migrant laborers come from these states. Contrarily, there are significant cultural, linguistic, behavioural differences between the people of these two states. Their perception is not true.

### **4. Planning region**

Planning region is a segment of territory over which economic decisions apply. The term planning here means taking decisions to implement them in order to attain economic development. Planning regions may be administrative or political regions such as state, district or the block because such regions are better in management and collecting statistical data. Hence, the entire country is a planning region for national plans, state is the planning

region for state plans and districts or blocks are the planning regions for micro regional plans. For proper implementation and realization of plan objectives, a planning region should have fairly homogeneous economic, zoographical and socio-cultural structure. It should be large enough to contain a range of resources provide it economic viability. It should also internally cohesive and geographically a contiguous area unit. Its resource endowment should be that a satisfactory level of product combination consumption and exchange is feasible. It should have some nodal points to regulate the flows.

### **5. Agro-Climatic Regions of India**

Agro-Climatic Regions in 1988 the Planning Commission came up with a growth strategy based on a holistic approach of area planning for long-term resource efficiency and sustainability. The motivation behind this was that resource based planning became feasible once homogeneous regions with respect to natural resource endowments (agro-climatic factors) were delineated and their utilization of available natural resource endowments was related to requirements of output and employment. During the late nineteen eighties, a consensus seemed to have been achieved on the primacy of topography for a regional division of India. Based on this notion the Planning Commission delineated 15 agro-climatic zones; there still existed wide variation in geographical area, population density, soil types and crops grown. To increase the degree of homogeneity in agro climatic factors, these 15 zones were further sub-divided into 73 subzones based on more specific soil types, topography, and climate and cropping pattern characteristics.

A planning team was set up for each zone and each zone was sub-regionalised on the basis of factors intrinsically related with the character of the agricultural economy. These included soil type, climate (temperature, and rainfall and its variation), relevant meteorological characteristics, water demand and supply, including quality of water and aquifer conditions. It was also decided that, at this stage, it was better to concentrate on agro climatic characteristics, and to not bring in other social and administrative criteria for regionalisation (Government of India, 1988). Though other features like land holding, workforce, population, employment, living standards were considered for the process of building up of systematic computer compatible

data sets, the major emphasis was on agricultural development levels and trends. These regionalisation methods over-emphasize the importance of physiographic divisions and administrative boundaries. Water balance analysis, soil water retention capacity for crop potential, and land capability mapping/carrying capacity estimation were not incorporated in this regionalisation. This identification of agro-climatic zones for the purpose of developing location specific research and development strategies for increasing agricultural production has been given the due impetus recently. In order to plan agricultural activities more accurately each region into sub regions based on soil, climate (temperature), rainfall and other agro meteorological characteristics. Planning Commission has demarcated the geographical area of India into 15 agro-climatic regions. These are further divided into more homogeneous 72 sub-zones. The main objectives of agro-climatic regions are: (i) to optimise agricultural production; (ii) to increase farm income; (iii) to generate more rural employment; (iv) to make a judicious use of the available irrigation water; (v) to reduce the regional inequalities in the development of agriculture.

**Check Your Progress:**

<b>Q.No</b>	<b>Short Answer Question</b>	<b>LOCF Mapping</b>		
1.	Define Regional Economics and explain its nature and scope	K2	CO1	PO1
2.	Distinguish between Regional Economics and Regional Science.	K4	CO2	PO2
3.	Explain the need for a separate study of Regional Economics	K3	CO4	PO2
4.	Define a region and classify different types of regions.	K2	CO3	PO1
5.	Differentiate between Regional and Urban Economics.	K4	CO2	PO3
<b>Long Answer Question</b>		<b>LOCF Mapping</b>		
1.	Discuss the nature and scope of Regional Economics and examine its growing importance in economic planning.	K4	CO1	PO4
2.	Explain the evolution of Regional Economics and its relationship with Regional Science and Urban Economics.	K4	CO2	PO3
3.	Critically examine the need for a separate study of Regional Economics in the context of regional imbalances.	K5	CO4	PO2
4.	Classify regions into administrative, planning, agro-climatic, economic and functional regions and explain their characteristics.	K4	CO3	PO3
5.	Assess the role of regional classification in development planning and policy formulation.	K5	CO4	PO4

## UNIT - II

### APPROACHES TO REGIONAL GROWTH

#### 2.1. Introduction

The approach to regional growth can be either total or selective. In the total regional planning approach an attempt is made to develop all regions of an economy, while in the selective approach the attention is concentrated on the development of some regions only. Under these circumstances, it is better to define the total regional planning approach as the one which aims at equal development rates for all regions of the economy by providing equal investment in all of them. The selective regional planning approach will then be one that aims to unequal development rates for the different regions of the economy by providing unequal investment in them.

#### 2.2. MODELS OF REGIONAL, INTER REGIONAL AND MULTI REGIONAL

##### Gravity Model:

The Gravity Model The gravity model is much like Newton's theory of gravity. The gravity model assumes that the trips produced at an origin and attracted to a destination are directly proportional to the total trip productions at the origin and the total attractions at the destination. The calibrating term or "friction factor" (F) represents the reluctance or impedance of persons to make trips of various duration or distances. The general friction factor indicates that as travel times increase, travellers are increasingly less likely to make trips of such lengths. Calibration of the gravity model involves adjusting the friction factor. The socioeconomic adjustment factor is an adjustment factor for individual trip interchanges. An important consideration in developing the gravity model is "balancing" productions and attractions. Balancing means that the total productions and attractions for a study area are equal. Calibration is accomplished by adjusting the various factors within the gravity model until the model can duplicate a known base year's trip distribution. For example, if you knew the trip distribution for the current year, you would adjust the gravity model so that it resulted in the same trip distribution as was measured for the current year.

The gravity model is the most common example of spatial interaction modelling. The gravity model uses two variables to predict or

estimate the volume of spatial interaction between or among places, be they cities, counties, or regions. These are (1) population totals of the places and (2) the distance separating these places or the time or cost of overcoming distance. The expectation is that there will be a positive association between flow volume and population size; that is, when two places have large populations we expect the volume of migrants or commuters to be large, but when places are separated by a great distance we expect that the effect of distance, as mediated by distance, cost, or travel time, will reduce the level of interaction. Thus, whereas population size leads to a positive relationship, distance leads to an inverse correlation (the volume of spatial interaction decreases as distance separation increases). The gravity model is written as follows:

### **Discrete Choice Models**

The spatial interaction model has been criticized for its reliance on aggregate, zonal interaction flows. This criticism has led to the development of disaggregate discrete choice models that are based on individual choice behavior. Discrete choice models may be derived from at least two formal theories: Luce's strict utility theory and Thurstone's random utility theory. In particular, Luce assumed that the probability of choosing a choice alternative is equal to the ratio of the utility associated with that alternative to the sum of the utilities for all the alternatives in the choice set. Luce thus assumed deterministic preference structures and postulated a constant-ratio decision rule.

In contrast, random utility theory is based on stochastic preferences in that an individual is assumed to draw a utility function at random on each choice occasion. An individual's utility for a choice alternative is assumed to consist of a deterministic component and a random utility component. Given the principle of utility maximizing behavior, the probability of choosing a choice alternative is then equal to the probability that its utility exceeds that of all other choice alternatives in the choice set. The specification of the model depends on the assumptions regarding the distributions of the random utility components. The best-known model is the multinomial logit (MNL) model. It can be derived by assuming that the random utility components are

independently, identically Type I extreme value distributed. It can be expressed as:

One of the most important criticisms that have been expressed against the multinomial logit model concerned the fact that the utility of a choice alternative is independent of the existence and the attributes of other alternatives in the choice set (the Independence from Irrelevant Alternatives or IIA property). It predicts that the introduction of a new, similar choice alternative will reduce market shares in direct proportion to the utility of the existing alternatives, which is counterintuitive in the case of a high degree of similarity between particular alternatives.

Therefore, various alternative models have been developed to relax the IIA assumption (Timmermans and Golledge 1990). Similar work in this regard has been conducted by Williams (1977). The best-known model that circumvents the IIA-property is the nested logit model. Choice alternatives that are assumed to be correlated are grouped into the same nest. Each nest is represented by an aggregate alternative with a composite utility, consisting of the so-called inclusive value, and a parameter to be estimated. To be consistent with utility-maximizing behavior, the inclusive values should lie in the range between 0 and 1, and the values of the parameters should change consistently from lower levels to higher levels of the hierarchy.

### **2.3. Shift-Share Analysis**

Shift-share is a widely-used technique for the analysis of regional economies. The shift-share problem involves partitioning, say, employment change, into that due to national trends, industrial sector trends and local conditions. A survey of the literature indicates that shift-share analysis continues to be popular among planners, geographers and regional scientists. In order to make sense of what is to follow, it is first necessary to briefly review traditional accounting-based shift-share. The National Growth Rate version of traditional, accounting-based shift-share partitions change in a regional economic indicator, for example, employment, into components representing national share,  $n^r_i$ , proportional shift,  $s^r_i$ , (an industry mix effect), and

differential shift,  $d^r_i$  (a local competitive effect):  $c^r_i = n^r_i + s^r_i + d^r_i$  where  $c^r_i$  is change in

### **ANOVA-based shift-share models**

Berzeg provides a statistical basis for shift-share in terms of Analysis of Variance (ANOVA). In particular, he shows that the shift-share identity can be formalized as the linear model:  $g^r_i = a + B_i + e^r_i$  where the national growth rate,  $g^n$ , is estimated as the model's intercept,  $a$ ,  $B_i$  is an estimate of  $(g^{n_i} - g^n)$ , and error term  $e^r_i$  provides an estimate of  $(g^{r_i} - g^{n_i})$ . Assuming a normal distribution for the  $e^r_i$ , the ratio of the parameters to their standard errors will be distributed as Student's  $t$

### **The relationship between traditional and ANOVA shift-share**

The analytical relationship between the various forms of the shift-share model will be discussed using models, while a more complex comparison will be undertaken empirically. Models, represent the same formulation, the simplest of all shift-share models. Yet, while models, are mathematically equivalent, model (4) when calibrated will not produce parameters that are identical to those provided by (1) for two reasons. First, Eq. (4) is valued in terms of growth rates while Eq. (1).

### **Information-theoretic shift-share models**

Previous use and methodological innovation in the realm of shift-share has taken place within the traditional accounting and ANOVA-based techniques. A principal difference between the bulk of previous research on shift-share and the research reported here is a reliance on information-theoretic methods. In order to illustrate the efficacy of these methods, it is necessary to illustrate two things.

### **Empirical comparison of the information-theoretic approach with ANOVA-based methods**

The previous section was designed to demonstrate the flexibility that the information-theoretic approach to shift-share affords. This section of the paper is devoted to comparing results of similarly formulated ANOVA and information theoretic models. Models, should yield identical results if Eq. (14) is calibrated using weights  $(w^r_i)^{-1}$  and it is assumed that errors  $\ln(F^r_i)$  are normally distributed since  $g^r_i = \hat{E}^r_i / E^r_i - 1$  and  $-1 \leq g^r_i \leq \infty$  as  $-\infty \leq \ln(\hat{E}^r_i / E^r_i) \leq \infty$ .

## **Conclusions and implications of the research**

Shift-share is a relatively old ex-post analysis technique that measures the ends of the process of change rather than the variables that are the agents of change. The technique additionally has been criticized because of its assumptions concerning the linearity of regional economic dynamics and its lack of ability to handle regional variation. These objections, while containing some truth, ignore three realities.

### **2.4. LOCATION THEORY**

Location theory contributes significantly to understanding important current issues and helping develop plans to serve social needs and/or promote economic growth. It underlies effective emergency service plans, like locating hospitals, fire stations, warning sirens, etc. Location theory also enables competitive services to be evaluated and explored, prior to siting the business or outlet. As an example, how a market for a particular good respond if a new business will is located in a particular place, and what will be the response of competitors. A final current context for which location theory is invaluable is examining environmental sustainability issues, like minimizing local impacts and determining how many activities (or species) are viable in an area.

More contemporary issues and contributions to location theory involve addressing context, complexity, and representation of geographic space. The context issue is varied, including concerns regarding the phenomenon of interest varying across space, such as public equity, private industry objective, utility specification, constraining conditions, etc. By complexity we include issues of parameter fitting and interpretation in the context of spatial interaction, as well as model solvability. Finally, with respect to representation there are issues of how to represent space, either as objects (and which ones are important), whether data aggregation should be applied, how to represent spatial relationships like connectivity and proximity, and appropriateness of scale of analysis.

Perhaps the greatest implications for location theory and its further evolution are GIS, and geographic information science (GIScience) more generally. Effectively, more detailed information is available and accessible

due to GIS maturation as a product and an industry. This has invariably raised questions about underlying assumptions related to location theory, but also has led to questions regarding what can be done and how this should be approached from a mathematical abstraction point of view.

## **2.5. Export Base Model**

Export base model was developed by Douglas C. North (born 1920). Believes in role of exogenous factors in regional growth. Assumed that regions are not closed areas but open. Goods and services are not closed areas but open. Export is everything, which can be exported. Emphasis particularly on the development of export sector (multiplier effect). Growth of a region depends on its export base. Export base is largely limited to the expansion of demand in another region. Increased export of a region, increases the income of its people. Increased income increases the productive capacity and hence expands the economic activities in the region.

Export base regional growth is determined by the success of its export sector. Export base led absolute and relative income of the region, decides the services and the residential potential of the area. Increase in percapita consumption of other region. High income elasticity of exportable items in other regions. If income elasticity is low or negative, export increases because of increase in income and population. Depletion of resources in other region with the help of that other regions were producing same goods. Lower delivery cost of exportable items based on improved transport infrastructure. Based on technological changes, new use of exported items in other region. More production of exportable goods and services in the region led by technological changes.

### **Criticism:**

- Undue importance to export sector and ignoring the importance of internal and domestic growth potential of the region.
- If export earning is used for imports payments, no development will take place.
- Issues related to tariff, exchange rate and proper government policies may spoil the game.

**Check Your Progress:**

<b>Q.No</b>	<b>Short Answer Question</b>	<b>LOCF Mapping</b>		
1.	Define regional growth and explain the need for regional growth models.	K2	CO1	PO1
2.	Explain the basic assumptions of the Export Base Model.	K2	CO2	PO2
3.	State the importance of Location Theory in regional development.	K3	CO2	PO3
4.	Define Gravity Model and mention its applications in regional analysis.	K2	CO2	PO3
5.	Explain the components of Shift-Share Analysis.	K3	CO3	PO3
<b>Q.No</b>	<b>Long Answer Question</b>	<b>LOCF Mapping</b>		
1.	Discuss the different models of regional, inter-regional and multi-regional growth.	K4	CO1	PO2
2.	Critically examine the Export Base Model and its relevance to regional economic development.	K5	CO2	PO4
3.	Explain the principles of Location Theory and analyze its significance in industrial location decisions.	K4	CO2	PO3
4.	Discuss the Gravity Model in regional economics and evaluate its strengths and limitations.	K5	CO4	PO2
5.	Explain Shift-Share Analysis and assess its usefulness in measuring regional economic performance.	K5	CO3	PO4

## UNIT – III

### THEORIES OF REGIONAL ECONOMIC GROWTH

#### 3.1. INTRODUCTION

More than 150 member countries of United Nations constitute the developing and underdeveloped nations. However, there are diversities among those countries regarding the level of development. The nature and structure of their economies are also not homogeneous. The common characteristic of those countries is that their per capita income is low and they are unable to generate adequate economic surplus to sustain the development process. Economists and policy makers have been trying to analyse the factors responsible for their underdevelopment. They also try to give policies for development of such countries. This chapter discusses some of those theories.

#### 3.2 NEO CLASSICAL MODELS

The neoclassical growth theory was developed in the late 1950s and 1960s of the twentieth century as a result of intensive research in the field of growth economics. The American economist Robert Solow, who won a Noble Prize in Economics and the British economist, J. E. Meade are the two well-known contributors to the neo-classical theory of growth. This neoclassical growth theory lays stress on capital accumulation and its related decision of saving as an important determinant of economic growth. Neoclassical growth model considered two factor production functions with capital and labour as determinants of output. Besides, it added exogenously determined factor, technology, to the production function.

**Thus neoclassical growth model uses the following production function:**

$$Y = AF (K, L) \dots (i)$$

Where Y is Gross Domestic Product (GDP), K is the stock of capital, L is the amount of unskilled labour and A is exogenously determined level of technology. Note that change in this exogenous variable, technology, will cause a shift in the production function.

There are two ways in which technology parameter A is incorporated in the production function. One popular way of incorporating the technology parameter in the production function is to assume that technology is labour augmenting and accordingly the production function is written as

$$Y = F(K, AL) \dots (ii)$$

Note that labour-augmenting technological change implies that it increases productivity of labour.

The second important way of incorporating the technology factor in the production function is to assume that technological progress augments all factors (both capital and labour in our production function) and not just augmenting labour. It is in this way that we have written the production function equation (i) above. To repeat, in this approach production function is written as

$$Y = AF(K, L)$$

Considering in this way  $A$  represents total factor productivity (that is, productivity of both factor inputs). When we empirically estimate production function specified in this way, then contribution of  $A$  to the growth in total output is called Solow residual which means that total factor productivity really measures the increase in output which is not accounted for by changes in factors, capital and labour.

Unlike the fixed proportion production function of Harrod-Domar model of economic growth, neoclassical growth model uses variable proportion production function, that is, it considers unlimited possibilities of substitution between capital and labour in the production process.

That is why it is called neoclassical growth model as the earlier neoclassical considered such a variable proportion production function. The second important departure made by neoclassical growth theory from Harrod-Domar growth model is that it assumes that planned investment and saving are always equal because of immediate adjustments in price (including interest). With these assumptions, neoclassical growth theory focuses its attention on supply side factors such as capital and technology for determining rate of economic growth of a country. Therefore, unlike Harrod-Domar growth model, it does not consider aggregate demand for goods limiting economic growth. Therefore, it is called 'classical' along with 'neo'. The growth of output in this model is achieved at least in the short run through higher rate of saving and therefore higher rate of capital formation. However, diminishing returns to capital limit economic growth in this model. Though the neoclassical growth

model assumes constant returns to scale which exhibits diminishing returns to capital and labour separately.

We explain below how neoclassical growth model explains economic growth through capital accumulation (i.e., saving and investment) and how this growth process ends in steady state equilibrium. By steady 'State equilibrium for the economy we mean that growth rate of output equals growth rate of labour force and growth rate of capital (i.e.,  $\Delta Y/Y = \Delta L/L = \Delta K/K$ ) so that per capita income and per capita capital are no longer changing. Note that for income per capita and capital per worker to remain constant in this steady state equilibrium when labour force is growing implies that income and capital must be growing at the same rate as labour force. Since growth in labour force (or population) is generally denoted by letter in this steady state equilibrium, therefore,  $= \Delta Y/Y = \Delta K/K = \Delta N/N = n$ . Neoclassic growth theory explains the process of growth from any initial portion to this steady state equilibrium.

### **Neoclassical Growth Theory: Production Function and Saving:**

As stated above, neoclassical growth theory uses following production function:

$$Y = AF (K, L)$$

However, the neoclassical theory explains the growth process using the above production function in its intensive form, that is, in per capita terms. To obtain the above production function in per capita terms we divide both sides of the given production function by L, the number of labour force. Thus

$$\begin{aligned} Y/L &= AF (K, L, L/L) \\ &= AF (K/L, 1) = AF (K/L) \dots (2) \end{aligned}$$

To begin with we assume that there is no technological progress. With this assumption then equation (2) is reduced to

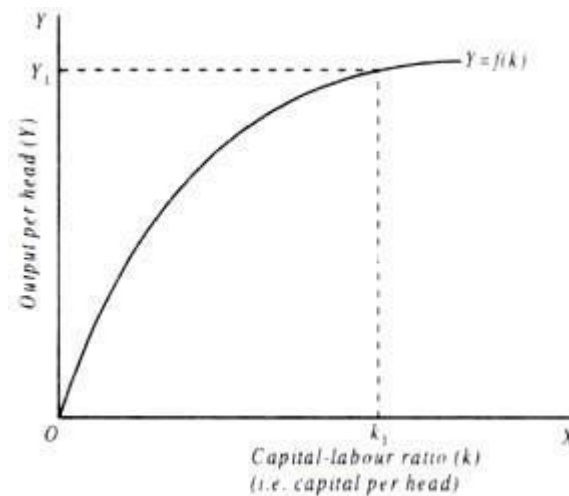
$$Y/L = F (K/L) \dots(3)$$

The equation (3) states that output per head (Y/L) is a function of capital per head K/L. Writing y for Y/L and k for K/L, equation (3) can be written as

$$y = f (k) \dots (4)$$

We represent the production function (4) in per capita terms. It will be noticed from Figure that as capital per capita (k) increases output per head increases,

that is, marginal product of labour is positive. But, as will be seen from Figure, the slope of the production function curve decreases as capital per head



increases. This implies that marginal product of capital diminishes. That is, the increase in capital per head causes output per head to increase but at a diminishing rate. It will be seen from the Figure that at capital-labour ratio (i. e. capital per worker) equal to  $k_1$  output per head is  $y_1$ . Similarly we can read from the production function curve:  $y = f(k)$  the output per head corresponding to any other capital per head.

