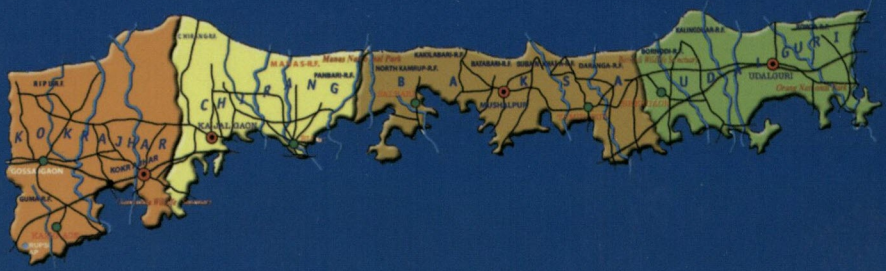

Structure of the Rural Economy of BTAD

(A Study of Udalguri Subdivision)

Dr. Prasen Daimari

The structure of an economy comprises the characteristic features of and the interrelationships among its constituent parts and subsystems. These characteristic features and interrelationships typify the economy and give to it a style, an appearance and individuality of its own.

While studying the Structure of the Economy, three types of visualization are discernible in economic literature : (1) Quesnay-Walras-Leontief scheme, (2) Marshall-Fisher-Clark-Kuznets scheme, and (3) Marx-Veblen-Boeke-Lewis scheme.

The book follows the Marshall-Fisher-Clark-Kuznets schema of structural analysis which, apart from studying the structure emerging from the relative contributions made by different sectors to the total income, also analyses participation of the work force in, and consumption of the products of, different sectors of the economy. It also studies the distribution of income among different classes defined in terms of the ownership of various factors of production.

Based on 182 sample households, the present study has found that, the economy of the study area is basically an agricultural one in which about 52% of the regional income is generated from primary sector, about 42% from tertiary sector and only around 6% from secondary sector. The main reasons behind the backwardness of the economy of the study area as well as some prescriptive remarks for its improvement are also put forwarded in this book.

Price : 595.00 / 2008
ISBN: 81-903834-5-5

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EBH Publishers (India)

Guwahati

First edition: 2008

Publisher:
EBH Publishers (India)
136, M.L.N. Road, Panbazar
Guwahati-781 001, India

Sole Distributor:
Eastern Book House
136, M.L.N. Road, Panbazar,
Guwahati (India)
Ph. 91-361-2513876, 2519231, 99547 05692
Fax: 91-361-2519231
e-mail: info@easternbookhouse.com
web: www.easternbookhouse.com

ISBN: 81-9038-345-0
Price : 595/-

006249

Type set at: EBH Publishers (India), Guwahati
Printed in India at: *Genesis, Guwahati*

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Chapter 1

An Introduction to Structural Analysis

1. Different Schemes of Structural Analysis

The objective of this investigation is to understand the structure of the economy, the rural economy in particular, of Udalguri Subdivision of Assam. The structure of an economy comprises the characteristic features of and the interrelationships among its constituent parts and subsystems. These characteristic features and interrelationships typify the economy and give to it a style, an appearance and individuality of its own.

Different economists in the past have studied the structure of an economy, although differently. Perhaps the earliest treatment to the study of the structure of a market-oriented economy is due to Sir William Petty who, in 1691, concluded that there is much more to be gained by manufacture than husbandry; and by merchandise than manufacture.[1] In the 18th Century, the leading Physiocrat Quesnay's *Tableau Economique* visualized an economy as an interacting system of three sectors, identifiable with those of the landowners, the farmers and the artisans, and three economic process-cum-activities - production, distribution and consumption. The lifeblood of this system was a mixture of the produce raised on farms and the articles made by the artisans that circulated in a closed circuit through the three sectors and the three processes/activities.[2] At that time the manufacturing sector made a tiny contribution to the income and

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1. Clark, Colin (1951) *The Conditions of Economic Progress*, London, MacMillan and Co. Ltd., p. 395.
2. Blaug, Mark (1983) *Economic Theory in Retrospect*, Delhi, Vikas Publishing House Pvt. Ltd. pp. 24-28.

employment in the economy (the French economy in particular) – the overwhelmingly large contribution was due to agriculture – and therefore the Physiocrats grossly undermined the manufacturing activities.

Katouzian[3] suggests that Friedrich List's descriptive scheme of Agricultural, Agricultural-and-Manufacturing and Agricultural-Manufacturing-and-Commercial stages of economic development can now be explained in terms of the Primary, Secondary, Tertiary stages associated with the names of Allan Fisher, Colin Clark and Simon Kuznets. Friedrich List considered education, administration and communication to be historically important productive forces. It is interesting that the work of List intellectually led to the stages-of-growth thinking in the 20th Century.