### **Neoclassical Growth Theory: Fundamental Growth Equation:**

According to neoclassical theory, rate of saving plays an important role in the growth process of an economy. Like the Harrod-Domar model, neoclassical theory considers saving as a constant fraction of income. Thus,

$$S = sY \dots (5)$$

Where S = saving

Y = income

s = propensity to save

Since s is a constant fraction of income, average propensity to save is equal to marginal propensity to save. Further, since national income equals national product, we can also write equation (5) as

$$sY = sF(K, L)$$

As in neoclassical theory planned investment is always equal to planned saving, net addition to the stock of capital is  $(\Delta K)$ , which is the same thing as investment (I), can be obtained by deducting depreciation of capital stock during a period from the planned saving. Thus,

$$\Delta K = I = sY - D \dots (6)$$

Where  $\Delta K$  = net addition to the stock of capital,  $I$  stands for investment and  $D$  for depreciation. Depreciation occurs at a certain percentage of the existing capital stock. The total depreciation ( $D$ ) can be written as

$$D = dK$$

Substituting  $dK$  for  $D$  in equation (6) we have

$$\Delta K = sY - dK$$

$$\text{or } sY = \Delta K + dK \dots (7)$$

Now dividing and multiplying the first term of the left hand side of equation (7) by  $K$  we have

$$sY = K \cdot \frac{\Delta K}{K} + dK \dots (8)$$

We have seen above, for the steady state equilibrium, growth of capital ( $\Delta K/K$ ) must be equal to growth of labour force ( $\Delta L/L$ ), so that capital per worker and therefore income per head remains constant. If we denote growth rate of labour force ( $\Delta L/L$ ) by  $n$ , then in steady state  $\Delta K/K = n$ .

Substituting  $n$  for  $\Delta K/K$  in equation (8) we have

$$sY = K \cdot n + dK$$

$$\text{or } sY = (n + d)K \dots (9)$$

The above equation (9) is a fundamental growth equation of the neoclassical growth model and states the condition for the steady state equilibrium when capital per worker and therefore income per capita remains constant even though population or labour force is growing. Thus, for steady state growth equilibrium capital must be increasing equal to  $(n + d)K$ . Therefore  $(n + d)K$  represents the required investment (or change in capital stock) which ensures steady state when capital and income must be growing at the same rate as labour force (or population)

### **The Growth Process:**

From the growth equation (9) it is evident that if planned saving  $sY$  is greater than the required investment (i.e.  $(n + d)K$ ) to keep per capita income constant, capital per worker will increase. This increase in capital per worker will cause an increase in productivity of worker. As a result, the economy will grow at a higher rate than the steady-state equilibrium growth rate. However, this higher growth rate will not occur endlessly because diminishing returns

to capital will bring it down to the steady rate of growth, though at a higher levels of per capita income and capital per worker. In order to graphically show the growth process the growth equation is conventionally used in intensive form, that is, in per capita terms. In order to do so we divide both sides of equation (9) by L and have

$$sY/L = (n + d) K/L$$

where  $Y/L$  represents income per capita and  $K/L$  represents capital per worker (i.e. capital-labour ratio)

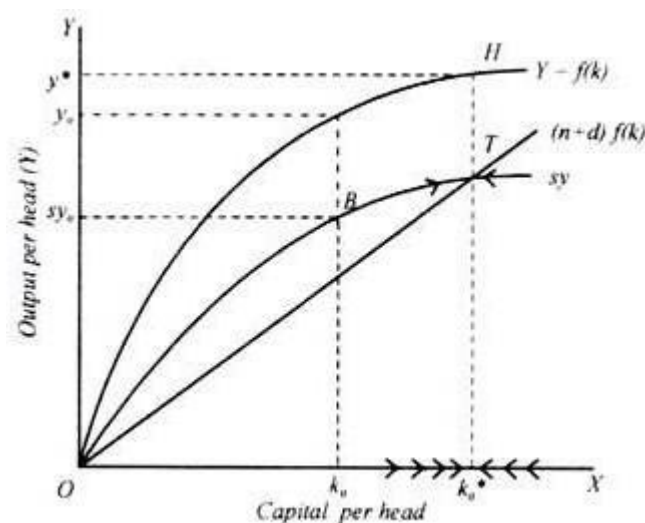
Writing  $y$  for  $Y/L$  and  $k$  for  $K/L$  we have

$$sy = (n + d)k \dots(10)$$

The equation (10) represents fundamental neoclassical growth equation in per capita terms.

### Growth Process and Steady Growth Rate:

Figure shows the growth process that moves the economy over time from an initial position to the steady state equilibrium growth rate. In this Figure along



### Neo classical Model

with per capita production function ( $y = f(k)$ ) we have also drawn per capita saving function curve  $sy$ . Besides, we have drawn  $(n + d)k$  curve which depicts required investment per worker to keep constant the level of capital per capita when population or labour force is growing at a given rate  $n$ .  $y = f(k)$  is per capita production function curve as in Figure. Since per capita saving is a constant fraction of per capita output {i.e. income}, the curve  $sy$  depicting per capita saving function is drawn below the per capita output function curve ( $y$

= $f(k)$ ) with the same shape. Another straight line curve labelled as  $(n + d)k$ , is drawn which depicts the required investment to keep capital per head (i.e., capital-labour ratio) constant at various levels of capital per head.

Now, let us assume the current capital per head is  $k_0$  at which per capita income (or output) is  $sy_0$  and per capita saving is  $sy_0$ . It will be seen from Figure that at capital per head  $k_0$ , per capita saving  $sy_0$  exceeds investment required to maintain capital per head equal to  $k_0$  ( $sy_0 > (n + d)k_0$ ). As a result, capital per head ( $k$ ) will rise (as indicated by horizontal arrows) which will lead to increase in per capita income and the economy, moves to the right. This adjustment process will continue so long as  $sy > (n + d)k$ . It will, be seen when the economy reaches at capital per head equal to  $k^*$  and per capita income equal to  $y^*$  corresponding to which saving curve  $sy$  intersects the  $(n + d)k$  curve at point T.

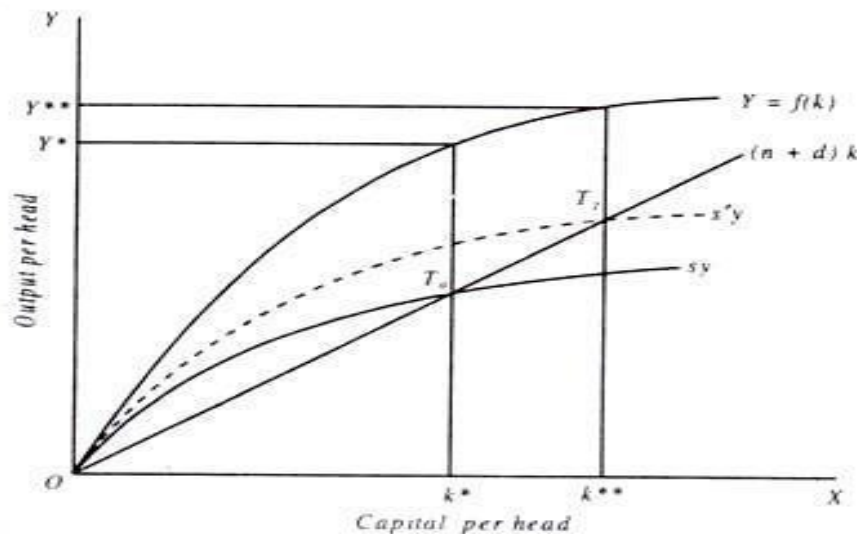
It will be noticed from Figure that the adjustment process comes to rest at capital per head equal to  $k^*$  because saving and investment corresponding to this state is equal to the investment required to maintain capital per head at  $k^*$ . Thus point T and its associated capital per head equal to  $k^*$  and income or output per head equal to  $y^*$  represent the steady state equilibrium. It is worth noting that whether the economy is initially at the left or right of  $k^*$ , the adjustment process leads to the steady state at point T. It may however be noted that in steady-state equilibrium, the economy is growing at the same rate as labour force (that is, equal to  $n$  or  $\Delta L/L$ ). It will be seen from Figure that although growth of economy comes down to the steady growth rate, its levels of per capita capital and per capita income at point T are greater as compared to the initial state at point B. An important economic implication of the above growth process visualised in neoclassical growth model is that different countries having same saving rate and population growth rate and access to the same technology will ultimately converge to same per capita income although this convergence process may take different time in different countries.

### **Impact of Increase in the Saving Rate:**

As has been explained above that in steady state, both capital per head ( $k$ ) and income per head ( $y$ ) remain constant when economy is growing at the rate

of growth of population or labour force . In other words, in steady state equilibrium  $\Delta K= 0$  and  $\Delta Y= 0$ .

It follows from this that steady state growth rate or long-run growth rate which is equal to population or labour force growth rate  $n$  is not affected by changes in the saving rate. Changes in the saving rate affect only the short-run growth rate of the economy. This is an important implication of neoclassical growth model. Now an important question is why we get this apparently incredible



result from the neoclassical growth theory. Impact of increase in the saving is illustrated in Figure. It will be seen from this figure that initially with the saving curve  $sy$ , the economy is in steady state at point  $T_0$  where the saving curve  $sy$  intersects required investment curve  $(n + d)k$  with  $k^*$  as capital per head and  $y^*$  as income (output) per capita. Now suppose that saving rate increases, that is, individuals in the society decide to save a higher fraction of their income. As a result, saving curve shifts to the new higher position  $s'y$  (dotted). This higher saving curve  $s'y$  intersects the  $(n + d)k$  curve at point which therefore represents the new steady state.

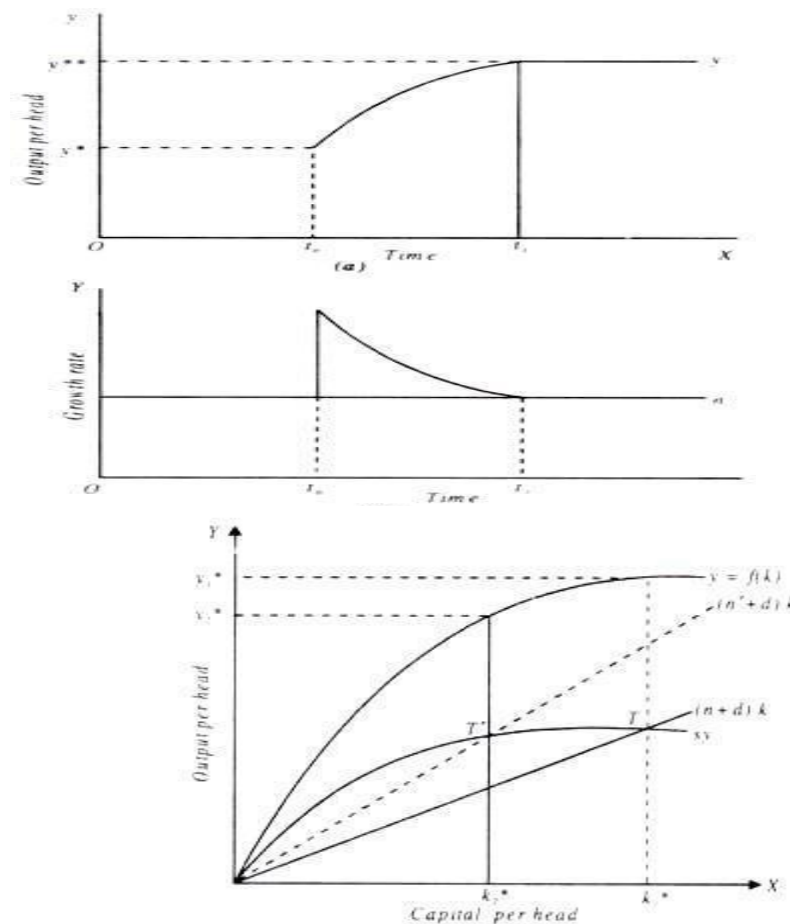
We thus see that increase in saving rate moves the steady state equilibrium to the right and causes both capital per head and income per head to rise to  $k^{**}$  and  $y^{**}$  respectively Note that in the new steady state the economy grows at the same rate as the growth rate of labour force (or population) which is denoted by  $n$ . It therefore follows that long-run growth rate of the economy remains unaffected by the increase in the saving rate though the steady, state position has moved to the right.

Two points are worth noting here. First, though long-run growth rate of the economy remains the same as a result of increase in the saving rate, capital per head ( $k$ ) and income per capita ( $y$ ) have risen with the upward shift in the saving curve to  $s'y$  and consequently the change in steady state from  $T_0$  to  $T_1$ , capital per head has increased from  $k^*$  to  $k^{**}$  and income per head has risen from  $y^*$  to  $y^{**}$ .

However, it is important to note that in the transition period or in the short run when the adjustment process is taking place from an initial steady state, to a new steady state a higher growth rate in per capita income is achieved. When with the initial steady state point  $T_0$ , saving rate increases and saving curve shifts upward from  $s_y$  to  $s'y$ , at the initial point  $T_0$ , planned saving or investment exceeds  $(n + d)k$  which causes capital per head to rise resulting in a higher growth in per capita income than the growth rate in labour force ( $n$ ) in the short run till the new steady state is reached. The effect of increase in saving on growth in output or income per head ( $y$ ) and growth rate of total output (i.e.,  $\Delta Y/Y$ ) is shown in Figure. Figure shows the growth in output (income) per head as a result of increase in the saving rate. To begin with, the economy is initially in steady state equilibrium at time  $t_0$  with output per head equal to  $y^*$ .

The increase in saving rate causes capital per head to rise which leads to the growth in output per head till time  $t_1$  is reached. At time  $t_1$ , the economy is again in steady state equilibrium but now at a higher level  $y^{**}$  of output per head. Note that in the transition period from  $t_0$  to  $t_1$  output per head increases but at a diminishing rate. Illustrates the adjustment in growth rate in total output from that starting from initial steady state at time  $t_0$  the increase in saving rate and capital formation leads to growth rate in total

output higher than the steady growth rate  $n$  in the period from  $t_0$  to  $t_1$  but in period  $t_1$  it returns to the steady growth rate path



It is thus evident that the higher saving rate leads to a higher growth rate in the short run only, while long-run growth rate in output remains unaffected. The increase in the saving rate raises the growth rate of output in the short run due to faster growth in capital and therefore in output. As more capital is accumulated, the growth rate decreases due to the diminishing returns to capital and eventually falls back to the population or labour force growth rate ( $n$ ).

### Effect of Population Growth:

For developing countries like India it is important to discuss the effect of increase in population growth rate on steady levels of capital per head ( $k$ ) and output per head ( $y$ ) and also on the steady- state rate of growth of aggregate output. To illustrate these effects of population growth. An increase in population growth rate causes an upward shift in  $(n + d)k$  line. Thus in Figure, the increase in population growth rate from  $n$  to  $n'$  causes upward

shifts of  $(n + d)k$  to  $(n + d)k$  curve dotted. It will be seen from the Figure 45.5 that the new  $(n' + d)k$  curve cuts the given saving curve  $sy$  at point  $T'$  at which capital per head has decreased from  $k^*_1$  to  $k^*_2$  and output per capita has fallen from  $y^*_1$  to  $y^*_2$ . This can be easily explained. Due to higher growth rate of population a given stock of capital is spread thinly over labour force which results in lower capital per head (i.e. capital-labour ratio). Decrease in capital per head causes decline in per capita output. This is an important result of neoclassical growth theory which shows that population growth in developing countries like India impedes growth in per capita income and therefore multiplies our efforts to raise living standards of the people.

The Figure also shows that higher growth rate of population raises the steady-state growth rate. It will be seen from this figure that increase in population growth rate from  $n$  to  $n'$  causes  $(n + d)k$  curve to shift upward to the new position  $(n' + d)k$  (dotted) which intersects the saving curve at new steady-state equilibrium point  $T'$ . The steady state growth rate has therefore risen to  $n'$ , that is, equal to the new growth rate of population. It may however be noted that higher steady rate of growth is not a desirable thing. As a matter of fact, a higher steady growth means that to maintain a certain given capital-labour ratio and per capita income the economy has to save and invest more.

This implies that a higher rate of population acts as an obstacle to raise per capita income and therefore living standards of the people. Thus, this result provides a significant lesson for the developing countries like India, that is, if they want to achieve higher living standards for its people they should make efforts to control population growth rate.

**Conclusion:** Let us sum up the various key results of Solow's neoclassical growth model:

- 1) Neoclassical growth theory explains that output is a function of growth in factor inputs, especially capital and labour, and technological progress.
- 2) Contribution of increase in labour to the growth in output is the most important.

- 3) Growth rate of output in steady-state equilibrium is equal to the growth rate of population or labour force and is exogenous of the saving rate, that is, it does not depend upon the rate of saving.
- 4) Although saving rate does not determine the steady-state growth rate in output, it does cause an increase in steady-state level of per capita income (and therefore also total income) through raising capital per head.
- 5) Steady state rate of growth of per capita income, that is, long-run growth rate is determined by progress in technology.
- 6) If there is no technical progress, then output per capita will ultimately converge to steady state level.
- 7) A significant conclusion of neoclassical growth theory is that if the two countries have the same rate of saving and same rate of population growth rate and has access to the same technology (i.e. production function), their levels of per capita income will eventually converge that is they will ultimately become equal. In this context it is worthwhile to quote Dornbusch, Fischer and Startz. "The poor countries are poor because they have a less capital but if they save at the same rate as rich countries, and have access to the same technology, they will eventually catch up.

### **3.3. Meaning of Social Dualism:**

According to Prof. Boeke, "Social Dualism is the clashing of an imported social system with an indigenous social system of another style. Most frequently the imported social system is high capitalism. But it may be socialism or communism just as well, or blending of them." Prof. Boeke uses 'East' and 'West' as different expressions for the underdeveloped or dual economies and developed capitalist economies, respectively. Underdeveloped economies that is economies of the East are generally underdeveloped economies. Co- existence of two diverse social orders is the principal property of such economies. Social dualism thus is kind of social disintegration caused by the rise of capitalism in less developed economies. This integration highlights the conflict between the imported social order and the indigenous social order of the underdeveloped

economies. In the opinion of Prof. Boeke, "Without doubt the most frequent form of a social dualism is to be found there where an imported Western Capitalism has penetrated into a pre-capitalistic agrarian community and where the original social system, be it not undamaged, has been able to hold its own or, expressed in opposite terms, has not been able to adopt the capitalistic principles and put them into full practice."

### **Characteristics of Social Dualism:**

According to Boeke, following are the main features of social dualism:

#### **1. Limited Needs:**

The foremost characteristic of eastern or the pre-capitalist indigenous sector of dualistic economies is marked by limited needs in sharp contrast with the western society. In western society, wants are unlimited. The reason of limited needs of the dualistic economy is simple habits and simple way of thinking. People are therefore contented with their limited means or money incomes.

As soon as people earn sufficient money income to fulfil their limited needs, people start preferring leisure to work. The supply curve of labour is thus generally backward- sloping in these economies. This implies that in response to rise in wages beyond a particular point the supply of labour starts diminishing, rather than increasing.

#### **2. More Importance of Social Needs:**

Boeke's theory lays more emphasis to social needs. Social perspective is of greater importance than the national perspective. In other words, social value of the goods is of more important than their economic value. In the words of Prof. Boeke "It is not their economic usefulness or the individual services they render their possessor which determine the value of goods. It is what the community thinks of the commodities that give them value." In fact the lower the development of individual, the greater his dependence on social tradition and the fewer his economic needs, the more place is given to social needs. In this way, he gives more importance to social needs of eastern sector as compared to western sector.

#### **3. Importance to Self Sufficiency:**

The eastern society considers 'family' as unit and every individual is self-sufficient in his needs. People cannot easily induce to organise production or to collect investment. According to Boeke "Not only do they feel strangers to basic forms of exchange like business and profession but in so far as these are business they are always one man affairs that can hardly compete with western capitalism and are not lasting." Thus, the purpose of production is not merely profit-making but also satisfying personal needs.

#### **4. Unorganized Labour:**

According to Boeke, the labour is totally unorganised, passive, silent and casual in dualistic economy. Moreover, the labour is unskilled and immobile too. People hesitate to leave their homes as they have attachment for petty things. Due to immobility, the labour remains unorganised and as such his bargaining power remains weak. The people are orthodox in outlook. In contrast, the people in western, economy are progressive, dynamic and forward looking. They display their interest in every type of adventure. Wages in the eastern sector are low due to lower marginal productivity.

#### **5. Idea of Income is not suitable:**

The idea of income does not fit in eastern society. Income is a thing that a man gets more or less regularly as a result of acts of exchange. If income is not received in the shape of money, it can never be evaluated in terms of money. In fact, eastern society has barter terms of trade. Thus, maintenance of household cannot be termed 'income' in strict sense because there is no absolute price basis nor any basis to determine the costs.

#### **6. Lack of Profit Motive:**

Production is not done for the profit motive in the economies of East. Thus the modern theories of business enterprise do not hold good in these economies. Windfall profits and losses are attached greater significance in these economies than the continuous and consistent flow of income. Further there is general lack of entrepreneurship in these economies.

## **Policy Implications of Social Dualism:**

Boeke's theory of social dualism has the following implications:

### **1. Agriculture:**

Boeke feels that western economic theory can hardly bring about any improvement in agriculture in eastern areas. Instead, it may cause retrogression because the mental attitudes of farmers is not changeable. They stick to old and unscientific methods of cultivation. Boeke is of the opinion that the culture of villagers is totally based on traditionalism and the farmers cannot afford to accept new change.

### **2. Industry:**

In the field of industry, the eastern countries have different approaches to its counterpart i.e. western countries in producing the same commodity. However, technological progress along western lives is impossible because, there is no question of the eastern producer adapting himself to the western example technologically, economically or socially. If the eastern producer imitates a western producer he will merely lose his competitive qualities. In support of his view, Boeke holds the example of Indonesian economy who adopted western technology to achieve the goal of industrialization and self-sustained growth but ruined its small industry.

### **3. Unemployment:**

Prof. Boeke's pessimistic approach also held the similar views to the problems of unemployment.