Differences felt regarding the overall contribution of various types of economic activities (or sectors) one way or another influenced the writings of the classical 19th century economists. Adam Smith, David Ricardo, Karl Marx, John Stuart Mill, and others essentially accepted the doctrine of "material production" which distinguished productive and non-productive activities on the basis of their proximity (direct involvement) in the creation of physically tangible output.

Adam Smith visualized the economy as a system of economic agents, grouped into labourers, land-owners and the manufacturers by the criterion of ownership of resources, the activities they perform and the rewards they get. This system is market-oriented. For Smith, the market/price system is a mechanism that automatically imposes orderly rules on behaviour of economic agents, which, embedded in an appropriate institutional environment, is capable of harmonizing the pursuit of private interests with the achievement of the social goods.[4]

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[3] Katouzian, Homa (1980) *Ideology and Method in Economics*, New York, New York University Press, p. 37.

[4] Blaug, Mark (1983), *Ibid*, p. 61.

The structure of an economy as the characteristic feature and interrelationship among various classes (labourers, manufacturers, farmers and landlords) became more prominent in Ricardo and subsequently in Marx. In their systems conflict among class interests overrides the harmony visualized by Adam Smith. In a grand outline, the Ricardian view of the economy comprises two classes, the first of the landlords and the second of the manufacturers, peasants and the labourers conjoint. In Marx, however, the two classes are the labourers, and the industrialists, landlords and the peasants combined. In Marx we find an elaborate discussion on production conditions and relations.

The neo-classical revolution diluted the conception of the structure of an economy as the characteristic feature and interrelationship among different classes (of economic agents). The economy was visualized as a two-faceted market, the product market and the factor market. The inputs to the product market came from the factor market and the output of the former went to the latter (factor owners) as income and the consumables. Although the distinction among various types of factors of production was maintained, but the neoclassicists held that the rewards of all factors of production are determined by the same or very similar principles, namely productivity in particular.

Leon Walras formally described the interrelationship between the product and the factor markets in his general equilibrium model.[5] He elegantly showed how the quantities of different factors are used in the product market and how the prices of the factors as well as the products are determined and in this process how income is generated and distributed. The main achievement of Walras was to formally demonstrate the existence of equilibrium in the economy, which was well visualized and descriptively stated by Adam Smith.

The comprehensive concept of production became the prevailing one, especially after the publication of Marshall's *Economics of*

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[5] Takayama, Akira (1974) *Mathematical Economics*, Illinois, The Dryden Press, pp.265-265.

Industry.[6] The modern national accounting in the Western world has been based on the comprehensive concept that owes much to Marshall. Except in the work of the Hungarian statistician Frederic Fellner and the national income calculations of the USSR and other socialist countries that were based on the Marxian concept, the basic methodology of national accounting is based on the sectoral composition of the economy as outlined by Marshall.[7]

In the middle of the twentieth century the importance of the growth of primary, secondary and tertiary industries, and of the shifts among them, were given prominence by Colin Clark.[8] Regarding the terminology itself Clark informs that the term tertiary industries was originated by Fisher[9] in New Zealand, and became widely known. It took its origin from the titles current in Australia and New Zealand of 'primary industry' for agriculture, grazing, trapping, forestry, fishing and mining, and 'secondary industry' for manufacture. In Australia and New Zealand these terms are not only used in statistical reference books but are widely current in popular discussion. The phrase 'tertiary industries' therefore immediately carries, in these countries, a suggestion of those excluded by the official definition of secondary industries.[10]

Leontief in his major work on the American economy[11] gave an explicit treatment to the study of structure of an economy. Unlike most of his predecessors in the classical and neoclassical traditions who conceived the structure in abstraction, Leontief gave an empirical meaning to it. The economy was conceived as a system of industries

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[6] Marshall, Alfred and Marshall, Mary P (1879) *Economics of Industry*, Bristol. Thoemmes Press; 18th edition (1996).

[7] Kenessey, Zoltan (2004) The Primary, Secondary, Tertiary and Quarternary Sectors of the Economy. Federal Reserve System, USA @ http://www.roiw.org/1987/359.pdf pp. 359-385.

[8] Clark, Colin (1951) *Ibid.*

[9] Fisher, Allan GB (1935) *The Clash of Progress and Security*, London, McMillan Publishing Co.

[10] Clark, Colin (1951), *Ibid.* pp. 395-396.