**Thus, he distinguishes five type of unemployment:**

- (i) Seasonal
- (ii) Casual
- (iii) Unemployment for regular labour
- (iv) Unemployment of white collared in urban areas.
- (v) Disguised employment.

The problem of unemployment in underdeveloped areas is so acute that its solution is beyond the reach of government. The solution to these five kinds of unemployment would need large financial investment and government has limited resources and, thus, government remains in dilemma.

#### **4. Economic Development:**

Prof. Boeke says that economic development is hampered by the limited wants of the eastern society. The increase in the supply of food stuff and industrial goods results in glut in commodities in the market which does not help in improving economic development of the area. The leads to depression and fall in investment.

In short, Boeke's idea was that any industrialization or agricultural improvement should be gradual so as to suit in the frame work of dualistic economy. Otherwise, any radical changes in the structure of the dualistic economy might prove harmful. Therefore, Boeke advices that development process must be slow, and the urge for development must be the soul of the people.

#### **5. International Relations:**

Prof. Boeke has stressed the need for 'village restoration'. The term village restoration implies that basic character of village should be kept intact and it should not be disturbed through the influence of international trade.

The restoration of the village can take place through the revival and adoption of democratic means among the rural peasantry class. This will provide an opportunity for new leaders to come forward and take up the local and social responsibilities with a sense of determination and devotion. They should work for the goal of economic development with faith, confidence and patience.

#### **6. Organization:**

In organisation too, there is a lot of difference in eastern and western countries. The highly capitalistic forms of organization specially in mining, transportation in western society cannot be adopted in eastern society.

#### **7. Absence of Profit Motive:**

Another feature of dualistic economy in the eastern society is almost the absence of profit motive. The profit from speculative activities, however, holds attraction for them.

#### **8. No Technical Advancement:**

Technological progress of western sector has yet to touch the eastern society of dualistic economies. In the words Boeke, "in fact, there is no question of the eastern producer adapting himself to the western example technologically, economically or socially."

#### **9. Lack of Industrialization:**

The Industrialization in the eastern sector lacks initiative, drive, discipline and organizational capabilities. In contrast, in western sector, industry passes all these business qualities.

#### **10. Aversion of Capital:**

According to Boeke, industry in the eastern sector is not investment minded. He further claims, "Aversion to capital owing to some sort of conscious dislike of investing capital and risks attending this."

#### **11. Lack of Professional Trading:**

The Professional Trading is conspicuous by its absence in the eastern sector. Indeed, there is exchange of goods at personal level. By and large, trading profession is almost unknown to the people as they are totally ignorant of the new market.

#### **12. Urban Development at Behest of Rural Economy:**

Prof. Boeke holds the view that in a dual economy, urban development flourishes at the cost of rural economy. In the wake of urbanisation, there occurs a progressive fall in the rural population and income. In other words, hardships of rural life compel the villagers to pull to the cities.

#### **13. Absence of Free Competition:**

Another dominant characteristic of eastern sector is that there is absence of full competition of land and rent and it depend on the land owner's need for money. Moreover, factors of production lack homogeneity and mobility. As a result distribution of income is not in accordance with marginal productivity theory.

#### **14. Export is Main Objective:**

Boeke also makes distinction on the ground that export is the great objective of foreign trade in the eastern sector. It means that it only makes import possible in the western sector.

## **15. Fatalism:**

Above all, another outstanding feature is that eastern society is guided by fatalism and resignation while western industry is moulded by common sense and reason.

### **Critical Appraisal:**

Boeke's theory of social dualism points a gloomy picture for underdeveloped countries. This is due to peculiar circumstances in which it was formulated. In fact, under the name of 'Ethical Policy', in Indonesia a genuine effort was made to raise the standard of living during 1900 to 1930. But this policy was a great flop which gave the feeling of gloom, sorrow and defeatism. Prof. Bennjamin Higgins makes a scathing attack on Boeke's theory of social dualism development.

**However, following are the main grounds of Higgins criticism:**

#### **1. Wants Limited—Not True:**

It is wrong to universalise that people in underdeveloped countries have limited wants and supply curves of effort and risk taking are backward sloping. Truly speaking, the marginal propensity to consume and to import are high which result into larger demand for domestic and foreign semi luxuries.

Therefore, it is a problem for those governments to control the fast expanding wants of the people. The wants of the villagers are numerous and varied. Thus, Boeke's contention that wants in under developed countries are limited, is not borne out by the actual facts and not consistent with human nature.

#### **2. Trade Unions not visualised:**

Boeke's dualistic theory ignores the role of trade union. The workers are unorganised, passive, silent and casual in underdeveloped countries. This is inconsistent with the growing strength of organised labour even in Indonesia. In fact, trade union activities are becoming more and more streamlined all over the world. Workers are more organised, vocal and active. These trade unions fight for their rights and actively participate in various activities.

#### **3. Labour not Immobile:**

It is not possible to accept that people in eastern economies are inherently immobile and do not move from villages to towns. Rapid urbanisation in these economies is a specific proof of the migration of village people to cities.

In fact, the attraction of the urban life such like cinemas, cafes, shops, libraries and sport events, has proved to be attractive to the villagers who get a taste of it which has resulted in congestion, inadequate community facilities and unemployment in big cities.

#### **4. Not Peculiar to Underdeveloped Economies:**

Prof. Boeke takes one eyed view by saying that the phenomenon of dualism is only confined to the eastern economies. He himself admits that social dualism also exists in underdeveloped economies of Africa and Latin America. But this fact is not peculiar in underdeveloped economies. To some degree, it exists in almost all economies.

To quote Prof. Higgins, “even in the most advanced countries such as Italy, Canada and United States, more are areas in which techniques lag behind those of the advanced sectors, and in which standards of economic and social welfare are correspondingly low.” In this sense, even the most developed countries can be categorised as dual.

#### **5. Applicable to Western Societies:**

This theory has also been criticized on Boeke’s view that western economic theory is not applicable to the problems of eastern economies. But Prof. Higgins holds the view that the tools of western economic theory pertaining to monetary and fiscal policies can be applied with certain modifications to solve the crucial problem of balance of payments, disequilibrium and unemployment etc. of UDCs.

#### **6. Not a Theory but Description:**

Prof. Boeke fails to provide a distinctive economic and social theory for underdeveloped economies. The dualistic theory undoubtedly explains the various traits of eastern economies but fails to furnish an integral approach to the social and economic theory of such countries. On this ground, dualistic theory failed bitterly.

#### **7. No Solution to the Problem of Unemployment:**

Prof. Boeke has talked about five types of unemployment in his dualistic theory. But he has not provided any satisfactory solution to meet with the problem of unemployment. In fact, he regards unemployment of various categories as 'beyond the reach of government help'. Modern government really plays a pioneer role in mitigating the unemployment problems through the device of development planning.

#### **8. Technological Possibilities are not Limited:**

Prof. Boeke's view regarding limited technological possibilities in both agriculture and industry is also not sustainable. A number of underdeveloped countries have introduced new techniques in the agricultural sector and have recorded substantial improvement in agricultural productivity. Similarly, in industrial sector one finds a growing number of enterprises efficiently organised and managed by eastern people.

#### **9. Characteristics Not Specific to Eastern Society:**

Boeke's theory gives no specific characteristics to Eastern Society. A number of these characteristics are found in western society as well. The preference for speculative profit over term investment in productive enterprises which Boeke thought was specific to eastern society but it was also found in western society.

In the same manner, the conscious dislike of investing capital and the risk attending is very common everywhere. Therefore, the differences between underdeveloped and advanced economies, according to Bauer and Yamey, "are of degree rather than of kind."

#### **10. Wrong Impression Depicted:**

Boeke has wrong impression about the business community of eastern societies. The business community lacks initiative and fails to make the best use of the opportunity which comes its way. Lewis does not agree to the assumption that wants are limited in eastern societies and compulsion would be necessary to obtain adequate supply of labour.

He says, "These compulsions (except slavery) are still to be found in one or the other of African colonies of all European powers but they are not necessary now as they were formally thought to be. The Africans have

acquired new wants and are willing to work to satisfy them without compulsion.” Again Bauer and Yenren disagree that wants of agriculturists are static. But in reality, the entrepreneurial acumen and other business qualities are very much there in the underdeveloped countries.

### **Conclusion:**

On the basis of above criticism, it can be concluded that this theory does not provide answer to problems of underdevelopment. The main problem of underdeveloped country is unemployment and scarcity of capital.

In the end, “there are no special economic theories or methods of analysis fashioned uniquely for the study of underdeveloped world. But while the tools of analysis are of wide relevance in a study of underdeveloped countries, the situations to which they must be applied vary greatly.”

In fact, there is no question about the phenomenon of dualism as a distinguishing feature of underdeveloped countries, yet the solution has to be sought not in a sociological sense but to be in technological terms. This is a realistic dualism. Boeke provides the basic insight into the effects of a dualistic society on the pattern of development. of technical dualism. The traditional sector of the dual economies is generally characterised by the abundance of labour but chronic shortage of capital.

So, production techniques are often labour intensive in the sector. In contrast, in the modern sector, more of capital compared to labour is generally employed. Thus almost two distinct techniques of production are found to exist across two different sectors of the dual economies.

### **3.4. Technological Dualism:**

Difference in production function is second fundamental basis of technical dualism. While there are fixed coefficients of production function in the modern sector, these are often variable in the traditional sector. Higgins analyses this duality in the context of “Factor proportions”.

Eckaus offered a detailed explanation of this feature of less developed countries. Higgins used this concept in this descriptive analysis of problem of unemployment in less developed countries.

Technological dualism suggests that the existence of vast unemployment in less developed economies is not due to the lack of effective demand but owing to the 'resource' constraint as well as technological backwardness. As regards resource- utilization, the less developed countries have severe structural imbalances:

- (1) One finds different co-efficient of the same factor in its alternative usage.
- (2) The price structure is not compatible with resource supply.

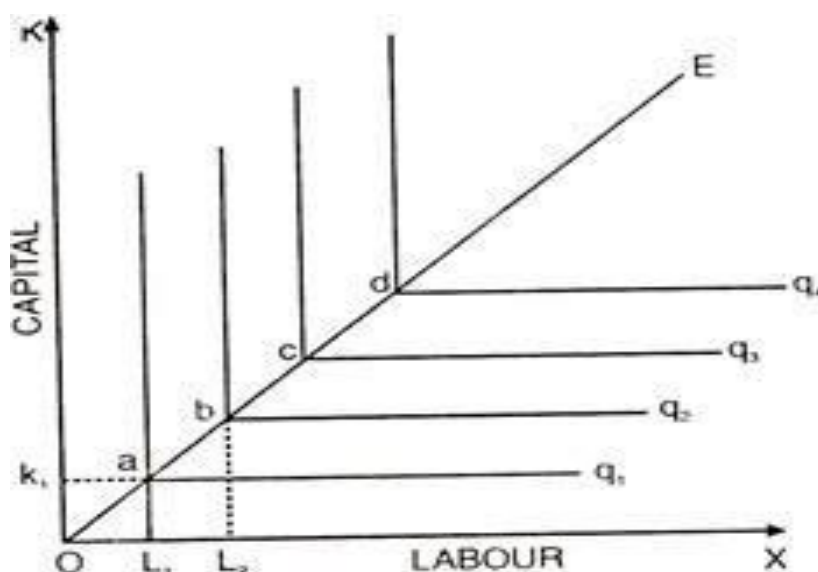
Thus, Prof. Eckaus is of the opinion that the problem of unemployment is generated owing to:

- (1) Incompleteness of price management and
- (2) Surplus of labour owing to the technical as well as demand constraints.

Prof. Higgins explained with the help of figure 1 below the existence of unemployment in underdeveloped dual economies.

The Fig. 1 is based on the following assumptions:

- (1) There are two sectors of the economy:
  - (a) Traditional sector
  - (b) Modern sector
- (2) There are two factors of production:
  - (a) Capital
  - (b) Labour
- (3) Two Commodities are Produced:



In this diagram 1 units of capital (K) are measured on vertical axis and units of labour (L) on the horizontal axis. The points a, b, c denote the fixed combinations of factors i.e., capital and labour (K & L). The curve  $q_1$ , is an isoquant representing a certain level of output, as drawn, the output  $q_1$  can be produced only with the unique combination of factors at point a. The curves  $q_1$ ,  $q_2$ ,  $q_3$  and  $q_4$  etc. represent different levels of output increasing along the expansion line OE.

The output can be increased only by increasing the use of K and L in constant proportions given by slope of OE. The dotted curves represent the case of 'fixed technical coefficient'. The line OE represents the expansion path of this sector and its slope is constant, relatively capital intensive factor ratio.

When capital and labour are actually available in proportions equal to fixed capital-labour ratio, it is possible that both factors are simultaneously fully utilized. If the actual factor endowment is to the right of the OE say at point F i.e. there must be some unemployment of labour in this sector. To produce an output of  $q_1$  the sector will, use  $OK_1$  units of capital and  $OL_1$  units of labour.

If  $OL_2$  units are available, the excess labour supply has no effect on production techniques and  $L_1L_2$  units of labour will remain unemployed or will find to seek employment in the traditional sector. Therefore, it is only when capital increases over time and more labour will be employed with the result of expansion of output.

According to Higgins unemployed labour in the industrial sector is left with no option other than seeking employment in the rural sector of the economy. Technical coefficient of production can be changed in the rural areas facilitating the absorption of labour with still greater application of the labour intensive technique of production.

But this reduces the marginal productivity of labour even to the zero level causing the problem of disguised unemployment in the rural areas of less developed countries.

From the above discussion, we can conclude that the existence of technological dualism tends to increase unemployment and disguised unemployment in underdeveloped countries.

The expansion of industrial sector mostly takes place with the help of foreign capital; industrialization leads to much faster growth of population as compared with the rate of accumulation of capital which is the major cause of growing unemployment in these countries.

### **Critical Appraisal:**

The theory of technological dualism definitely is an improvement over Boeke's social dualism. It is realistic as it focuses now disguised unemployment gradually arises in the dualistic economies. Despite the fact, its relevancy in the contemporary world can be challenged.

In this regard, Prof. G. Meier has expressed his doubts saying, "Has the production in the advanced sector actually being carried on with fixed coefficients? Even if an advanced, capital intensive processes were initially imported, was there subsequently no adoption to the abundant labour supply? Was technical progress actually labour saving in advanced sector?" These are the crucial questions which call for empirical investigation.

As such the theory is criticised on the following grounds:

#### **1. Coefficients not Fixed in Industrial Sector:**

This theory assumes that the production in industrial sector is carried on with fixed proportions between labour and capital, but this assumption is not valid and possibility of substitution of one factor by another cannot be ruled out.

Modern age is a dynamic age and the notion of fixed coefficients appears to be unconvincing. Everything is likely to undergo a change and nothing remains constant. Hence, the assumption of fixed coefficients is untenable.

#### **2. Factor Prices do not Depend on Factor Endowment:**

This theory successfully explains how the factor endowment and differences in production function have resulted in creating disguised employment in traditional sector. This is related to the pattern of factor prices. But factor prices do not depend on factor endowments completely.

### **3. Neglects Institutional Factors:**

Another drawback of the theory is that Higgins neglects the institutional and psychological factors which greatly influence factor proportions. It is not the technological factors alone that affect labour capital ratio but the sociological factors also exercise their influence on it.

### **4. Neglects the Use of Labour Absorbing Techniques:**

This theory indicates that capital intensive techniques are used in industrial sector while such techniques are generally labour saving. (All imported techniques are not labour saving.) For example, Japanese agricultural development cannot be attributed to use of capital intensive technique. But it was the result of the application of better seeds, manure, improved methods of cultivation, increasing use of fertilisers etc. Thus, Higgins neglects the possibility of such developments in a dualistic society.

### **5. Concept of Disguised Employment is Ambiguous:**

Prof. G.E. Meier maintains the opinion that the concept of disguised employment has not been properly discussed in Higgins theory. Further, he suggests that, "greater clarity is needed on the nature of unemployment and underemployment in traditional sector." Similarly, he fails to assess the extent of excess labour supply in industrial sector. In this way, technological dualism seems to be ambiguous.

### **Conclusion:**

Since Higgin's theory of technological dualism suffers from various drawbacks, yet it clearly explains the reason for the appearance of disguised unemployment in underdeveloped countries. It appears to be more realistic in saying that technological dualism is the real cause of structural and technological unemployment in Dualistic Economies. In this regard, this theory is superior to the theory of Prof. Boeke's social dualism.

### **3.5. Labour Surplus Model**

A number of economists attempted to analyse development in the context of a 'labour-surplus economy'. These theories owe their origin to the celebrated work of Nobel Laureate Sir W. Arthur Lewis in 1954. An elaborate discussion of the labour-surplus economy is given by G. Ranis and John Fei

in 1961. In 1954 Sir Arthur Lewis published a paper, 'Economic Development with unlimited supplies of labour' (The Manchester School), which has since become one of the most frequently cited publications by any modern economist: its focus was a 'dual economics' —small, urban, industrialised sectors of economic activity surrounded by a large, rural, traditional sector, like minute is largely in a vast ocean. A central theme of that article was that, labour in dual economies is available to the urban, industrialised sector at a constant wage determined by minimum levels of existence in traditional family farming because of 'disguised unemployment in agriculture, there is practically unlimited supply of labour and available of industrialisation, at least in the early stages of development. At some later point in the history of dual economics, the supply of labour is exhausted then only a rising wage rate will draw more labour out of agriculture.

With their acute material poverty, it is difficult at first sight to imagine how the overpopulated countries can increase their savings without great hardships. On the contrary, their surplus population on the land seems to offer a major unused potential for growth, waiting only for the 'missing component' of outside capital to assist them in the process.

Moreover, their rapid rates of population growth lend themselves to calculations of aggregate capital requirements which must be made available if their per capita incomes are to be maintained or raised.

Says Myint, "All in all, the drama of the poor countries struggling at the minimum subsistence level and the need for a massive dose of outside capital to break the interlocking vicious circles which hold them down to that level does not attain its full tragic grandeur unless viewed against the background of overpopulation."

An LDC is conceived to operate in two sectors

- (1) A traditional agricultural sector, and
- (2) A much smaller and also more modern industrial sector.

"Surplus labour" (or disguised unemployment) means the existence of such a huge population in the agricultural sector that the marginal product of labour is zero. So, if a few workers are removed from land, the total product remains unchanged.

The essence of the development process in such an economy is “the transfer of labour resources from the agricultural sector, where they add nothing to production, to the more modern industrial sector, where they create a surplus that may be used for further growth and development”.

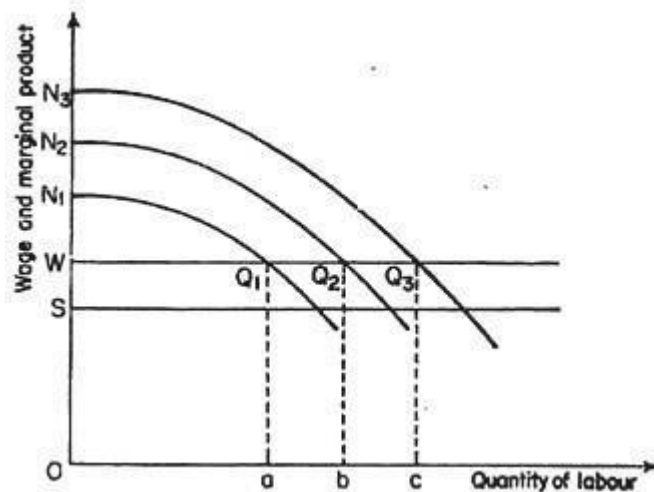
In Lewis model the transformation process or the process of structural change starts by an autonomous expansion in demand in industry as a result of changes in domestic consumer tastes, in government purchases, or in international markets.

The central point is that labour (here considered homogeneous and unskilled) shifts from agriculture into industry. The supply of labour from agriculture to industry is “unlimited” (i.e., completely elastic) at the given urban wage (about 30 to 50% higher than the rural wage), owing to the relative size of the agricultural labour forces at the margin.

The phenomenon is frequently labelled “disguised unemployment in agriculture”. Redundant supplies of unskilled labour to industry at existing wages hold down industrial labour costs. But higher demand and higher prices in industry result in higher profits. When these profits are ploughed back into industrial capital formation, demand for industrial output (both for consumption goods by newly employed workers and investment by capitalists) rises, causing further shifts of labour out of agriculture into industry.

The process comes to a halt when agricultural productivity rises to a point where the supply price of labour to industry increases, i.e., a point at which agricultural alternatives of output and income are sufficiently attractive to the would-be industrial workers to keep them in farming. In the absence of rural-urban differences in the cost of living, this occurs when the marginal product of labour in the two sectors are equal.

Lewis postulates the existence of a subsistence sector with surplus labour and he sees in this the seed for the subsistence sector. One major characteristic of the capitalist sector is that it uses reproducible capital and that it produces profit. Since there is surplus labour from the subsistence sector, the capitalist sector draws its labour from the subsistence sector and it is assumed that as a result of rapid increases in population in already densely populated countries the supply of unskilled labour is unlimited.



### Lewis Labour surplus

So capitalists can obtain even increasing supplies of such labour at the existing wage rate, i.e., they will not have to raise wages to attract more labour. So, the capitalist sector can expand indefinitely at a constant wage rate for the unskilled labour.

The actual (market) wage rate will be determined by earnings in the subsistence sector. But 'earnings' here means the average product and not the marginal one, in subsistence sector receives an equal share of what is produced.

Lewis has assumed and made the point that capitalists will have to pay a margin of about 30% above average subsistence pay, because the surplus workers need some incentive to move and in any case part of the difference is needed to compensate them for the higher cost of living in urban areas.

Another point to note is that in the subsistence sector labour is employed up to the point where its marginal product is zero. Contrarily, in the capitalist sector labour will only be employed up to the point where its marginal product equals the wage rate—the familiar relationship derived from the marginal productivity theory. If wages exceed marginal productivity a capitalist employer would be reducing his surplus since he paid labour more than he received for what was produced.

This surplus is the key to the Lewis model of development. In Fig. 14 OS is the average product of the subsistence sector—the amount a man would receive there. Here, OW is the capitalist wage.

We start with a fixed quantity of capital, and in this situation the demand for labour is represented by the marginal productivity schedule of labour  $NQ$ . Under profit-maximising conditions, labour will be applied to the point where the wage,  $W$ , equals marginal productivity, i.e.,  $Q_1$ , corresponding to  $O_a$  number of workers. Workers in excess of  $O_a$  will earn whatever they can in the subsistence sector.

Development takes place since part of what is produced accrues to the capitalist in the form of a surplus ( $WN, Q_1$ ). This amount is reinvested. This reinvestment produces an increase in the amount of fixed capital and causes a shift in the marginal product of labour curve from  $N_1Q_1$  to  $N_2Q_2$  in the next period. More labour will now be employed and the surplus increases, leading to a further shift of the curve to  $N_3Q_3$ , causing more labour to be drawn in from the subsistence sector. When that happens pay in the subsistence sector will start to rise, causing wages in the capitalist sector to rise, and then the first phase of development will have ceased as the supply curve of labour has ceased to be horizontal, but has turned up wards.

**Criticism:**

The Lewis model is close to the Ricardian one. It neglects the central concern of Ricardo: how the price of food is to be held down. If it he assumed, however, that the supply of labour to industry is infinitely elastic at a steady wage because of surplus labour in agriculture, this can help explain initial development which comes to an end when wages start to rise with increased capital formation.

Historically, the model misses one important point:

“An exodus of labour from agriculture raising wages there applies pressure for rationalisation of agricultural technology for the introduction of machinery and other capital-intensive methods, such as fertilizer. Productivity increases in industry interact with productivity increases in agriculture after the supply of labour has been drawn down.”

The Lewis model begins with the classical of Marx, but ends with a much happier neo-classical result. Initial growth in the dual economy is largely in the form of increased profits made available from underpayment of

wages. Instead of the inevitable crises of Marx, however, the dual economy of Lewis eventually runs smoothly as a single economy under neo-classical rules.

The differences between the capitalist and non-capitalist sectors are eliminated by their shared labor shortage. Lewis' main point is that eventual widespread economic growth and development can be fuelled by initial large supplies of cheap labour that result from the initial condition of economic duality.

The Lewis model was interpreted throughout the third world as justifying an import completing, industrialisation growth strategy and must therefore be given some of the blame, through no fault of the author, for the neglect of rural development in the countries of Africa, Asia and Latin America which has been singled out as the great scandal of development in the 1970s. D. W. Jorgenson has provided a neo-classical explanation of the development of 'dualism' in LDCs, rejecting Lewis' influential theory of 'economic development with unlimited supplies of labour'.

It is to be noted that although the Lewis model of development is both simple and roughly in conformity with the historical experience of economic growth in the West, it has three key assumptions which are sharply in contrast with the realities of underdevelopment in most Third World countries.

First, the model implicitly assumes that the rate of labour transfer and employment creation is proportional to the rate of capital accumulation. So, if there occurs labour-saving capital accumulation, the employment implications of the model will be modified.

Second, the model assumes that 'surplus' labour exists in rural areas while there is full employment in the urban areas. In reality, exactly the reverse is true in LDCs: there is substantial open unemployment in urban areas but almost no general surplus labour in rural locations. The third key assumption at variance with reality is the notion of the continued existence of constant real urban wages until the supply of small surplus labour is exhausted.

### **3.6. HARRIS – TODARO MODEL**

The model presented by Lewis has limitations for its applications to less developed countries. The two sector model developed by Lewis cannot be applied in the case of developing countries where the rate of urban unemployment is positive and growing. Michael Todaro has presented a model of internal migration which can explain the situation of migration in presence of urban unemployment. The model given by Todaro seems to be more realistic for developing countries. It can explain the paradox of rural-urban migration in the presence of rising unemployment. The model is based on following assumptions: 1) There are mainly two sectors in an economy: rural and urban. Wages in the urban sector are higher than wages in the rural sector.

2) Migration is positively related to higher urban wages and higher urban employment opportunities.

3) Migration is primarily an economic phenomenon involving rational decision on the part of the migrants.

4) The differential earnings that motivate migration is expected earnings in urban areas rather than actual earnings – Migration takes place if expected urban income is higher than prevailing rural income.

5) Internal migrants maximise the expected gain from migration (expectation plays an important role in the decision to migrate).

6) Migration acts as an equilibrating force, equalizing rural and urban expected incomes.

7) Probability of obtaining urban jobs is inversely related to urban unemployment rates.

On the basis of above assumptions Todaro has developed a model of internal migration. Explanation of Todaro's Model Starting from the assumption that migration is an economic phenomenon which for the individual migrant can be quite a rational decision despite the existence of urban unemployment, the Todaro model postulates that migration proceeds in response to urban-rural differences in expected rather than actual earnings. The fundamental premise is that migrants consider various labour market opportunities available to them, as between rural and urban sectors, and choose the one that maximizes

“expected” gains from migration. Expected gains are measured by i. Differences in the real incomes between rural and urban work, ii. The probability of a new migrant obtaining an urban job. In essence, Todaro’s theory assumes that members of the labour force, both actual and potential compare their expected incomes for a given time horizon in the urban sector (i.e. returns-costs) with prevailing average rural  $Y_s$ , and migrate if the former exceeds the latter. Taking an example of an average semi-skilled or unskilled rural worker Todaro says that if he has choice between being a farm labourer (or working on his own land) for an average annual  $Y$  of say, 50 units, or migrate to the city where worker with his skill or education background can obtain wage employment yielding annual real income of 100 units. The commonly used economic models of migration which place exclusive emphasis on income differential factor as a determinant of the decision to migrate, would indicate clear choice in this situation. Worker should seek higher paid urban job. However, their models of migration were developed in the context of advanced industrial economies, and as such implicitly assumed the existence of full or near full employment. In a near full employment environment the decision to migrate can be predicated solely on securing the highest paid job wherever it becomes available. Simple economic theory would then indicate that such migration should lead to a reduction in wage differentials through the interaction of the forces of demand and supply both in areas of emigration and in points of immigration. Unfortunately this analysis not realistic in the context of institutional and economic framework of the most third world countries. First of all, these countries are beset by chronic and serious unemployment problem with the result that typical migrant cannot expect to secure highly paid urban job immediately. It is much more likely that upon entering the urban labour market the migrant will either become totally unemployed or will seek casual and part time employment in the urban traditional sector. In making his decision to migrate, the individual must balance the probabilities and risks of being unemployed or underemployed for a considerable period of time against the positive urban-rural real income differential. The fact that a typical migrant can expect to earn twice the annual real income in an urban area than in a rural

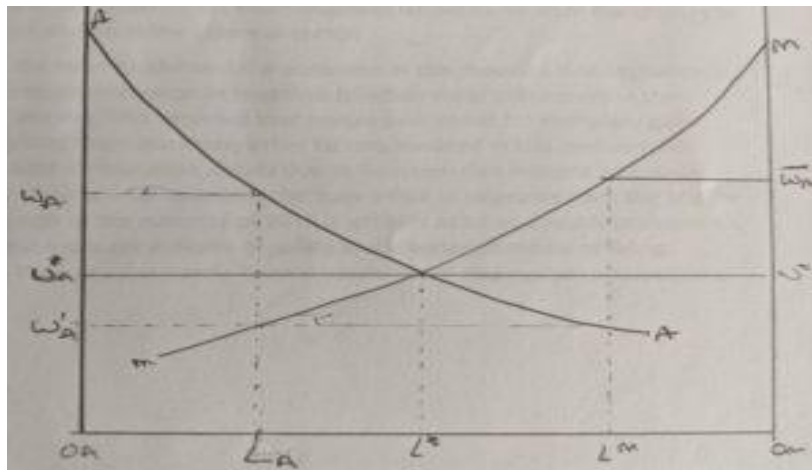
environment may be of little consequence if the actual likelihood of his securing the higher paying job within say, one-year period is one chance in five ( $1/5=0.2$ ). Thus, the probability of his being successful in securing the higher paid urban job is 20% and his expected urban income for one-year period is in fact 20 units ( $0.20 \times 100 = 20$ ) and not the 100 units that urban worker in full employment environment would expect to secure. With one period time horizon and probability of success of 20% it would be irrational for the migrant to seek urban job even though the difference between his urban and rural earning capacity is 100%. On the other hand, if probability of success were say 60% so that expected urban income is 60 units, it would be perfectly rational for the migrant with a one period time horizon to try his luck in urban area even though unemployment may be extremely high. Rather than equalizing the urban-rural wage rate as in a perfectly competitive labour market model, rural-urban migration in this model acts as an equilibrating force which equates rural-urban expected incomes. For example, if average rural income is 60 and urban income is 120, then a 50% unemployment would be necessary before further migration is no longer profitable.

To sum up, Todaro migration model has four basic characteristics.

- a) Migration is stimulated primarily by rational economic consideration of relative benefits and costs.
- b) Decision to migrate depends on 'expected' rather than actual U-R real wage differential.
- c) The probability of obtaining an urban job is inversely related to urban unemployment rate.
- d) Migration rates in excess of urban job opportunity growth rate are not only possible but also rational and even likely in face of wide urban-rural expected income differentials.

## Diagrammatic Explanation

Assume two sectors, rural agriculture and urban manufacturing. The demand for labour (MPL curve) in agriculture is given by negatively sloped line AA'. Labour demand in manufacturing is given by MM' (from right to left). The total



labour force is given by line OAOM. In a neoclassical flexible wage, full employment framework e.g. wage will be established at  $WA^* = WM^*$ ; OALA\* in agriculture on OMLM\* workers employed in manufacturing so that all available workers are therefore employed. But if the WM institutionally determined (inflexible downwards) as assumed by Todaro at a level  $\bar{W}M$ , which is at a considerable distance above  $WA^*$ . If we assume that there is no unemployment, OMLM workers would get urban jobs and the rest OALM will have to settle for rural employment at OAWA\*\* wages (below the free market level of OAWA. So now we have an urban rural wage gap of  $\bar{W}M - WA^{**}$  with WM institutionally fixed). If rural workers were free to migrate then despite the availability of only OMLM jobs; they are willing to take in urban job lottery. If their chance (probability) of securing one of these favoured jobs is expressed by the ratio of employment in manufacturing, LM, to the total urban labour pool, LUS, the expression  $WA = LM/LU (\bar{W}M)$  Shows the probability of urban jobs success necessary to equate agricultural income WA with urban expected income  $(LM/LUS) (\bar{W}M)$  thus causing a potential migrant to be indifferent between job locations. The locus of such points of indifference is given by qq' curve. The new unemployment equilibrium now occurs at point Z, where urban-rural actual wage gap is  $\bar{W}M - W'A$ ; OALA workers are still in agricultural sector and OMLM have modern sector jobs paying  $\bar{W}M$  wages. The rest, OMLA - OMLM, are either unemployed or engaged in low income

informal sector activities. This explains the existence of urban unemployment and provides economic rationality of continued R to U migration despite this high unemployment. Criticism However, Todaro model is not free from criticism. Firstly, the prospective migrant does not precisely know the actual rate of unemployment in urban area for the type of job he is seeking before migration. Secondly, several times a person migrates to urban sector only after being appointed for jobs. In that case, Todaro's model does not seem very relevant. Thirdly, even if it is known that there is some unemployment rate in the urban sector, the exact figure may not be known. Hence, the calculation of the probability becomes a mere guess work and does not serve any real purpose in the matter of decision making. Fourthly, an ordinary migrant does not generally bother about the probability value for a making a decision regarding migration or in most cases does not or cannot calculate the probability value. Lastly, Todaro model shows that for every employment creation in the urban sector there will be the intensification of unemployment rate and the possibility of slowing down agricultural output and employment. Todaro has not suggested a fool-proof policy measure for this. In spite of these limitations Todaro's model has introduced a new insight into the study of rural-urban migration behavior which can be made applicable to less developed countries.

### **3.7. Cumulative Casuation Hypothesis**

Gunnar Myrdal, in his study *Asian Drama* (1968), observes that quest for rationality is the basis of development in economic and social fields. Myrdal (1968) means by development – what he calls the 'modernisation ideals'.

#### **He writes:**

“Development means improvement of the host of undesirable conditions in the social systems that have perpetuated a state of underdevelopment.” Development can be brought about through planning, which is a rationally coordinated system of policy measures. India has a social system consisting of a great number of conditions that are causally interrelated, where a change in one will cause change in others. Such an interdependence of different parts of the system and conceiving of the system as a totality based on such

relationships are the central points of Myrdal's perspective. The change in one condition which brings about a change in other conditions is known as 'circular causation'. Another implication of such an explanation of change is the idea of a 'vicious circle'. Vicious circles are found in the context of poverty, illiteracy, malnutrition, bad health, unemployment, etc. For example, if unemployment is not controlled, all other problems would remain. A proper equilibrium is needed to get out of the vicious circles in various social and economic fields.

**Myrdal classifies the conditions of development into six broad categories:**

- (1) Output and income
- (2) Conditions of production
- (3) Levels of living
- (4) Attitudes towards life and work
- (5) Institutions
- (6) Policies

The first three refer to economic factors. Categories four and five represent the non-economic ones. Category six is a mixture of the first three and the latter two. The interdependence of these categories does not imply the precedence of any one category over the others. Myrdal is a strong advocate of the institutional approach to social change and development. His emphasis is on the understanding of the people's desire for development or of the articulate ones from amongst them. The desire for development includes changes in institutions, attitudes towards life and work (for example, the theory of 'karma'), levels of living, conditions of production, productivity and income.

In a way, all these conditions are social. An upward change in any one of these conditions implies, according to Myrdal, an upward movement of other conditions, and hence of the whole system. However, a change may take place in other conditions independently, or it could affect the one which has already affected them. Thus, the independent value of change as well as the ability of change in one condition to effect change in other conditions are basic to the conception of causal interdependence in development.

Development has acquired currency in India as a very significant concept of change in a desired direction. Community Development Programmes were launched in 1952 for achieving an all-round development of the countryside. The concept of rural development has become popular at the governmental level because of various schemes, including the Integrated Rural Development Programme (IRDP). We hear a lot about the role of women in development. The development of women, weaker sections, economy, polity, and cultural institutions congenial to national integration has been receiving priority from the Government of India. There are economic development, new political and social institutions responsive to economic progress have also been promoted. Development is, in fact, a composite phenomenon as it covers all aspects of human life.

### **3.8. Regional Input-Output Models**

I-O analysis provides a comprehensive economic framework that is extremely useful in the resource planning process, particularly at the state and sub-state levels. Broadly, there are two ways in which the standard input-output method can be used.

**Input-Output Table:** provides a numerical picture of the size and shape of the economy and its essential features. The input-output transactions table can be used to describe some of the important features of an economy, the interrelationships between sectors, and the relative importance of the individual industries.

**Input-Output Model:** provides a standard approach for the estimation of the economic impact of a particular activity. The input-output model is used to calculate industry multipliers that can then be applied to various development scenarios.

#### **Advantages and Disadvantages of Regional Input-Output**

The major advantage of input-output models is their internal consistency. All effects of any given change in final demand can be recorded. Important, and sometimes restrictive, assumptions made in the input-output model are that all firms in a given industry employ the same production technology (usually assumed to be the national average for that industry) and produce identical

products. Because the tables are produced for a certain period, the model can become irrelevant as a forecasting tool when production techniques change. Other disadvantages are that the model assumes that there are no economies or diseconomies of scale in production or factor substitution, and that they do not incorporate the existence of supply constraints. Finally, input–output models are essentially based on a linear production technology; doubling the level of agricultural production will double the inputs, the number of jobs, etc. This reveals something of the inflexibility of the model. Thus, the model is entirely demand driven, implying that bottlenecks in the supply of inputs are largely ignored.

There are also some practical problems in (regional) input–output theory. The development of a new input–output table is very labor-intensive and expensive. This is mainly due to the fact that most information is gathered using micro survey questionnaires. Another problem of this method is that interviewees, firms or households, are not able to give perfect answers. Sometimes, they do not understand the question, or they do not want to tell the truth and therefore the data are not always perfect. Another problem is that the data are expressed in monetary terms. This is done because it is impossible to compare physical units, but monetary values may increase and decrease due to price changes. Still, input–output analysis is seen as a very clear and important method, which has its limitations but is often embedded as a module in more extensive models.

### **3.9. New Economic Geography Models**

Allowing for non-convexity means that we allow for one form or another of increasing returns to scale. Intuitively, the general presumption is that this potentially destroys whatever convergence there might be without such scale economies. The most prominent case in point is, of course, the theory of “new economic geography”. This theory modifies the neoclassical approach to trade and factor movements by allowing economies of scale in order to model forces of agglomeration. Intuition and quick inspection of data tell us that such forces have always played a big role in the distribution of economic activity in space, but until recently they have not been addressed in formal analysis

using neoclassical models of trade and factor movements. While this theory usually does not frame its notion of space along the dimension of country borders, it is all too obvious that many of its insights are relevant also for the interrelationship between trade and factor movements across countries.

New economic geography models focus on a particular form of scale economies that leads to so-called backward and forward linkages. The important point here is that in the Marshallian dichotomy these economies do not constitute externalities, but are internal to the firm, modeled through a fixed cost of production. Hence they require a departure also from the paradigm of perfect competition. Most models of new economic geography assume monopolistic competition along the lines suggested by Dixit and Stiglitz (1977), which does not involve complex strategic interaction among firms and which features zero profits in equilibrium. A further key departure from the assumptions that we have so far made is that trade of manufacturing goods is subject to “iceberg-type” transport costs. In this subsection, we assume that these transport costs are given (or that they vary) in exogenous fashion. In particular, they are assumed exogenous to migration. The canonical model of the new economic geography was developed by Krugman and is now known as the “core-periphery model”.<sup>64</sup> In some sense this model is diametrical to the models of trade and migration that we have used above. The numbers of factors and goods is reduced to two, and it features specific parameterization of production and preferences, thus placing less emphasis on generality. This cost is justified by sharp predictions, although closed form solutions are usually not available. The model assumes two factors that are completely specific to two sectors. One is the so-called numéraire sector (agriculture) featuring constant returns to scale and perfect competition, and the other is manufacturing which produces under increasing returns and monopolistic competition. In its simplest form, the model also assumes two regions, which for the present purpose may be seen as our two countries *A* and *B*. Agricultural goods are traded between regions without cost, while manufactures are tradable subject to transport costs (as opposed to revenue-generating barriers like a tariff or a quota). It is crucial that such transport costs are modeled in “iceberg form”. This approach, due

to Samuelson (1952), is almost ubiquitous in modern trade literature. Importantly, manufacturing labor is assumed to be completely mobile between regions (countries), while agricultural labor is assumed immobile. This is a further important departure from the above analysis where we have assumed factor-specific costs of cross-border movement.

The potential of divergence in this world of the new economic geography is best understood by considering deviations from a completely symmetric equilibrium where the two countries appear as clones of each other. In a neoclassical world with conventional properties, two countries who are clones would not trade with each other. Nor would we expect any incentive for factor movements between such countries. With monopolistic competition and product differentiation, we do observe trade, but this is intra-industry trade based on consumers' desire for product variety, which means that consumers in either country consume all varieties produced worldwide. But we would still not expect any incentive for factor movements, for wage rates are the same in both countries,  $wA_f = wB_f$ , where  $f$  indicates the factor specific to the manufacturing sector.

However, the presence of real trade cost now makes all the difference. The difference is not that such an equilibrium entails different factor prices, but that it need not be *stable*. Given mobility of the factor specific to manufacturing, a stable equilibrium may involve a large (in the extreme case complete) concentration of the entire world endowment of this factor in one of the two countries, which will then also pay a much higher real wage rate. Factor mobility may thus unleash a force of divergence.

However, instability of a symmetric equilibrium is a possibility, not a foregone conclusion. What are the economic mechanisms of divergence and what determines their relative weight in the adjustment? This can be seen without going into further model details by considering the effects of a deviation from a symmetric equilibrium that are caused by moving a unit of the factor specific to manufacturing from one country to the other, say from  $A$  to  $B$ . Krugman identified three effects. First, there is the conventional force from relative scarcity of sector-specific factors, which should benefit manufacturing factor owners in  $A$  and hurt those in  $B$ , where manufacturing has now become a

larger sector relative to agriculture. This force is conducive to stability of the symmetric equilibrium, as it tends to depress  $w_B^f$  relative to  $w_A^f$ . In some sense, it is comparable to the force of diminishing marginal returns in the conventional neoclassical model. Notice that all penalties of higher dimensions that we have addressed above are ruled out in this model of the new economic geography: There are only two factors, one specific to agriculture, and the other specific to manufacturing.

But there are two further forces, deriving from economies of scale and transport costs, both of which are destabilizing in nature. The first is what Krugman (1980) has called the “home market effect”. Compared to country  $B$ , factors working in country  $A$ 's manufacturing sector are now less productive in *servicing* markets, because a larger share must be served at a distance, incurring transport cost. This must work towards an increase in  $w_B^f$ , relative to  $w_A^f$ , thus contributing to instability. And finally, if manufacturing factor owners live where their factors work, then those now living in  $B$  benefit from being served locally for a larger share of the differentiated manufacturing goods that they consume, because country  $B$  now hosts a larger share of worldwide manufacturing factors. Notice that this effect only works if factor owners migrate with the location of their factor use. It will typically be present for labor migration, but not for footloose capital. Thus, for migration, there is a destabilizing force from both the perspective of serving markets as well as from the perspective of being served from markets.