[11] Leontief, Wassily, W (1951) *The Structure of American Economy*, 1919-39, New York. Oxford University Press.

with inter-linkages established through the output of the one being used as input by the others. The so-called technical coefficient matrix that summarizes the structure of the economy of concern gives the quantitative description of this inter-industrial dependence. Besides the inter-industrial dependence, the complex of industries draw on the primary inputs (labour and natural resources) on the one hand and serves the consumption needs of the people.

Leontief's treatment to the study of the structure of an economy has multiple facets. In a way, the structure of an economy can be summarized in terms of income proportions generated by different industries. It may also be summarized as the proportion of employment in different industries. Alternatively, the structure may be reflected in the proportion of output used as inputs (intermediate consumption by industries themselves) vis-à-vis being finally consumed by the people. Yet differently, the structure may be conceived as the configuration of complexes of industries with high intra-group linkages and sparse inter-group linkages.

Boeke conceptualized the structure of an economy in the socio-economic dualism. To him, it is possible to characterize a society, in the economic sense, by the social spirit, the organizational forms and the technique dominating it. These three aspects are interdependent and in this connection typify a society, in this way that a prevailing social spirit and the prevailing forms of organization and of technique give a society its style, its appearance, so that in their interrelation they may be called the social system, the social style or the social atmosphere of that society.[12] Less developed economies, especially with a history of prolonged colonial rule, often exhibit a simultaneous existence of two (or more) enclaves of socio-economic systems, characteristically and conspicuously different from each other, and each dominating a part of the society, the economy and the polity. These enclaves markedly differ in matters of ownership of resources,

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[12] Boeke, Julius H (1953) *Economics and Economic Policy of Dual Societies, as Exemplified by Indonesia*. New York. International Secretariat, Institute of Pacific Relations.

production relations, the social spirit, institutions, customs, mores and attitudinal structure, socio-economic and political organization, technological know-how and its application and so on. Of course, between these enclaves there exists a gray zone where distinction may not easily be perceived. This gray zone might be the crucible for integration, but it is equally likely that a colloidal admixture of heterogeneous elements persists for long and camouflages integration process.

Lewis analyzed the process of economic expansion in a dual economy composed of a capitalist sector (predominantly with profit motive) and a non-capitalist sector (mainly a subsistence economy). In his schema the structure of an economy obtains its configuration in the characteristic features of and interrelation between these two sectors.[13]

Among 20th century researchers Simon Kuznets[14] has been recognized as a foremost authority on studying the structure of economies. In his study "Toward a Theory of Economic Growth" he summarized certain findings, based on the review of long-term changes in the structure of production in the US and other economies. The first was, of course, the shift away from agriculture, as economic growth accelerated. Beyond that, mentions Kenessey, Kuznets wrote in the early 1950s "For the more advanced countries. . .we should also note some significant trends in the distribution of the non-agricultural sectors proper. The shares of mining and manufacturing in the total labor force grew significantly, but the increases have ceased or slowed down during the recent decades. The shares of the transportation and communications industries in the labor force also grew but became stable after World War I or even before: . . . The shares of trade and other service industries, a miscellaneous group including business, personal, professional, and government services,

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[13] Lewis, William, A (1954) Economic Development with Unlimited Supplies of Labour. *The Manchester School*, 22, 139–91.

[14] Kuznets, Simon (1965) Towards a Theory of Economic Growth' in *Economic Growth and Structure*, New York, WW Norton & Co.

have grown steadily and have continued to grow in recent decades."[15] The basic thrust of Kuznets' finding apparently remained relevant for the 1960s and the 1970s as well and the many analytical points made by Kuznets continue to deserve close attention.[16]

A series of ten parts of a long paper by Simon Kuznets in *Economic Development and Cultural Change* (Vols 5 through 15 published during 1956-67) almost fully details out as to what one may mean by the structure of an economy. Further, Kuznets[17] also succinctly defines the structure of economy.

2. Quantitative Aspects of Structural Analysis

The most traditional measures of economic structure are sectoral shares of the labor force, consumption patterns, and variables measuring income distribution. All three categories have been analyzed in Clark (1951). Kuznets in his long series of papers (published in *Economic Development and Cultural Change*, mentioned before) examined these three categories in more detail and added the analysis of sectoral shares of GDP and some trade-related variables. Chenery and Syrquin[18] added some more categories of variables: investment, government revenues, education, urbanization, and demographic transition.

In addition to the social variables included in Chenery and Syrquin, a wide variety of other social and institutional characteristics such as fertility rates, central bank independence, and institutional development, etc. are often included in the term "economic structure." Recent research has shown an inclination to include a larger number of variables to quantitatively analyze the structure of an economy.

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[15] Kenessey, Zoltan (2004) Ibid.