What determines the strength of these destabilizing forces? Obviously, the size of transport costs matters. To see this, first note that whenever instability obtains, by construction of our argument there will be two symmetric stable equilibria. Moreover, if transport cost are zero, then the location of mobile factors does not matter, provided that there is no cost of moving for manufacturing workers, as assumed. Thus, for transport costs in the vicinity of zero, the symmetric equilibrium cannot be stable. At the other extreme, if transport costs are infinite, then there is no trade. In this case there is no equilibrium other than a completely symmetric equilibrium. By continuity, there must be a magnitude of trade costs that separates the two worlds of

stability and instability respectively. Thus, without factor movements we have a symmetric equilibrium in a world which is symmetric to start with, and which becomes potentially non-symmetric only due to factor mobility. Whether or not it does, however, depends on the size of transport costs.

What does the new economic geography suggest about the relationship between migration and trade? There are two ways to approach this question. One is to compare alternative stable equilibria with different degrees of concentration for a world with completely symmetric distribution of immobile factors across countries, and to see how different levels of migrant *stocks* relate to the volume of trade. The other is to focus on the adjustment process leading to such an equilibrium and see how migration *flows* relate to associated changes in the level of trade. We briefly sketch answers found for either of these two approaches.

Take the stock view first. In terms of the above technology, the stable equilibria will involve different levels of cross-border stocks of migrants, and in the simple model described above a country with only one mobile factor, i.e., manufacturing labor, a country will unambiguously end up either having a stock of emigrants or a stock of immigrants of manufacturing labor. Different equilibria will also involve different volumes of trade, and one may now ask whether a larger stock of migrants will also involve a higher volume of trade. In the simple model there are at most three stable equilibria: a completely symmetric equilibrium, with a zero cross-country stock of manufacturing migrants, and two opposite core-periphery equilibria, with all manufacturing labor concentrated in one of the two countries (the core), and the other country (periphery) appearing as a pure emigration economy, with all of its manufacturing labor having emigrated to the core.

One might be tempted to expect more trade in the agglomeration equilibria than in the symmetric equilibrium. However, this need not be the case. In the symmetric equilibrium with zero migrant stocks, the volume of intra-industry trade reaches its maximum level, while the volume of inter-industry trade is zero. The opposite is true for the core-periphery equilibrium. Hence, without further knowledge about structural features of the economies involved, we must conclude ambiguity when looking at overall trade. When looking at

intra-industry trade, we may conclude complementarity. When looking at intra-industry trade, we may conclude substitutability.

But what if we look at the relationship between trade and migration in the adjustment dynamics? As we have mentioned above, the adjustment dynamics of the new economic geography models typically implies that the symmetric equilibrium breaks down once the level of trade costs falls below a critical level. Passing this critical level from above, a small reduction in trade cost and an associated increase in the volume of trade will be associated with first-time movements of manufacturing labor. Moreover, it is the presence of trade and trade costs that install the force of agglomeration and divergence in factor movements in the first place. In this sense, then, we may unambiguously conclude that the new economic geography predicts complementarity between trade and factor movements.

**Check Your Progress:**

<b>Q.No</b>	<b>Short Answer Question</b>	<b>LOCF Mapping</b>		
1.	Explain the basic features of the Neoclassical model of regional growth.	K2	CO1	PO1
2.	Define social dualism and mention its key characteristics.	K2	CO2	PO1
3.	Outline the labour surplus model of Arthur Lewis.	K2	CO2	PO2
4.	State the main propositions of the Harris–Todaro migration model.	K3	CO2	PO3
5.	Explain the concept of cumulative causation by Gunnar Myrdal.	K2	CO3	PO3
<b>Q.No</b>	<b>Long Answer Question</b>	<b>LOCF Mapping</b>		
1.	Critically examine the Neoclassical model of regional economic growth and its limitations.	K5	CO1	PO2
2.	Discuss dualistic models of development with special reference to Arthur Lewis’ labour surplus model.	K4	CO2	PO3
3.	Explain the Harris–Todaro model of migration and analyze its implications for regional development.	K4	CO2	PO4
4.	Discuss Myrdal’s cumulative causation hypothesis and examine its relevance to core-periphery development.	K4	CO3	PO2
5.	Explain Regional Input-Output models and Paul Krugman’s New Economic Geography model of industrial location and development.	K5	CO4	PO3

## **REGIONAL ECONOMIC GROWTH IN INDIA**

### **4.1. INTRODUCTION**

India, also known as Bharat, is an indestructible union of states and the very first article of the Constitution of India emphasizes the nature of its composition. Administrative divisions are created for various reasons such as administrative convenience, ensuring focus on specific areas in terms of development, and protection of the rights of the tribal population as mandated in the constitution. This topic has been in the news frequently due to protests by different sections for special rights with respect to the sixth schedule and by others for ensuring the governance, powers bestowed by the 5th schedule.

### **4.2. Administrative Divisions in India**

- 1) At present, there are 28 states and 8 union territories in our country, further divided into districts.
- 2) As per the Census of India 2011, there are 640 districts in India.
- 3) The states and Union territories are formed primarily due to the spoken language, administrative convenience, and special focus on development in the respective regions.
- 4) States are further divided into districts, and for administrative convenience, districts are clubbed together forming a zone or region in that state.
- 5) Often it is observed that the classification or clubbing together of districts to form zones are driven by geographical or prominent and common aspects of the state.
- 6) For example, Uttar Pradesh has 18 divisions, Maharashtra has 6 divisions, Chhattisgarh has 5 and Odisha has 3 divisions and so on.
- 7) Konkan division in Maharashtra stems from the Konkan Coast, Bastar Division of Chhattisgarh includes several districts in the densely forested region, where the place Bastar has historic and cultural significance on many fronts.
- 8) Each district is further divided into sub-districts, known under different names across the country. Taluka, Block, Panchayat, Tahsil in common practice refers to similar administrative arrangements.

- 9) At the grassroots level, the primary administrative units of administration are the villages in rural areas and towns in urban areas.
- 10) As per Part IX of the Constitution, states are required to constitute Panchayats at three tiers, i.e., Village, Intermediate and District except the states having a population of less than 20 lakhs, which may not constitute a panchayat at the Intermediate level.
- 11) The 12th Schedule of the constitution provides for Municipalities or Urban Local Governments, through the 74th Constitutional Amendment Act of 1992, with the provisions included in Part IXA.
- 12) To read more about tiers of governance, please refer to this linked article for notes and discussion on Panchayati Raj System.

### **4.3 Definition of Urban**

The term urban simply refers to the region or area which is densely populated and possess the characteristics of the man-made surroundings. The people residing in such area, are engaged in trade, commerce or services. In this settlement, there is high scale industrialisation that results in better employment opportunities. The Urban settlement is not confined to the cities only, but towns and suburbs (suburban areas) are also included in it. There are many advantages of life in urban areas like easy access to various amenities, better transportation facilities, entertainment and education options, health facilities. Although it suffers certain drawbacks like pollution, caused due to large scale industrialisation and means of transportation like buses, trains, cars and so on, leading to increasing in health problems in the people living in that area.

### **Definition of Rural**

We define the term 'rural' as a region located on the outskirts. It refers to a small settlement, which is outside the boundaries of a city, commercial or industrial area. It may include, countryside areas, villages or hamlets, where there are natural vegetation and open spaces. There is a low density of population in such area. The primary source of income of the residents is agriculture and animal husbandry. Cottage Industries also form a chief source of income here.

In India, a town whose population is below 15000 is considered as rural, as per the planning commission. Gram Panchayat is responsible for looking after such areas. Further, there is no municipal board, in the villages and maximum percentage of the male population are engaged in agriculture and related activities.

#### **4.4. Gross State Domestic Product**

Gross State Domestic Product (GSDP) is a measure in monetary terms, the sum total volume of all finished goods and services produced during a given period of time, usually a year, within the geographical boundaries of the State, accounted without duplication

Gross State Domestic Product (GSDP) of the 19 states and UTs had contracted or recorded a negligible growth during 2020-21 — the year when the government had imposed a nationwide lockdown in view of the Covid-19 outbreak.

- These 19 states and UTs are Andhra Pradesh, Rajasthan, Bihar, Telangana, Delhi, Odisha, Madhya Pradesh, Haryana, Karnataka, Tripura, Sikkim, Himachal Pradesh, Meghalaya, Jharkhand, Tamil Nadu, Jammu and Kashmir, Punjab, Uttarakhand and Puducherry.
- Their economies (GSDP) bounced back in 2021-22 and exceeded their pre-Covid (2019-20) levels.
- Kerala and Uttar Pradesh are the only exceptions in 2021-22 which recorded GSDP below the pre-Covid levels.
- Andhra recorded the highest growth of 11.43%, Puducherry recorded the lowest at 3.31%.
- Besides Andhra Pradesh, five other states and one UT recorded double digit growth in 2021-22:
  - ❖ Rajasthan: 11.04%
  - ❖ Bihar: 10.98%
  - ❖ Telangana: 10.88%
  - ❖ Odisha: 10.19%
  - ❖ Madhya Pradesh: 10.12%
  - ❖ Delhi: 10.23%

Sharp jump in the GSDP of some states is due to the base effect, the general trend mirrors the post-pandemic economic recovery. In 2021-22, India's GDP expanded at 8.7% against a 6.6% contraction in 2020-21.

**Significance:**

- ❖ Gross State Domestic Product (GSDP) or State Income is the most important indicator for measuring the economic growth of a State.
- ❖ These estimates of the economy, over a period of time, reveal the extent and direction of the changes in the levels of economic development.
- ❖ The State Domestic Product is classified under three broad sectors such as Primary sector, Secondary sector and Tertiary sector and is compiled economic activity wise as per the methodology prescribed by the National Accounts Division, National Statistical Office, Ministry of Statistics & Programme Implementation, and Govt. of India.

**4.5. Gross Domestic Product (GDP):**

GDP is the total value of goods and services produced within the country during a year. This is calculated at market prices and is known as GDP at market prices. Dernberg defines GDP at market price as "the market value of the output of final goods and services produced in the domestic territory of a country during an accounting year." There are three different ways to measure GDP: Product Method, Income Method and Expenditure Method.

These three methods of calculating GDP yield the same result because National Product = National Income = National Expenditure.

**1. The Product Method:**

In this method, the value of all goods and services produced in different industries during the year is added up. This is also known as the value added method to GDP or GDP at factor cost by industry of origin. The following items are included in India in this: agriculture and allied services; mining; manufacturing, construction, electricity, gas and water supply; transport, communication and trade; banking and insurance, real estates and ownership of dwellings and business services; and public administration and defense and other services (or government services). In other words, it is the sum of gross value added.

## **2. The Income Method:**

The people of a country who produce GDP during a year receive incomes from their work. Thus GDP by income method is the sum of all factor incomes: Wages and Salaries (compensation of employees) + Rent + Interest + Profit.

## **3. Expenditure Method:**

This method focuses on goods and services produced within the country during one year. GDP by expenditure method includes:

- (1) Consumer expenditure on services and durable and non-durable goods (C)
- (2) Investment in fixed capital such as residential and non-residential building, machinery, and inventories (I).
- (3) Government expenditure on final goods and services (G).
- (4) Export of goods and services produced by the people of country (X).
- (5) Less imports (M). That part of consumption, investment and government expenditure which is spent on imports is subtracted from GDP. Similarly, any imported component, such as raw materials, which is used in the manufacture of export goods, is also excluded.

Thus GDP by expenditure method at market prices =  $C + I + G + (X - M)$ , where  $(X - M)$  is net export which can be positive or negative.

## **(B) GDP at Factor Cost:**

GDP at factor cost is the sum of net value added by all producers within the country. Since the net value added gets distributed as income to the owners of factors of production, GDP is the sum of domestic factor incomes and fixed capital consumption (or depreciation).

Thus GDP at Factor Cost = Net value added + Depreciation.

GDP at factor cost includes:

- (i) Compensation of employees i.e., wages, salaries, etc.
- (ii) Operating surplus which is the business profit of both incorporated and unincorporated firms. [Operating Surplus = Gross Value Added at Factor Cost—Compensation of Employees—Depreciation]
- (iii) Mixed Income of Self- employed.

Conceptually, GDP at factor cost and GDP at market price must be identical/This is because the factor cost (payments to factors) of producing goods must equal the final value of goods and services at market prices.

However, the market value of goods and services is different from the earnings of the factors of production.

In GDP at market price are included indirect taxes and are excluded subsidies by the government. Therefore, in order to arrive at GDP at factor cost, indirect taxes are subtracted and subsidies are added to GDP at market price.

Thus,  $\text{GDP at Factor Cost} = \text{GDP at Market Price} - \text{Indirect Taxes} + \text{Subsidies}$ .

**(C) Net Domestic Product (NDP):**

NDP is the value of net output of the economy during the year. Some of the country's capital equipment wears out or becomes obsolete each year during the production process. The value of this capital consumption is some percentage of gross investment which is deducted from GDP. Thus  $\text{Net Domestic Product} = \text{GDP at Factor Cost} - \text{Depreciation}$ .

**(D) Nominal and Real GDP:**

When GDP is measured on the basis of current price, it is called GDP at current prices or nominal GDP. On the other hand, when GDP is calculated on the basis of fixed prices in some year, it is called GDP at constant prices or real GDP.

Nominal GDP is the value of goods and services produced in a year and measured in terms of rupees (money) at current (market) prices. In comparing one year with another, we are faced with the problem that the rupee is not a stable measure of purchasing power. GDP may rise a great deal in a year, not because the economy has been growing rapidly but because of rise in prices (or inflation).

On the contrary, GDP may increase as a result of fall in prices in a year but actually it may be less as compared to the last year. In both 5 cases, GDP does not show the real state of the economy. To rectify the underestimation and overestimation of GDP, we need a measure that adjusts for rising and falling prices. This can be done by measuring GDP at constant prices which is called real GDP. To find out the real GDP, a base year is chosen when the general price level is normal, i.e., it is neither too high nor too low. The prices are set to 100 (or 1) in the base year.

**(E) GDP Deflator:**

GDP deflator is an index of price changes of goods and services included in GDP. It is a price index which is calculated by dividing the nominal GDP in a given year by the real GDP for the same year and multiplying it by 100. Thus, It shows that at constant prices (1993-94), GDP in 1997-98 increased by 135.9% due to inflation (or rise in prices) from Rs. 1049.2 thousand crores in 1993-94 to Rs. 1426.7 thousand crores in 1997-98.

**(F) Gross National Product (GNP):**

GNP is the total measure of the flow of goods and services at market value resulting from current production during a year in a country, including net income from abroad. GNP includes four types of final goods and services:

(1) Consumers' goods and services to satisfy the immediate wants of the people;

$$GDP \text{ Deflator} = \frac{\text{Nominal (or Current Prices) GDP}}{\text{Real (or Constant Prices) GDP}} \times 100$$

$$\text{For example, GDP Deflator in 1997-98} = \frac{1426.7 \text{ th. crores}}{1049.2 \text{ th. crores at}} \times 100 = 135.9$$

(2) Gross private domestic investment in capital goods consisting of fixed capital formation, residential construction and inventories of finished and unfinished goods;

(3) Goods and services produced by the government; and

(4) Net exports of goods and services, i.e., the difference between value of exports and imports of goods and services, known as net income from abroad.

In this concept of GNP, there are certain factors that have to be taken into consideration: First, GNP is the measure of money, in which all kinds of goods and services produced in a country during one year are measured in terms of money at current prices and then added together.

But in this manner, due to an increase or decrease in the prices, the GNP shows a rise or decline, which may not be real. To guard against erring on this account, a particular year (say for instance 1990-91) when prices be normal, is taken as the base year and the GNP is adjusted in accordance with the index number for that year. This will be known as GNP at 1990-91 prices or at constant prices.

Second, in estimating GNP of the economy, the market price of only the final products should be taken into account. Many of the products pass through a number of stages before they are ultimately purchased by consumers.

If those products were counted at every stage, they would be included many a time in the national product. Consequently, the GNP would increase too much. To avoid double counting, therefore, only the final products and not the intermediary goods should be taken into account.

Third, goods and services rendered free of charge are not included in the GNP, because it is not possible to have a correct estimate of their market price. For example, the bringing up of a child by the mother, imparting instructions to his son by a teacher, recitals to his friends by a musician, etc.

Fourth, the transactions which do not arise from the produce of current year or which do not contribute in any way to production are not included in the GNP. The sale and purchase of old goods, and of shares, bonds and assets of existing companies are not included in GNP because these do not make any addition to the national product, and the goods are simply transferred.

Fifth, the payments received under social security, e.g., unemployment insurance allowance, old age pension, and interest on public loans are also not included in GNP, because the recipients do not provide any service in lieu of them. But the depreciation of machines, plants and other capital goods is not deducted from GNP.

Sixth, the profits earned or losses incurred on account of changes in capital assets as a result of fluctuations in market prices are not included in the GNP if they are not responsible for current production or economic activity.

For example, if the price of a house or a piece of land increases due to inflation, the profit earned by selling it will not be a part of GNP. But if, during the current year, a portion of a house is constructed anew, the increase in the value of the house (after subtracting the cost of the newly constructed portion) will be included in the GNP. Similarly, variations in the value of assets, that can be ascertained beforehand and are insured against flood or fire, are not included in the GNP.

Last, the income earned through illegal activities is not included in the GNP. Although the goods sold in the black market are priced and fulfill the needs

of the people, but as they are not useful from the social point of view, the income received from their sale and purchase is always excluded from the GNP.

There are two main reasons for this. One, it is not known whether these things were produced during the current year or the preceding years. Two, many of these goods are foreign made and smuggled and hence not included in the GNP.

### **Three Approaches to GNP:**

After having studied the fundamental constituents of GNP, it is essential to know how it is estimated. Three approaches are employed for this purpose. One, the income method to GNP; two, the expenditure method to GNP and three, the value added method to GNP. Since gross income equals gross expenditure, GNP estimated by all these methods would be the same with appropriate adjustments.

#### **1. Income Method to GNP:**

The income method to GNP consists of the remuneration paid in terms of money to the factors of production annually in a country.

Thus GNP is the sum total of the following items:

##### **(i) Wages and salaries:**

Under this head are included all forms of wages and salaries earned through productive activities by workers and entrepreneurs. It includes all sums received or deposited during a year by way of all types of contributions like overtime, commission, provident fund, insurance, etc.

##### **(ii) Rents:**

Total rent includes the rents of land, shop, house, factory, etc. and the estimated rents of all such assets as are used by the owners themselves.

##### **(iii) Interest:**

Under interest comes the income by way of interest received by the individual of a country from different sources. To this is added, the estimated interest on that private capital which is invested and not borrowed by the businessman in his personal business. But the interest received on governmental loans has to be excluded, because it is a mere transfer of national income.

**(iv) Dividends:**

Dividends earned by the shareholders from companies are included in the GNP.

**(v) Undistributed corporate profits:**

Profits which are not distributed by companies and are retained by them are included in the GNP.

**(vi) Mixed incomes:**

These include profits of unincorporated business, self-employed persons and partnerships. They form part of GNP.

**(vii) Direct taxes:**

Taxes levied on individuals, corporations and other businesses are included in the GNP.

**(viii) Indirect taxes:**

The government levies a number of indirect taxes, like excise duties and sales tax. These taxes are included in the price of commodities. But revenue from these goes to the government treasury and not to the factors of production. Therefore, the income due to such taxes is added to the GNP.

**(ix) Depreciation:**

Every corporation makes allowance for expenditure on wearing out and depreciation of machines, plants and other capital equipment. Since this sum also is not a part of the income received by the factors of production, it is, therefore, also included in the GNP.

**(x) Net income earned from abroad:**

This is the difference between the value of exports of goods and services and the value of imports of goods and services. If this difference is positive, it is added to the GNP and if it is negative, it is deducted from the GNP.

Thus GNP according to the Income Method = Wages and Salaries + Rents + Interest + Dividends + Undistributed Corporate Profits + Mixed Income + Direct Taxes + Indirect Taxes + Depreciation + Net Income from abroad.

**2. Expenditure Method to GNP:**

From the expenditure view point, GNP is the sum total of expenditure incurred on goods and services during one year in a country. It includes the following items:

**(i) Private consumption expenditure:**

It includes all types of expenditure on personal consumption by the individuals of a country. It comprises expenses on durable goods like watch, bicycle, radio, etc., expenditure on single-used consumers' goods like milk, bread, ghee, clothes, etc., as also the expenditure incurred on services of all kinds like fees for school, doctor, lawyer and transport. All these are taken as final goods.

**(ii) Gross domestic private investment:**

Under this comes the expenditure incurred by private enterprise on new investment and on replacement of old capital. It includes expenditure on house construction, factory- buildings, and all types of machinery, plants and capital equipment.

In particular, the increase or decrease in inventory is added to or subtracted from it. The inventory includes produced but unsold manufactured and semi-manufactured goods during the year and the stocks of raw materials, which have to be accounted for in GNP. It does not take into account the financial exchange of shares and stocks because their sale and purchase is not real investment. But depreciation is added.

**(iii) Net foreign investment:**

It means the difference between exports and imports or export surplus. Every country exports to or imports from certain foreign countries. The imported goods are not produced within the country and hence cannot be included in national income, but the exported goods are manufactured within the country. Therefore, the difference of value between exports (X) and imports (M), whether positive or negative, is included in the GNP.

**(iv) Government expenditure on goods and services:**

The expenditure incurred by the government on goods and services is a part of the GNP. Central, state or local governments spend a lot on their employees, police and army. To run the offices, the governments have also to spend on contingencies which include paper, pen, pencil and various types of stationery, cloth, furniture, cars, etc.

It also includes the expenditure on government enterprises. But expenditure on transfer payments is not added, because these payments are not made in exchange for goods and services produced during the current year.

Thus GNP according to the Expenditure Method = Private Consumption Expenditure (C) + Gross Domestic Private Investment (I) + Net Foreign Investment (X-M) + Government Expenditure on Goods and Services (G) = C + I + (X-M) + G. As already pointed out above, GNP estimated by either the income or the expenditure method would work out to be the same, if all the items are correctly calculated.

### **3. Value Added Method to GNP:**

Another method of measuring GNP is by value added. In calculating GNP, the money value of final goods and services produced at current prices during a year is taken into account. This is one of the ways to avoid double counting. But it is difficult to distinguish properly between a final product and an intermediate product.

For instance, raw materials, semi-finished products, fuels and services, etc. are sold as inputs by one industry to the other. They may be final goods for one industry and intermediate for others. So, to avoid duplication, the value of intermediate products used in manufacturing final products must be subtracted from the value of total output of each industry in the economy.

Thus, the difference between the value of material outputs and inputs at each stage of production is called the value added. If all such differences are added up for all industries in the economy, we arrive at the GNP by value added. GNP by value added = Gross value added + net income from abroad. Its calculation is shown in Tables 1, 2 and 3.

Table 1 is constructed on the supposition that the entire economy for purposes of total production consists of three sectors. They are agriculture, manufacturing, and others, consisting of the tertiary sector.

Out of the value of total output of each sector is deducted the value of its intermediate purchases (or primary inputs) to arrive at the value added for the entire economy. Thus the value of total output of the entire economy as per Table 1, is Rs. 155 crores and the value of its primary inputs comes to Rs.

80 crores. Thus the GDP by value added is Rs. 75 crores (Rs. 155 minus Rs. 80 crores).

**TABLE 1 : GDP BY VALUE ADDED**

<i>(Rs. crores)</i>			
Industry	Total Output	Intermediate Purchases	Value Added
(1)	(2)	(3)	(4)=(2-3)
1. Agriculture	30	10	20
2. Manufacturing	70	45	25
3. Others	55	25	30
<b>Total</b>	<b>155</b>	<b>80</b>	<b>75</b>

The total value added equals the value of gross domestic product of the economy. Out of this value added, the major portion goes in the form wages and salaries, rent, interest and profits, a small portion goes to the government as indirect taxes and the remaining amount is meant for depreciation. This is shown in Table 3.

Thus we find that the total gross value added of an economy equals the value of its gross domestic product. If depreciation is deducted from the gross value added, we have net value added which comes to Rs. 67 crores (Rs. 75 minus Rs. 8 crores).

This is nothing but net domestic product at market prices. Again, if indirect taxes (Rs. 7 crores) are deducted from the net domestic product of Rs. 67 crores, we get Rs. 60 crores as the net value added at factor cost which is equivalent to net domestic product at factor cost. This is illustrated in Table 2.

**TABLE 2  
VALUE ADDED AT FACTOR COST  
*(Rs. Crores)***

1. Market Value of output	155
2. <i>Less: cost of intermediate Goods</i>	80
3. Gross value added	75
4. <i>Less: depreciation</i>	8
5. Net value added or domestic product at market prices	67
6. <i>Less: indirect taxes</i>	7
7. Net value added at factor cost	60

Net value added at factor cost is equal to the net domestic product at factor cost, as given by the total of items 1 to 4 of Table 2 (Rs. 45+3+4+8 crores=Rs. 60 crores). By adding indirect taxes (Rs 7 crores) and depreciation (Rs 8 crores), we get gross value added or GDP which comes to Rs 75 crores.

If we add net income received from abroad to the gross value added, this gives us, gross national income. Suppose net income from abroad is Rs. 5 crores. Then the gross national income is Rs. 80 crores (Rs. 75 crores + Rs. 5 crores) as shown in Table 3.

**TABLE 3 : GROSS DOMESTIC PRODUCT**  
(Rs Crores)

1.	Wages and salaries	45
2.	Income from rent	3
3.	Net interest	4
4.	Profits of companies	8
	Net Value Added or NDP	<u>60</u>
5.	Indirect taxes	+7
6.	Depreciation	+8
	Gross Value Added or GDP	<u>75</u>
7.	Net income from abroad	+5
	Gross National Income	<u>80</u>

### **It's Importance:**

The value added method for measuring national income is more realistic than the product and income methods because it avoids the problem of double counting by excluding the value of intermediate products. Thus this method establishes the importance of intermediate products in the national economy. Second, by studying the national income accounts relating to value added, the contribution of each production sector to the value of the GNP can be found out. For instance, it can tell us whether agriculture is contributing more or the share of manufacturing is falling, or of the tertiary sector is increasing in the current year as compared to some previous years. Third, this method is highly useful because "it provides a means of checking the GNP estimates obtained by summing the various types of commodity purchases."

### **It's Difficulties:**

However, difficulties arise in the calculation of value added in the case of certain public services like police, military, health, education, etc. which cannot be estimated accurately in money terms. Similarly, it is difficult to

estimate the contribution made to value added by profits earned on irrigation and power projects.

**(G) GNP at Market Prices:**

When we multiply the total output produced in one year by their market prices prevalent during that year in a country, we get the Gross National Product at market prices. Thus GNP at market prices means the gross value of final goods and services produced annually in a country plus net income from abroad. It includes the gross value of output of all items from (1) to (4) mentioned under GNP.  $GNP \text{ at Market Prices} = GDP \text{ at Market Prices} + \text{Net Income from Abroad}$ .

**(H) GNP at Factor Cost:**

GNP at factor cost is the sum of the money value of the income produced by and accruing to the various factors of production in one year in a country. It includes all items mentioned above under income method to GNP less indirect taxes. GNP at market prices always includes indirect taxes levied by the government on goods which raise their prices. But GNP at factor cost is the income which the factors of production receive in return for their services alone. It is the cost of production.

Thus GNP at market prices is always higher than GNP at factor cost. Therefore, in order to arrive at GNP at factor cost, we deduct indirect taxes from GNP at market prices. Again, it often happens that the cost of production of a commodity to the producer is higher than a price of a similar commodity in the market. In order to protect such producers, the government helps them by granting monetary help in the form of a subsidy equal to the difference between the market price and the cost of production of the commodity. As a result, the price of the commodity to the producer is reduced and equals the market price of similar commodity.

For example if the market price of rice is Rs. 3 per kg but it costs the producers in certain areas Rs. 3.50. The government gives a subsidy of 50 paise per kg to them in order to meet their cost of production. Thus in order to arrive at GNP at factor cost, subsidies are added to GNP at market prices.

$GNP \text{ at Factor Cost} = GNP \text{ at Market Prices} - \text{Indirect Taxes} + \text{Subsidies}$ .

**(I) Net National Product (NNP):**

NNP includes the value of total output of consumption goods and investment goods. But the process of production uses up a certain amount of fixed capital. Some fixed equipment wears out, its other components are damaged or destroyed, and still others are rendered obsolete through technological changes.

All this process is termed depreciation or capital consumption allowance. In order to arrive at NNP, we deduct depreciation from GNP. The word 'net' refers to the exclusion of that part of total output which represents depreciation. So

$$\text{NNP} = \text{GNP} - \text{Depreciation.}$$

**(J) NNP at Market Prices:**

Net National Product at market prices is the net value of final goods and services evaluated at market prices in the course of one year in a country. If we deduct depreciation from GNP at market prices, we get NNP at market prices. So NNP at Market Prices = GNP at Market Prices—Depreciation.

**(K) NNP at Factor Cost:**

Net National Product at factor cost is the net output evaluated at factor prices. It includes income earned by factors of production through participation in the production process such as wages and salaries, rents, profits, etc. It is also called National Income. This measure differs from NNP at market prices in that indirect taxes are deducted and subsidies are added to NNP at market prices in order to arrive at NNP at factor cost. Thus

$$\begin{aligned} \text{NNP at Factor Cost} &= \text{NNP at Market Prices} - \text{Indirect taxes} + \text{Subsidies} \\ &= \text{GNP at Market Prices} - \text{Depreciation} - \text{Indirect taxes} + \text{Subsidies.} \\ &= \text{National Income.} \end{aligned}$$

Normally, NNP at market prices is higher than NNP at factor cost because indirect taxes exceed government subsidies. However, NNP at market prices can be less than NNP at factor cost when government subsidies exceed indirect taxes.

**(L) Domestic Income:**

Income generated (or earned) by factors of production within the country from its own resources is called domestic income or domestic product.

Domestic income includes:

(i) Wages and salaries, (ii) rents, including imputed house rents, (iii) interest, (iv) dividends, (v) undistributed corporate profits, including surpluses of public undertakings, (vi) mixed incomes consisting of profits of unincorporated firms, self-employed persons, partnerships, etc., and (vii) direct taxes.

Since domestic income does not include income earned from abroad, it can also be shown as: Domestic Income = National Income - Net income earned from abroad. Thus the difference between domestic income and national income is the net income earned from abroad. If we add net income from abroad to domestic income, we get national income, i.e., National Income = Domestic Income + Net income earned from abroad.

But the net national income earned from abroad may be positive or negative. If exports exceed imports, net income earned from abroad is positive. In this case, national income is greater than domestic income. On the other hand, when imports exceed exports, net income earned from abroad is negative and domestic income is greater than national income.

**(M) Private Income:**

Private income is income obtained by private individuals from any source, productive or otherwise, and the retained income of corporations. It can be arrived at from NNP at Factor Cost by making certain additions and deductions.

The additions include transfer payments such as pensions, unemployment allowances, and sickness and other social security benefits, gifts and remittances from abroad, windfall gains from lotteries or from horse racing, and interest on public debt. The deductions include income from government departments as well as surpluses from public undertakings, and employees' contribution to social security schemes like provident funds, life insurance, etc.

Thus Private Income = National Income (or NNP at Factor Cost) + Transfer Payments + Interest on Public Debt — Social Security — Profits and Surpluses of Public Undertakings.

**(N) Personal Income:**

Personal income is the total income received by the individuals of a country from all sources before payment of direct taxes in one year. Personal income is never equal to the national income, because the former includes the transfer payments whereas they are not included in national income.

Personal income is derived from national income by deducting undistributed corporate profits, profit taxes, and employees' contributions to social security schemes. These three components are excluded from national income because they do not reach individuals.

But business and government transfer payments, and transfer payments from abroad in the form of gifts and remittances, windfall gains, and interest on public debt which are a source of income for individuals are added to national income. Thus  $\text{Personal Income} = \text{National Income} - \text{Undistributed Corporate Profits} - \text{Profit Taxes} - \text{Social Security Contribution} + \text{Transfer Payments} + \text{Interest on Public Debt}$ .

Personal income differs from private income in that it is less than the latter because it excludes undistributed corporate profits.

Thus  $\text{Personal Income} = \text{Private Income} - \text{Undistributed Corporate Profits} - \text{Profit Taxes}$ .

### **(0) Disposable Income:**

Disposable income or personal disposable income means the actual income which can be spent on consumption by individuals and families. The whole of the personal income cannot be spent on consumption, because it is the income that accrues before direct taxes have actually been paid. Therefore, in order to obtain disposable income, direct taxes are deducted from personal income. Thus  $\text{Disposable Income} = \text{Personal Income} - \text{Direct Taxes}$ .

But the whole of disposable income is not spent on consumption and a part of it is saved. Therefore, disposable income is divided into consumption expenditure and savings. Thus  $\text{Disposable Income} = \text{Consumption Expenditure} + \text{Savings}$ .

If disposable income is to be deduced from national income, we deduct indirect taxes plus subsidies, direct taxes on personal and on business, social

security payments, undistributed corporate profits or business savings from it and add transfer payments and net income from abroad to it.

Thus Disposable Income = National Income – Business Savings – Indirect Taxes + Subsidies – Direct Taxes on Persons – Direct Taxes on Business – Social Security Payments + Transfer Payments + Net Income from abroad.

**(P) Real Income:**

Real income is national income expressed in terms of a general level of prices of a particular year taken as base. National income is the value of goods and services produced as expressed in terms of money at current prices. But it does not indicate the real state of the economy.

It is possible that the net national product of goods and services this year might have been less than that of the last year, but owing to an increase in prices, NNP might be higher this year. On the contrary, it is also possible that NNP might have increased but the price level might have fallen, as a result national income would appear to be less than that of the last year. In both the situations, the national income does not depict the real state of the country. To rectify such a mistake, the concept of real income has been evolved.

In order to find out the real income of a country, a particular year is taken as the base year when the general price level is neither too high nor too low and the price level for that year is assumed to be 100. Now the general level of prices of the given year for which the national income (real) is to be determined is assessed in accordance with the prices of the base year. For this purpose the following formula is employed.

Real NNP =  $\text{NNP for the Current Year} \times \text{Base Year Index (=100)} / \text{Current Year Index}$

Suppose 1990-91 is the base year and the national income for 1999-2000 is Rs. 20,000 crores and the index number for this year is 250. Hence, Real National Income for 1999-2000 will be =  $20000 \times 100/250 = \text{Rs. } 8000 \text{ crores}$ . This is also known as national income at constant prices.

**(Q) Per Capita Income:**

The average income of the people of a country in a particular year is called Per Capita Income for that year. This concept also refers to the measurement of income at current prices and at constant prices. For

$$\text{Per Capita Income for 2001} = \frac{\text{National income for 2001}}{\text{Population in 2001}}$$

instance, in order to find out the per capita income for 2001, at current prices, the national income of a country is divided by the population of the country in that year.

$$\text{Real Per Capita Income for 2001} = \frac{\text{Real national income for 2001}}{\text{Population in 2001}}$$

Similarly, for the purpose of arriving at the Real Per Capita Income, this very formula is used.

This concept enables us to know the average income and the standard of living of the people. But it is not very reliable, because in every country due to unequal distribution of national income, a major portion of it goes to the richer sections of the society and thus income received by the common man is lower than the per capita income.

### **3. Methods of Measuring National Income:**

There are four methods of measuring national income. Which method is to be used depends on the availability of data in a country and the purpose in hand.

#### **(1) Product Method:**

According to this method, the total value of final goods and services produced in a country during a year is calculated at market prices. To find out the GNP, the data of all productive activities, such as agricultural products, wood received from forests, minerals received from mines, commodities produced by industries, the contributions to production made by transport, communications, insurance companies, lawyers, doctors, teachers, etc. are collected and assessed at market prices. Only the final goods and services are included and the intermediary goods and services are left out.

#### **(2) Income Method:**

According to this method, the net income payments received by all citizens of a country in a particular year are added up, i.e., net incomes that accrue to all factors of production by way of net rents, net wages, net interest and net profits are all added together but incomes received in the form of transfer payments are not included in it. The data pertaining to income are

obtained from different sources, for instance, from income tax department in respect of high income groups and in case of workers from their wage bills.

### **(3) Expenditure Method:**

According to this method, the total expenditure incurred by the society in a particular year is added together and includes personal consumption expenditure, net domestic investment, government expenditure on goods and services, and net foreign investment. This concept is based on the assumption that national income equals national expenditure.

### **(4) Value Added Method:**

Another method of measuring national income is the value added by industries. The difference between the value of material outputs and inputs at each stage of production is the value added. If all such differences are added up for all industries in the economy, we arrive at the gross domestic product.

### **4. Difficulties or Limitations in Measuring National Income:**

There are many conceptual and statistical problems involved in measuring national income by the income method, product method, and expenditure method.

We discuss them separately in the light of the three methods:

#### **(A) Problems in Income Method:**

The following problems arise in the computation of National Income by income method:

##### **1. Owner-occupied Houses:**

A person who rents a house to another earns rental income, but if he occupies the house himself, will the services of the house-owner be included in national income. The services of the owner-occupied house are included in national income as if the owner sells to himself as a tenant its services.

For the purpose of national income accounts, the amount of imputed rent is estimated as the sum for which the owner-occupied house could have been rented. The imputed net rent is calculated as that portion of the amount that would have accrued to the house-owner after deducting all expenses.

##### **2. Self-employed Persons:**

Another problem arises with regard to the income of self-employed persons. In their case, it is very difficult to find out the different inputs

provided by the owner himself. He might be contributing his capital, land, labour and his abilities in the business. But it is not possible to estimate the value of each factor input to production. So he gets a mixed income consisting of interest, rent, wage and profits for his factor services. This is included in national income.

### **3. Goods meant for Self-consumption:**

In under-developed countries like India, farmers keep a large portion of food and other goods produced on the farm for self-consumption. The problem is whether that part of the produce which is not sold in the market can be included in national income or not. If the farmer were to sell his entire produce in the market, he will have to buy what he needs for self-consumption out of his money income. If, instead he keeps some produce for his self-consumption, it has money value which must be included in national income.

### **4. Wages and Salaries paid in Kind:**

Another problem arises with regard to wages and salaries paid in kind to the employees in the form of free food, lodging, dress and other amenities. Payments in kind by employers are included in national income. This is because the employees would have received money income equal to the value of free food, lodging, etc. from the employer and spent the same in paying for food, lodging, etc.

### **(B) Problems in Product Method:**

The following problems arise in the computation of national income by product method:

#### **1. Services of Housewives:**

The estimation of the unpaid services of the housewife in the national income presents a serious difficulty. A housewife renders a number of useful services like preparation of meals, serving, tailoring, mending, washing, cleaning, bringing up children, etc. She is not paid for them and her services are not including in national income. Such services performed by paid servants are included in national income. The national income is, therefore, underestimated by excluding the services of a housewife.

The reason for the exclusion of her services from national income is that the love and affection of a housewife in performing her domestic work cannot be

measured in monetary terms. That is why when the owner of a firm marries his lady secretary, her services are not included in national income when she stops working as a secretary and becomes a housewife.

When a teacher teaches his own children, his work is also not included in national income. Similarly, there are a number of goods and services which are difficult to be assessed in money terms for the reason stated above, such as painting, singing, dancing, etc. as hobbies.

## **2. Intermediate and Final Goods:**

The greatest difficulty in estimating national income by product method is the failure to distinguish properly between intermediate and final goods. There is always the possibility of including a good or service more than once, whereas only final goods are included in national income estimates. This leads to the problem of double counting which leads to the overestimation of national income.

## **3. Second-hand Goods and Assets:**

Another problem arises with regard to the sale and purchase of second-hand goods and assets. We find that old scooters, cars, houses, machinery, etc. are transacted daily in the country. But they are not included in national income because they were counted in the national product in the year they were manufactured.

If they are included every time they are bought and sold, national income would increase many times. Similarly, the sale and purchase of old stocks, shares, and bonds of companies are not included in national income because they were included in national income when the companies were started for the first time. Now they are simply financial transactions and represent claims.

But the commission or fees charged by the brokers in the repurchase and resale of old shares, bonds, houses, cars or scooters, etc. are included in national income. For these are the payments they receive for their productive services during the year.

## **4. Illegal Activities:**

Income earned through illegal activities like gambling, smuggling, illicit extraction of wine, etc. is not included in national income. Such activities have

value and satisfy the wants of the people but they are not considered productive from the point of view of society. But in countries like Nepal and Monaco where gambling is legalised, it is included in national income. Similarly, horse-racing is a legal activity in England and is included in national income.

#### **5. Consumers' Service:**

There are a number of persons in society who render services to consumers but they do not produce anything tangible. They are the actors, dancers, doctors, singers, teachers, musicians, lawyers, barbers, etc. The problem arises about the inclusion of their services in national income since they do not produce tangible commodities. But as they satisfy human wants and receive payments for their services, their services are included as final goods in estimating national income.

#### **6. Capital Gains:**

The problem also arises with regard to capital gains. Capital gains arise when a capital asset such as a house, some other property, stocks or shares, etc. is sold at higher price than was paid for it at the time of purchase. Capital gains are excluded from national income because these do not arise from current economic activities. Similarly, capital losses are not taken into account while estimating national income.

#### **7. Inventory Changes:**

All inventory changes (or changes in stocks) whether positive or negative are included in national income. The procedure is to take changes in physical units of inventories for the year valued at average current prices paid for them.

The value of changes in inventories may be positive or negative which is added or subtracted from the current production of the firm. Remember, it is the change in inventories and not total inventories for the year that are taken into account in national income estimates.

#### **8. Depreciation:**

Depreciation is deducted from GNP in order to arrive at NNP. Thus depreciation lowers the national income. But the problem is of estimating the current depreciated value of, say, a machine, whose expected life is supposed

to be thirty years. Firms calculate the depreciation value on the original cost of machines for their expected life. This does not solve the problem because the prices of machines change almost every year.

### **9. Price Changes:**

National income by product method is measured by the value of final goods and services at current market prices. But prices do not remain stable. They rise or fall. When the price level rises, the national income also rises, though the national production might have fallen.

On the contrary, with the fall in the price level, the national income also falls, though the national production might have increased. So price changes do not adequately measure national income. To solve this problem, economists calculate the real national income at a constant price level by the consumer price index.

### **(C) Problems in Expenditure Method:**

The following problems arise in the calculation of national income by expenditure method:

#### **(1) Government Services:**

In calculating national income by, expenditure method, the problem of estimating government services arises. Government provides a number of services, such as police and military services, administrative and legal services. Should expenditure on government services be included in national income?

If they are final goods, then only they would be included in national income. On the other hand, if they are used as intermediate goods, meant for further production, they would not be included in national income. There are many divergent views on this issue.

One view is that if police, military, legal and administrative services protect the lives, property and liberty of the people, they are treated as final goods and hence form part of national income. If they help in the smooth functioning of the production process by maintaining peace and security, then they are like intermediate goods that do not enter into national income.

In reality, it is not possible to make a clear demarcation as to which service protects the people and which protects the productive process. Therefore, all such services are regarded as final goods and are included in national income.

### **(2) Transfer Payments:**

There arises the problem of including transfer payments in national income. Government makes payments in the form of pensions, unemployment allowance, subsidies, interest on national debt, etc. These are government expenditures but they are not included in national income because they are paid without adding anything to the production process during the current year.

For instance, pensions and unemployment allowances are paid to individuals by the government without doing any productive work during the year. Subsidies tend to lower the market price of the commodities. Interest on national or public debt is also considered a transfer payment because it is paid by the government to individuals and firms on their past savings without any productive work.

### **(3) Durable-use Consumers' Goods:**

Durable-use consumers' goods also pose a problem. Such durable-use consumers' goods as scooters, cars, fans, TVs, furniture's, etc. are bought in one year but they are used for a number of years. Should they be included under investment expenditure or consumption expenditure in national income estimates? The expenditure on them is regarded as final consumption expenditure because it is not possible to measure their used up value for the subsequent years.

But there is one exception. The expenditure on a new house is regarded as investment expenditure and not consumption expenditure. This is because the rental income or the imputed rent which the house-owner gets is for making investment on the new house. However, expenditure on a car by a household is consumption expenditure. But if he spends the amount for using it as a taxi, it is investment expenditure.

### **(4) Public Expenditure:**

Government spends on police, military, administrative and legal services, parks, street lighting, irrigation, museums, education, public health,

roads, canals, buildings, etc. The problem is to find out which expenditure is consumption expenditure and which investment expenditure is.

Expenses on education, museums, public health, police, parks, street lighting, civil and judicial administration are consumption expenditure. Expenses on roads, canals, buildings, etc. are investment expenditure. But expenses on defence equipment are treated as consumption expenditure because they are consumed during a war as they are destroyed or become obsolete. However, all such expenses including the salaries of armed personnel are included in national income.

### **5. Importance of National Income Analysis:**

The national income data have the following importance:

#### **1. For the Economy:**

National income data are of great importance for the economy of a country. These days the national income data are regarded as accounts of the economy, which are known as social accounts. These refer to net national income and net national expenditure, which ultimately equal each other.

Social accounts tell us how the aggregates of a nation's income, output and product result from the income of different individuals, products of industries and transactions of international trade. Their main constituents are inter-related and each particular account can be used to verify the correctness of any other account.

#### **2. National Policies:**

National income data form the basis of national policies such as employment policy, because these figures enable us to know the direction in which the industrial output, investment and savings, etc. change, and proper measures can be adopted to bring the economy to the right path.

#### **3. Economic Planning:**

In the present age of planning, the national data are of great importance. For economic planning, it is essential that the data pertaining to a country's gross income, output, saving and consumption from different sources should be available. Without these, planning is not possible.

#### **4. Economic Models:**

The economists propound short-run as well as long-run economic models or long-run investment models in which the national income data are very widely used.

#### **5. Research:**

The national income data are also made use of by the research scholars of economics. They make use of the various data of the country's input, output, income, saving, consumption, investment, employment, etc., which are obtained from social accounts.

#### **6. Per Capita Income:**

National income data are significant for a country's per capita income which reflects the economic welfare of the country. The higher the per capita income, the higher the economic welfare of the country.

#### **7. Distribution of Income:**

National income statistics enable us to know about the distribution of income in the country. From the data pertaining to wages, rent, interest and profits, we learn of the disparities in the incomes of different sections of the society. Similarly, the regional distribution of income is revealed. It is only on the basis of these that the government can adopt measures to remove the inequalities in income distribution and to restore regional equilibrium. With a view to removing these personal and regional disequilibria, the decisions to levy more taxes and increase public expenditure also rest on national income statistics.

#### **4.6. Overview on State Income and National Income**

A country's domestic income is the total income earned by its citizens and businesses. Among the types of income it includes are wages, salaries, profits, and other sources generated by the country's economic activity. To make economic policy decisions, the government uses the domestic income to measure the overall economic health of a country. In addition, it is used to calculate the Gross Domestic Product (GDP) of a country.

#### **Advantages of Domestic Income:**

- 1) Greater control over the economy: An economy that is stronger and more stable can be achieved by managing and allocating domestic income in the most effective way.

- 2) Reduced dependency on foreign sources: When a country generates domestic income, it is less dependent on foreign sources of income and is better able to withstand economic instability elsewhere.
- 3) Job creation: Local businesses generate domestic income, resulting in job creation and increased economic activity.
- 4) Increased tax revenue: By increasing domestic income, the government can collect more tax revenue, which can be used to fund public services and infrastructure.
- 5) Stimulation of local industries: A country's economy will be more diverse and resilient if it prioritizes domestic income.
- 6) Positive impact on trade balance: More domestic income can help a country maintain a stable exchange rate since it is less likely to have a trade deficit.

#### **Disadvantages of Domestic Income:**

- 1) Limited access to foreign markets: Economic growth may be limited if a country prioritizes domestic income over foreign trade and business.
- 2) Higher costs: It is possible for domestic goods and services to be more expensive than those imported from other countries, which can increase consumers' costs of living.
- 3) Limited access to specialized goods: Certain goods or services may not be produced in a country, which can limit consumer choice and access to specialized items.
- 4) Dependence on domestic resources: In the absence of adequate resources, a country may become overly reliant on its own.
- 5) Protectionism: Protectionism can lead to inefficiencies, higher prices, and reduced economic growth if domestic income is prioritized over free trade.
- 6) Limited competition: When a country prioritizes domestic income, it limits the competition from foreign businesses, which can decrease innovation and productivity at home.

#### **Overview on National Income**

As a measure of a country's total economic output, national income includes the total value of the goods and services produced, as well as investment

income. A country's GDP is generally calculated by the sum of all wages, rents, interest, and profits. In addition to assessing the overall health of a country's economy, national income can also be used to compare the economic performance of different countries. National income does not cover the distribution of income within a country, so it may not give a true picture of the well-being of its citizens.

## **Advantages and Disadvantages of National Income**

### **Advantages of National Income:**

- 1) Measures economic growth: National income statistics provide a measure of a country's economic growth over time, which can be used to assess the overall health of the economy and its ability to generate wealth.
- 2) Helps in economic planning: National income statistics can help policymakers make informed decisions about economic planning, such as allocating resources and setting economic goals and targets.
- 3) Provides information for international comparisons: National income statistics allow for comparisons of economic activity between countries, which can be helpful in identifying areas where a country is lagging behind or excelling relative to other countries.
- 4) Helps to attract foreign investment: A country with a high national income is often seen as a more attractive destination for foreign investment, as it signals economic stability and growth potential.
- 5) Facilitates macroeconomic policy analysis: National income statistics can be used to analyze the effects of macroeconomic policies, such as monetary and fiscal policies, on the overall economy.
- 6) Helps in assessing the impact of economic policies: National income statistics can be used to assess the impact of economic policies on different sectors of the economy, such as agriculture, industry, and services, and to evaluate the effectiveness of these policies in achieving their objectives.

### **Disadvantages of National Income:**

- 1) Doesn't capture income inequality: National income statistics do not account for the distribution of income within a country, which means

that even if the overall national income increases, it doesn't necessarily mean that everyone benefits equally.

- 2) Ignores non-monetary transactions: National income only measures monetary transactions and does not account for non-monetary transactions, such as the value of unpaid work or the informal economy, which can be a significant part of a country's economy.
- 3) Can incentivize environmental degradation: National income statistics can incentivize economic activity that leads to environmental degradation, such as unsustainable resource extraction or pollution.
- 4) Doesn't capture quality of life: National income only measures economic activity and does not account for factors that contribute to a good quality of life, such as access to healthcare, education, and social services.
- 5) Can be affected by inflation: National income statistics are usually measured in nominal terms, which means that they can be affected by inflation. If the price level increases faster than the national income, the real value of national income decreases.
- 6) Doesn't account for informal economy: National income statistics typically do not account for the informal economy, which can be a significant part of a country's economy, especially in developing countries. This can lead to an underestimation of a country's true economic activity.

**Check Your Progress:**

<b>Q.No</b>	<b>Short Answer Question</b>	<b>LOCF Mapping</b>		
1.	Explain the administrative regions in India: State, District, Taluk and Village.	K2	CO1	PO1
2.	Define Urban and Rural regions and mention their distinguishing features.	K2	CO1	PO1
3.	Define Gross State Domestic Product (GSDP) and explain its components.	K2	CO2	PO3
4.	Distinguish between GDP and GSDP estimation.	K4	CO3	PO2
5.	State the measures used to study interregional economic growth at the state level.	K3	CO4	PO3
<b>Q.No</b>	<b>Long Answer Question</b>	<b>LOCF Mapping</b>		
1.	Discuss the administrative and functional regional classification in India and its significance for regional planning.	K4	CO1	PO4
2.	Explain the concept, definition and measurement of State Income (GSDP) and examine its importance in regional development analysis.	K4	CO2	PO3
3.	Critically examine the differences between estimation of National Income (GDP) and State Income (GSDP).	K5	CO3	PO2
4.	Analyze rural and urban GDP in India and discuss their role in regional disparities.	K4	CO2	PO4
5.	Evaluate the measurement of interregional economic growth at the state level and suggest policy measures to reduce regional imbalance.	K5	CO4	PO4

## UNIT - V

### REGIONAL ASPECTS OF STABILIZATION AND GROWTH POLICY

#### 5.1. INTRODUCTION

Stabilization policy in interdependent open economies, by proposing a unified analytical framework systematizing the existing literature. In the model, the combination of complete exchange-rate pass-through ('producer currency pricing') and frictionless asset markets ensuring efficient risk sharing, results in a form of open-economy 'divine coincidence': in line with the prescriptions in the baseline New-Keynesian setting, the optimal monetary policy under cooperation is characterized by exclusively inward-looking targeting rules in domestic output gaps and GDP-deflator inflation. The chapter then examines deviations from this benchmark, when cross-country strategic policy interactions, incomplete exchange-rate pass-through ('local currency pricing') and asset market imperfections are accounted for. Namely, failure to internalize international monetary spillovers results in attempts to manipulate international relative prices to raise national welfare, causing inefficient real exchange rate fluctuations. Local currency pricing and incomplete asset markets (preventing efficient risk sharing) shift the focus of monetary stabilization to redressing domestic as well as external distortions: the targeting rules characterizing the optimal policy are not only in domestic output gaps and inflation, but also in misalignments in the terms of trade and real exchange rates, and cross-country demand imbalances.

#### 5.2. Measures for Stabilization

Economic stabilisation is one of the main remedies to effectively control or eliminate the periodic trade cycles which plague capitalist economy. Economic stabilisation, it should be noted, is not merely confined to a single individual sector of an economy but embraces all its facts. In order to ensure economic stability, a number of economic measures have to be devised and implemented.

In modern times, a programme of economic stabilisation is usually directed towards the attainment of three objectives: (i) controlling or moderating cyclical fluctuations; (ii) encouraging and sustaining economic growth at full employment level; and (iii) maintaining the value of money through price

stabilisation. Thus, the goal of economic stability can be easily resolved into the twin objectives of sustained full employment and the achievement of a degree of price stability.

The following instruments are used to attain the objectives of economic stabilisation, particularly control of trade cycles, relative price stability and attainment of economic growth:

- (1) Monetary policy
- (2) Fiscal policy; and
- (3) Direct controls.

### **1. Monetary Policy:**

The most commonly advocated policy of solving the problem of fluctuations is monetary policy. Monetary policy pertains to banking and credit, availability of loans to firms and households, interest rates, public debt and its management, and monetary management. However, the fundamental problem of monetary policy in relation to trade cycles is to control and regulate the volume of credit in such a way as to attain economic stability. During a depression, credit must be expanded and during an inflationary boom, its flow must be checked. Monetary management is the function of the commercial banking system, and through it, its effects are primarily exerted the economy as a whole. Monetary management directly affects the volume of cash reserves of banks, regulates the supply of money and credit in the economy, thereby influencing the structure of interest rates and availability of credit.

Both these factors affect the components of aggregate demand (consumption plus investment) and the flow of expenditures in the economy. It is obvious that an expansion in bank credit causes an increasing flow of expenditure (in terms of money) and contraction in bank credit reduces it. In the armoury of the central bank, there are quantitative as well as qualitative weapons to control the credit-creating activity of the banking system. They are bank rate, open market operations and reserve ratios. These are interrelated to tools which operate on the reserves of member banks which influence the ability and willingness of the banks to expand credit. Selective credit controls are applied to regulate the extension of credit for particular purposes. We shall now briefly discuss the implications of these weapons.

### **Bank Rate Policy:**

Due to various reasons, the bank rate policy is relatively an ineffective weapon of credit control. However, from the viewpoint of contracyclical monetary policy, bank rate policy is usually interpreted as an evidence of monetary authority's judgement regarding the contribution of the current flow of money and bank credit to general economic stability.

That is to say, a rise in the bank rate indicates that the central bank considers that liquidity in the banking system possesses an inflationary potential. It implies that the flow of money and credit is very much in excess of the actual productive capacity of the economy and therefore, a restraint on the expansion of money supply through dear money policy is desirable.

On the other hand, a reduction in the bank rate is generally interpreted as an evidence of a shift in the direction of monetary policy towards a cheap and expansive money policy. A reduction in bank rate then is more significant as a symbol of an easy money policy than anything else. However, the bank rate is most effective as an instrument of restraint.

### **Effectiveness of Bank Rate Policy in Expansion:**

According to Estey, the following difficulties usually arise in the way of an effective discount policy in expansion:

1. During high prosperity, the demand for credit by businessmen may be interest-inelastic.
2. The rising of bank rate and a consequent rise in the market rates of interest may attract loanable funds from the financial intermediaries in the money market and assist in counteracting undesired effects.
3. Though the quantity of money may be controlled by the banking system, the velocity of its circulation is not directly under the influence of banks. Banking policy may determine how much credit there should be but it is the trade which decides how much and how fast it will be used. Thus, if the velocity of the movement is contrary to the volume of credit, banking policy will be rendered ineffective.
4. There is also the difficulty of proper timing in the application of banking policy. Brakes must be applied at the right time and in the right quarter. If they are applied too soon, they must bring expansion to an end with factors

of production not fully employed. And when applied too late, there might be a runaway monetary expansion and inflation, completely out of control.

### **Open Market Operations:**

The technique of open market operations refers to the purchase and sale of securities by the central bank. A selling operation reduces commercial banks' reserves and their lending power. However, because of the need to maintain the government securities market, the central bank is completely free to sell government securities when and in what amounts it wishes in order to influence commercial banks' reserve position. Thus, when a large public debt is outstanding, by expanding the securities market, monetary policy and management of the public debt become inseparably intertwined.

### **Reserve Ratios:**

The monetary authorities have at their disposal another most effective way of influencing reserves and activities of commercial banks and that weapon is a change in cash reserve ratios. Changes in the reserve ratios become effective at a pre-announced date.

Their immediate effect is to alter the liquidity position in the banking system. When the cash reserve ratio is raised commercial banks find their existing level of cash reserves inadequate to cover deposits and have to raise funds by disposing liquid assets in the monetary market. The reverse will be the case when the reserve ratio is lowered. Thus, changes in the reserve ratios can influence directly the cash volume and the lending capacity of the banks.

It appears that the bank rate policy, open market operations and changes in reserve ratios exert their influence on the cost, volume and availability of bank reserves through reserves, on the money supply.

### **Selective Controls:**

Selective controls or qualitative credit control is used to divert the flow of credit into and out of particular segments of the credit market. Selective controls aim at influencing the purpose of borrowing. They regulate the extension of credit for particular purposes. The rationale for the use of selective controls is that credit may be deemed excessive in some sectors at a time when a general credit control would be contrary to the maintenance of

economic stability. It goes without saying that these various means of credit controls are to be co-ordinated to achieve the goal of economic stability.

### **Effectiveness of Monetary Control:**

Monetary policy is much more effective in curbing a boom than in helping to bring the economy out of a depressionary state. It has long been recognised that monetary management can always contract the money supply sufficiently to end any boom, but it has little capacity to end a contraction. This is because the actions of monetary management do not directly enter the income-expenditure stream as the most effective contra-cyclical weapon, for their first impact is on the asset structure of financial institutions, and in this process of altering the assets structure, rate of interest, volume of credit and the income-expenditure flow may be altered.

All these operate more significantly in restraining the income stream during expansion than in inducing an increase during contraction. However, the greatest advantage of monetary policy is its flexibility. Monetary management makes decisions about the rate of change in the money supplies that are consistent with economic stability and growth on a judgement of given quantitative and qualitative evidences. But, whether this point of monetary policy will prove its effectiveness or not depends on its exact timing. Manipulation of bank rate and open market dealings by the central bank should be reasonably effective if applied quickly and continuously in preventing booms from developing and consequently, into a depression. To sum up, monetary policy is a necessary part of the stabilisation programme but it alone is not sufficient to achieve the desired goal. Monetary policy, if used as a tool of economic stabilisation, in many ways, serves as a complement of fiscal policy. It is strong, whereas fiscal policy is weak. It is flexible and capable of quick alternations to suit the measure of pressures of the time and needs. However, it is to be co-ordinated with fiscal policy. A wrong monetary policy may seriously endanger and even destroy the effectiveness of fiscal policy. Thus, monetary policy and fiscal policy, each reinforcing and supplementing the other, are the essential elements in devising an economic stabilisation programme.

## **2. Fiscal Policy:**

Today, foremost among the techniques of stabilisation is fiscal policy. Fiscal policy as a tool of economic stability, however, has received its due importance under the influence of Keynesian economies only since the depression years of the 1930s. The term “fiscal policy” embraces the tax and expenditure policies of the government. Thus, fiscal policy operates through the control of government expenditures and tax receipts. It encompasses two separate but related decisions: public expenditures and level and structure of taxes. The amount of public outlay, the inducement and effects of taxation and the relation between expenditure and revenue exert a significant impact upon the free enterprise economy.

Broadly speaking, the taxation policy of the government relates to the programme of curbing private spending. The expenditure policy, on the other hand, deals with the channels by which government spending on new goods and services directly add to aggregate demand and indirectly income through the secondary spending which takes place on account of the multiplier effect. Taxation, on the other hand, operates to reduce the level of private spending (on both consumption and investment) by reducing the disposable income and the resulting savings in the community. Hence, under the budgetary phenomenon, public expenditure and revenue can be combined in various ways to achieve the desired stimulating or deflationary effect on aggregate demand.

Thus, fiscal policy has quantitative as well as qualitative aspect changes in tax rates, the structure of taxation and its incidence influence the volume and direction of private spending in economy. Similarly, changes in government’s expenditures and its structure of allocations will also have quantitative and redistributive effects on time, consumption and aggregate demand of the community. As a matter of fact, all government spending is an inducement to increase the aggregate demand (both volume and components) and has an inflationary bias in the sense that it releases funds for the private economy which are then available for use in trade and business.

Similarly, a reduction in government spending has a deflationary bias and it reduces the aggregate demand (its volume and relative components in which

the expenditure is curtailed). Thus, the composition of public expenditures and public revenue not only help to mould the economic structure of the country but also exert certain effects on the economy. For maximum effectiveness, fiscal policy should be planned on both long-run and short-run basis. Long-run fiscal policy obviously is concerned with the long-run trends in government income and spendings. Within the framework of such a long-range plan of fiscal operations, the budget can be made to vary cyclically in order to moderate the short-run economic fluctuations.

Basically two sets of techniques can be employed for planning the desired flexibility in the relation between tax revenue and expenditure: (1) built-in flexibility or automatic stabilisers, and (2) discretionary action.

**Built-in Flexibility:** The operation of a fiscal policy is always confronted with the problem of timing and forecast. A fiscal policy administrator has always to face the question: When to do what? But it is a very difficult and complex question to answer. Thus, in order to minimise the difficulties that arise from uncertainties of forecasting and timing of fiscal operations, an automatic stabiliser programme is often advocated.

Automatic stabiliser programme implies that in a given framework of expenditure and revenue relation in a budgetary policy, there exist factors which provide automatically corrective influences on movements in national income, employment, etc. This is what is called built-in flexibility. It refers to a passive budgetary policy.

The essence of built-in flexibility is that (i) with a given set of tax rates tax yields will vary directly with national income, and (ii) there are certain lines of government expenditures which tend to vary inversely with movements in national income.

Thus, when the national income rises, the existing structure of taxes and expenditures tend to automatically increase public revenue relative to expenditure, and to increase expenditures relative to revenue when the national income falls. These changes tend to mitigate or offset inflation or depression at least partially. Thus, a progressive tax structure seems to be the best automatic stabiliser.

Likewise, certain kinds of government expenditure schemes like unemployment compensation programmes, government subsidies or price-support programmes also offset changes in income by varying inversely with movements in national income.

However, automatic stabilisers are not a panacea for economic fluctuations, since they operate only as a partial offset to changes in national income, but provide a force to reverse the direction of the change in the income.

They slow down the rate of decline in aggregate income but contain no provision for restoring income to its former level. Thus, they should be recognised as a very useful device of fiscal operations but not the only device. Simultaneously, there should be scope for discretionary policies as the circumstances will call for.

#### **Discretionary Action:**

Quite often, it becomes absolutely necessary to have fiscal operations with a tool kit of discretionary policies consisting of measures for putting into effect with a minimum delay, the changes in government expenditures. This calls for a skeleton of public works projects providing for administrative discretion to employ them and the funds to put them into effect.

It calls for a budgetary manipulation an active budget policy constituting flexible tax rates and expenditures. There can be three ways of discretionary changes in tax rates and expenditures: changing expenditure with constant tax rates; changing tax rates and constant expenditure; and a combination of changing tax rates and changing expenditures.

In general, the first method is probably superior to the second during a depression. That is to say, to increase expenditures with the level of taxes remaining unchanged is useful in pushing up the aggregate spending and effective demand in the economy. However, the second method will prove to be superior to the first during inflation. That is to say, inflation could be checked effectively by increasing the tax rates with a given expenditure programme. But it is easy to see that the third method is much more effective during inflation as well as deflation than the other two.

Inflation would, of course, be more effectively curbed when taxes are enhanced and public expenditure is also simultaneously reduced. Similarly,

during a depression, the spending rate of private economy will be quickly lifted up if taxes are reduced simultaneously with the increasing public expenditure. However, the main difficulty with most discretionary policies is their proper timing. Delay in discretion and implementation will aggravate the problem and the programme may not prove to be effective in solving the problems. Thus, many economists fear that discretionary government actions are likely to do more harm than good, owing to the uncertainty of government actions and the political pressures to favour vested interests. That is why reliance on built-in stabilisers, as far as possible, has been advocated.

### **3. Direct Controls:**

Direct controls are imposed by government which expressly forbid or restricts certain kinds of investment or economic activity. Sometimes, direct government controls over prices and wages as a measure against inflation have been advocated and implemented. During World War II, price-wage controls were employed in conjunction with consumer rationing and materials allocation to curb generalised total excess demand and to direct productive resources into channels desired by the government. Monetary-fiscal controls may be used to curb excess demand in general but direct controls can be more useful when they are applied to specific scarcity areas.

Direct controls have the following advantages:

1. They can be introduced or changed quickly and easily: hence the effects of these can be rapid.
2. Direct controls can be more discriminatory than monetary and fiscal controls.
3. There can be variation in the intensity of the operations of controls from time to time in different sectors.

In a peace-time economy, however, there are serious philosophical and political objections to direct economic controls as a stabilisation device. Objections have been raised to such controls on the following counts:

1. Direct controls suppress individual initiative and enterprise.
2. They tend to inhibit innovations, such as new techniques of production, new products etc.

3. Direct controls may breed or induce speculation which may have destabilising effects. For instance, if it is expected that a commodity X, say steel, is to be rationed because of scarcity, people may try to hoard large stocks of it, which aggravates its shortage. It, thus, encourages the creation of artificial scarcity through large-scale hoarding;

4. Direct controls need a cumbersome, honest and efficient administrative organisation if they are to work effectively.

5. Gross disturbances reappear as soon as controls are removed.

In short, direct controls are to be used only in extraordinary circumstances like emergencies, but not in a peace-time economy.

### **5.3. Taxation**

Taxation imposition of compulsory levies on individuals or entities by governments. Taxes are levied in almost every country of the world, primarily to raise revenue for government expenditures, although they serve other purposes as well. This article is concerned with taxation in general, its principles, its objectives, and its effects; specifically, the article discusses the nature and purposes of taxation, whether taxes should be classified as direct or indirect, the history of taxation, canons and criteria of taxation, and economic effects of taxation, including shifting and incidence (identifying who bears the ultimate burden of taxes when that burden is passed from the person or entity deemed legally responsible for it to another). For further discussion of taxation's role in fiscal policy, *see* government economic policy. In addition, *see* international trade for information on tariffs.

In modern economies taxes are the most important source of governmental revenue. Taxes differ from other sources of revenue in that they are compulsory levies and are unrequited—i.e., they are generally not paid in exchange for some specific thing, such as a particular public service, the sale of public property, or the issuance of public debt. While taxes are presumably collected for the welfare of taxpayers as a whole, the individual taxpayer's liability is independent of any specific benefit received. There are, however, important exceptions: payroll taxes, for example, are commonly levied on labour income in order to finance retirement benefits, medical payments,

and other social security programs—all of which are likely to benefit the taxpayer. Because of the likely link between taxes paid and benefits received, payroll taxes are sometimes called “contributions” (as in the United States). Nevertheless, the payments are commonly compulsory, and the link to benefits is sometimes quite weak. Another example of a tax that is linked to benefits received, if only loosely, is the use of taxes on motor fuels to finance the construction and maintenance of roads and highways, whose services can be enjoyed only by consuming taxed motor fuels.

### **Purposes of taxation**

During the 19th century the prevalent idea was that taxes should serve mainly to finance the government. In earlier times, and again today, governments have utilized taxation for other than merely fiscal purposes. One useful way to view the purpose of taxation, attributable to American economist Richard A. Musgrave, is to distinguish between objectives of resource allocation, income redistribution, and economic stability. (Economic growth or development and international competitiveness are sometimes listed as separate goals, but they can generally be subsumed under the other three.) In the absence of a strong reason for interference, such as the need to reduce pollution, the first objective, resource allocation, is furthered if tax policy does not interfere with market-determined allocations. The second objective, income redistribution, is meant to lessen inequalities in the distribution of income and wealth. The objective of stabilization—implemented through tax policy, government expenditure policy, monetary policy, and debt management—is that of maintaining high employment and price stability.

### **Classes of taxes:** Direct and indirect taxes

Taxes have been classified in various ways according to who pays for them, who bears the ultimate burden of them, the extent to which the burden can be shifted, and various other criteria. Taxes are most commonly classified as either direct or indirect, an example of the former type being the income tax and of the latter the sales tax. There is much disagreement among economists as to the criteria for distinguishing between direct and indirect taxes, and it is unclear into which category certain taxes, such as corporate

income tax or property tax, should fall. It is usually said that a direct tax is one that cannot be shifted by the taxpayer to someone else, whereas an indirect tax can be.

### **Direct taxes**

Direct taxes are primarily taxes on natural persons (e.g., individuals), and they are typically based on the taxpayer's ability to pay as measured by income, consumption, or net wealth. What follows is a description of the main types of direct taxes.

Individual income taxes are commonly levied on total personal net income of the taxpayer (which may be an individual, a couple, or a family) in excess of some stipulated minimum. They are also commonly adjusted to take into account the circumstances influencing the ability to pay, such as family status, number and age of children, and financial burdens resulting from illness. The taxes are often levied at graduated rates, meaning that the rates rise as income rises. Personal exemptions for the taxpayer and family can create a range of income that is subject to a tax rate of zero.

Taxes on net worth are levied on the total net worth of a person—that is, the value of his assets minus his liabilities. As with the income tax, the personal circumstances of the taxpayer can be taken into consideration.

Personal or direct taxes on consumption (also known as expenditure taxes or spending taxes) are essentially levied on all income that is not channeled into savings. In contrast to indirect taxes on spending, such as the sales tax, a direct consumption tax can be adjusted to an individual's ability to pay by allowing for marital status, age, number of dependents, and so on. Although long attractive to theorists, this form of tax has been used in only two countries, India and Sri Lanka; both instances were brief and unsuccessful. Near the end of the 20th century, the "flat tax"—which achieves economic effects similar to those of the direct consumption tax by exempting most income from capital—came to be viewed favourably by tax experts. No country has adopted a tax with the base of the flat tax, although many have income taxes with only one rate.

Taxes at death take two forms: the inheritance tax, where the taxable object is the bequest received by the person inheriting, and the estate tax, where the

object is the total estate left by the deceased. Inheritance taxes sometimes take into account the personal circumstances of the taxpayer, such as the taxpayer's relationship to the donor and his net worth before receiving the bequest. Estate taxes, however, are generally graduated according to the size of the estate, and in some countries they provide tax-exempt transfers to the spouse and make an allowance for the number of heirs involved. In order to prevent the death duties from being circumvented through an exchange of property prior to death, tax systems may include a tax on gifts above a certain threshold made between living persons (*see* gift tax). Taxes on transfers do not ordinarily yield much revenue, if only because large tax payments can be easily avoided through estate planning.

### **Indirect taxes**

Indirect taxes are levied on the production or consumption of goods and services or on transactions, including imports and exports. Examples include general and selective sales taxes, value-added taxes (VAT), taxes on any aspect of manufacturing or production, taxes on legal transactions, and customs or import duties.

General sales taxes are levies that are applied to a substantial portion of consumer expenditures. The same tax rate can be applied to all taxed items, or different items (such as food or clothing) can be subject to different rates. Single-stage taxes can be collected at the retail level, as the U.S. states do, or they can be collected at a pre-retail (i.e., manufacturing or wholesale) level, as occurs in some developing countries. Multistage taxes are applied at each stage in the production-distribution process. The VAT, which increased in popularity during the second half of the 20th century, is commonly collected by allowing the taxpayer to deduct a credit for tax paid on purchases from liability on sales. The VAT has largely replaced the turnover tax—a tax on each stage of the production and distribution chain, with no relief for tax paid at previous stages. The cumulative effect of the turnover tax, commonly known as tax cascading, distorts economic decisions.

Although they are generally applied to a wide range of products, sales taxes sometimes exempt necessities to reduce the tax burden of low-income households. By comparison, excises are levied only on particular commodities

or services. While some countries impose excises and customs duties on almost everything—from necessities such as bread, meat, and salt, to nonessentials such as cigarettes, wine, liquor, coffee, and tea, to luxuries such as jewels and furs—taxes on a limited group of products—alcoholic beverages, tobacco products, and motor fuel—yield the bulk of excise revenues for most countries. In earlier centuries, taxes on consumer durables were applied to luxury commodities such as pianos, saddle horses, carriages, and billiard tables. Today a main luxury tax object is the automobile, largely because registration requirements facilitate administration of the tax. Some countries tax gambling, and state-run lotteries have effects similar to excises, with the government's "take" being, in effect, a tax on gambling. Some countries impose taxes on raw materials, intermediate goods (e.g., mineral oil, alcohol), and machinery.

Some excises and customs duties are specific—i.e., they are levied on the basis of number, weight, length, volume, or other specific characteristics of the good or service being taxed. Other excises, like sales taxes, are *ad valorem*—levied on the value of the goods as measured by the price. Taxes on legal transactions are levied on the issue of shares, on the sale (or transfer) of houses and land, and on stock exchange transactions. For administrative reasons, they frequently take the form of stamp duties; that is, the legal or commercial document is stamped to denote payment of the tax. Many tax analysts regard stamp taxes as nuisance taxes; they are most often found in less-developed countries and frequently bog down the transactions to which they are applied.

### **Proportional, progressive, and regressive taxes**

Taxes can be distinguished by the effect they have on the distribution of income and wealth. A proportional tax is one that imposes the same relative burden on all taxpayers—i.e., where tax liability and income grow in equal proportion. A progressive tax is characterized by a more than proportional rise in the tax liability relative to the increase in income, and a regressive tax is characterized by a less than proportional rise in the relative burden. Thus, progressive taxes are seen as reducing inequalities in income

distribution, whereas regressive taxes can have the effect of increasing these inequalities.

The taxes that are generally considered progressive include individual income taxes and estate taxes. Income taxes that are nominally progressive, however, may become less so in the upper-income categories—especially if a taxpayer is allowed to reduce his tax base by declaring deductions or by excluding certain income components from his taxable income. Proportional tax rates that are applied to lower-income categories will also be more progressive if personal exemptions are declared.

Income measured over the course of a given year does not necessarily provide the best measure of taxpaying ability. For example, transitory increases in income may be saved, and during temporary declines in income a taxpayer may choose to finance consumption by reducing savings. Thus, if taxation is compared with “permanent income,” it will be less regressive (or more progressive) than if it is compared with annual income.

Sales taxes and excises (except those on luxuries) tend to be regressive, because the share of personal income consumed or spent on a specific good declines as the level of personal income rises. Poll taxes (also known as head taxes), levied as a fixed amount per capita, obviously are regressive.

It is difficult to classify corporate income taxes and taxes on business as progressive, regressive, or proportionate, because of uncertainty about the ability of businesses to shift their tax expenses (*see below* Shifting and incidence). This difficulty of determining who bears the tax burden depends crucially on whether a national or a subnational (that is, provincial or state) tax is being considered.

In considering the economic effects of taxation, it is important to distinguish between several concepts of tax rates. The statutory rates are those specified in the law; commonly these are marginal rates, but sometimes they are average rates. Marginal income tax rates indicate the fraction of incremental income that is taken by taxation when income rises by one dollar. Thus, if tax liability rises by 45 cents when income rises by one dollar, the marginal tax rate is 45 percent. Income tax statutes commonly contain graduated marginal rates—i.e., rates that rise as income rises. Careful

analysis of marginal tax rates must consider provisions other than the formal statutory rate structure. If, for example, a particular tax credit (reduction in tax) falls by 20 cents for each one-dollar rise in income, the marginal rate is 20 percentage points higher than indicated by the statutory rates. Since marginal rates indicate how after-tax income changes in response to changes in before-tax income, they are the relevant ones for appraising incentive effects of taxation. It is even more difficult to know the marginal effective tax rate applied to income from business and capital, since it may depend on such considerations as the structure of depreciation allowances, the deductibility of interest, and the provisions for inflation adjustment. A basic economic theorem holds that the marginal effective tax rate in income from capital is zero under a consumption-based tax.

Average income tax rates indicate the fraction of total income that is paid in taxation. The pattern of average rates is the one that is relevant for appraising the distributional equity of taxation. Under a progressive income tax the average income tax rate rises with income. Average income tax rates commonly rise with income, both because personal allowances are provided for the taxpayer and dependents and because marginal tax rates are graduated; on the other hand, preferential treatment of income received predominantly by high-income households may swamp these effects, producing regressively, as indicated by average tax rates that fall as income rises.

### **Principles of taxation**

Though they need to be reinterpreted from time to time, these principles retain remarkable relevance. From the first can be derived some leading views about what is fair in the distribution of tax burdens among taxpayers. These are: (1) the belief that taxes should be based on the individual's ability to pay, known as the ability-to-pay principle, and (2) the benefit principle, the idea that there should be some equivalence between what the individual pays and the benefits he subsequently receives from governmental activities. The fourth of Smith's canons can be interpreted to underlie the emphasis many economists place on a tax system that does not interfere with market decision making, as well as the more obvious need to avoid complexity and corruption.

## **Distribution of tax burdens**

Various principles, political pressures, and goals can direct a government's tax policy. What follows is a discussion of some of the leading principles that can shape decisions about taxation.

### **Horizontal equity**

The principle of horizontal equity assumes that persons in the same or similar positions (so far as tax purposes are concerned) will be subject to the same tax liability. In practice this equality principle is often disregarded, both intentionally and unintentionally. Intentional violations are usually motivated more by politics than by sound economic policy (e.g., the tax advantages granted to farmers, home owners, or members of the middle class in general; the exclusion of interest on government securities). Debate over tax reform has often centred on whether deviations from "equal treatment of equals" are justified.

### **The ability-to-pay principle**

The ability-to-pay principle requires that the total tax burden will be distributed among individuals according to their capacity to bear it, taking into account all of the relevant personal characteristics. The most suitable taxes from this standpoint are personal levies (income, net worth, consumption, and inheritance taxes). Historically there was common agreement that income is the best indicator of ability to pay. There have, however, been important dissenters from this view, including the 17th-century English philosophers John Locke and Thomas Hobbes and a number of present-day tax specialists. The early dissenters believed that equity should be measured by what is spent (i.e., consumption) rather than by what is earned (i.e., income); modern advocates of consumption-based taxation emphasize the neutrality of consumption-based taxes toward saving (income taxes discriminate against saving), the simplicity of consumption-based taxes, and the superiority of consumption as a measure of an individual's ability to pay over a lifetime. Some theorists believe that wealth provides a good measure of ability to pay because assets imply some degree of

satisfaction (power) and tax capacity, even if (as in the case of an art collection) they generate no tangible income.

The ability-to-pay principle also is commonly interpreted as requiring that direct personal taxes have a progressive rate structure, although there is no way of demonstrating that any particular degree of progressivity is the right one. Because a considerable part of the population does not pay certain direct taxes—such as income or inheritance taxes—some tax theorists believe that a satisfactory redistribution can only be achieved when such taxes are supplemented by direct income transfers or negative income taxes (or refundable credits). Others argue that income transfers and negative income tax create negative incentives; instead, they favour public expenditures (for example, on health or education) targeted toward low-income families as a better means of reaching distributional objectives. Indirect taxes such as VAT, excise, sales, or turnover taxes can be adapted to the ability-to-pay criterion, but only to a limited extent—for example, by exempting necessities such as food or by differentiating tax rates according to “urgency of need.” Such policies are generally not very effective; moreover, they distort consumer purchasing patterns, and their complexity often makes them difficult to institute.

Throughout much of the 20th century, prevailing opinion held that the distribution of the tax burden among individuals should reduce the income disparities that naturally result from the market economy; this view was the complete contrary of the 19th-century liberal view that the distribution of income ought to be left alone. By the end of the 20th century, however, many governments recognized that attempts to use tax policy to reduce inequity can create costly distortions, prompting a partial return to the view that taxes should not be used for redistributive purposes.

### **The benefit principle**

Under the benefit principle, taxes are seen as serving a function similar to that of prices in private transactions; that is, they help determine what activities the government will undertake and who will pay for them. If this principle could be implemented, the allocation of resources through the public sector would respond directly to consumer wishes.

In fact, it is difficult to implement the benefit principle for most public services because citizens generally have no inclination to pay for a publicly provided service—such as a police department—unless they can be excluded from the benefits of the service. The benefit principle is utilized most successfully in the financing of roads and highways through levies on motor fuels and road-user fees (tolls). Payroll taxes used to finance social security may also reflect a link between benefits and “contributions,” but this link is commonly weak, because contributions do not go into accounts held for individual contributors.

### **Conclusions**

Stabilization policy in interdependent open economies, by proposing a unified analytical framework systematizing the existing literature. In the model, the combination of complete exchange-rate pass-through (‘producer currency pricing’) and frictionless asset markets ensuring efficient risk sharing, results in a form of open–economy ‘divine coincidence’: in line with the prescriptions in the baseline New-Keynesian setting, the optimal monetary policy under cooperation is characterized by exclusively inward-looking targeting rules in domestic output gaps and GDP-deflator inflation. The chapter then examines deviations from this benchmark, when cross-country strategic policy interactions, incomplete exchange-rate pass-through (‘local currency pricing’) and asset market imperfections are accounted for. Namely, failure to internalize international monetary spill overs results in attempts to manipulate international relative prices to raise national welfare, causing inefficient real exchange rate fluctuations. Local currency pricing and incomplete asset markets (preventing efficient risk sharing) shift the focus of monetary stabilization to redressing domestic as well as external distortions: the targeting rules characterizing the optimal policy are not only in domestic output gaps and inflation, but also in misalignments in the terms of trade and real exchange rates, and cross-country demand imbalances.

**Check Your Progress:**

<b>Q.No</b>	<b>Short Answer Question</b>	<b>LOCF Mapping</b>		
1.	State the major theories explaining regional differences in growth.	K2	CO1	PO1
2.	Explain post-war regional cyclical behaviour.	K1	CO	PO1
3.	Define fiscal programmes in the context of regional stabilization.	K2	CO3	PO4
4.	Distinguish between tax programmes and transfer programmes.	K4	CO3	PO2
5.	Explain the concept of regional orientation to policy programmes.	K3	CO4	PO3
<b>Q.No</b>	<b>Long Answer Question</b>	<b>LOCF Mapping</b>		
1.	Discuss post-war regional cyclical behaviour and examine policy measures for stabilization.	K4	CO1	PO3
2.	Critically examine the theories explaining regional differences in economic growth.	K5	CO2	PO2
3.	Analyze fiscal programmes, tax policies and transfer mechanisms in reducing regional disparities.	K4	CO3	PO4
4.	Evaluate the fiscal responses of different levels of government in promoting balanced regional development.	K5	CO3	PO4
5.	Assess the need for regional orientation in policy programmes and examine the central government's responsibility in regional stabilization and growth.	K5	CO4	PO4

### Text books

1. Capello Roberta. (2016). Regional Economics. Routledge (New York).
2. Temple, M. (1994). *Regional economics*. St. Martin's Press.

### References

1. Harry W Richardson (1973): Regional Growth Theory, Macmillan.
2. Harry W. Richardson. (1970). Elements of Regional Economics. Penguin Books (New York).
3. Harry W Richardson (1969): Regional Economics: Location theory, Urban structure and regional change, Weidenfeld& Nicolson (London)

### Web resources

1. <http://www.rri.wvu.edu/WebBook/Giarratani/contents.htm>
2. <https://researchrepository.wvu.edu/cgi/viewcontent>
3. [https://ddceutkal.ac.in/Syllabus/MA\\_Economics](https://ddceutkal.ac.in/Syllabus/MA_Economics)

### Course Outcomes (Cos):

Upon Completion of this course, the students will be able to

No.	Course Outcomes	K-Levels
CO1	understand the Nature and scope of regional economics and its need	K1, K3, k4
CO2	Discuss the Models of regional, inter-regional and multi-regional models	K4,K5
CO3	Evaluate the various theories of regional economic growth	K2, K3,K4
CO4	Describes the Measurement of interregional economic growth at State level	K4,K4
CO5	apply Regional Aspects of Stabilization and Growth Policy	K1,K4,K5

K1 – Knowledge, K2 - Understand, K3 – Apply, K4 – Analyse, K5 – Evaluate, K6 – Create.

### CO-PO Mapping (Course Articulation Matrix)

CO /PO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	3	3	2	3
CO2	3	2	2	3	2	3
CO3	3	2	3	2	2	2
CO4	3	3	3	2	3	3
CO5	3	2	2	2	3	2
Weightage	14	12	14	14	12	13
Weighted percentage of Course Contribution to Pos	2.8	2.4	2.8	2.8	2.4	2.6

### Level of Correlation between PSO's and CO's

(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)

Assign the value

**1 – Low, 2 – Medium, 3 – High, 0 – No Correlation**