[16] Kenessey, Zoltan (2004) Ibid.; Fogel, Robert W (2001) Simon Kuznets : 1901–1985, in *Biological Memoirs*, 79, Washington, DC. The National Academy Press. @ http://www.nap.edu/readingroom/books/biomems/skuznets.pdf

[17] Kuznets, Simon (1966) *Modern Economic Growth: Rate, Structure, and Spread*, New Haven, Yale University Press.

[18] Chenery, Hollis B and Syrquin, Moises (1975) *Patterns of Development: 1950–1970*, New York, Oxford University Press.

Gunter gives an exhaustive review of the literature on quantification of structural analysis.[19] Branson et al. study the patterns of development based on 93 countries for 25 years (1970–94). They measure economic structure by 45 macroeconomic indicators, such as sectoral shares of the Gross Domestic Product (GDP), trade intensity, and financial market development. Their empirical analysis shows that systematic relationships exist between the level of GDP per capita and 33 macroeconomic indicators.[20]

3. Determinants of the Structure of an Economy

The structure of an economy evolves over time; it determines economic development as well as it is modified by the level of development the economy attains. Economic development is partly determined by the indigenous conditions and forces, and partly by the exogenous influences including the inflow of resources such as labour, capital, skill, technology, knowledge and information, contingent upon the openness of the economy to such external influences.

Douglass North holds that the structure of an economy is determined by the resource base, infrastructure, technology and institutions. The substantial content of a socio-economic system lies in its resource base in the short run and the natural endowments in the long run. At this juncture it is pertinent to distinguish between the resource base and the natural endowments. Only that part of natural endowments, which may be harnessed by using the available technology at the disposal of a socio-economic system, can be considered as its resource base. Technological development may be indigenous or imported. When it is indigenous, it is intrinsically consistent with the components of its natal environment. However,

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[19] Gunter, Bernhard G (1998) *Economic Structure and Investment Under Uncertainty*, Unpublished Doctoral Dissertation, Washington, DC: American University.

[20] Branson, William H, Guerrero, Isabel and Gunter, Bernhard G (1998) Patterns of Development, 1970-1994, Washington, DC: World Bank.

when it is imported, its host environment may modify its effectiveness. Adoption of an exotic technology and adaptation of the host environment to its requirements and functions are time taking processes. They may call for changes in organizational structure as well as the inter-componential bounds that could be full of strife and resistance. Availability of infrastructure facilitates adoption and spread of technology, although it does not make a sufficient condition for that. Development of infrastructure is overwhelmingly capital intensive and time taking process. Besides infrastructure, institutions play a very important role in the development of indigenous technology as well as the adoption of the exogenous technology. To North, institutions are "the humanly devised constrains that construct human interaction"[21]; or, the rules of the game in a society. His conception of institutions is similar to that of Thorstein Veblen,[22] includes the moral sentiments of Adam Smith,[23] the *n-achievement* of David McClelland[24] and *pressures* of Harvey Liebenstein,[25] and foreshadows the legal framework of Richard Posner[26] and social capital of Robert Putnam.[27] Some institutions are favourable to development while some others may thwart it. If institutions are not favourable, the extension of the resource base to internalize the natural endowments by using the imported technology may be sluggish and often poorly effective. Nevertheless, if institutions are favourable

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[21] North, Douglass C (1981) *Structure and Change in Economic History*, New York, WW Norton & Co. p. 344.

[22] Veblen, Thorstein B (1899) *The Theory of the Leisure Class*, (Reprint, 1953), New York, The New American Library.

[23] Smith, Adam (1759) *The Theory of the Moral Sentiments*, Edinburgh, (reprint by Bell, London, 1907) and London, *The Adam Smith Institute* (2001 e-version).

[24] McClelland, David C (1961) *The Achieving Society*, New York, The Free Press.

[25] Liebenstein, Harvey (1966) Allocative Efficiency vs. 'X-Efficiency', *American Economic Review*, 65, 392-415.

[26] Posner, Richard A (1992) *Economic Analysis of Law*, (4th edn), Boston, Primeaux, Little Brown.

[27] Putnam, Robert D (1993) Making Democracy Work, New Jersey, Princeton Univ. Press, Princeton; Putnam, Robert D (2000) *Bowling Alone: The Collapse and Revival of American Community*, New York, Simon and Schuster.

and such a technology can make a dent, it expands the resource base of a socio-economic system.

4. Structural Aspects of the Rural Economy

Importance of the rural sector of the Indian economy (in its less developed regions in particular) need not be overemphasized. At the national level, the primary sector contributes to a quarter of the GDP and it employs the 2/3rd of the main workers. Over 3/4th of the total population of the country lives in the rural areas. Notwithstanding these figures at the national level, less developed regions overwhelmingly depend on their rural economy for income and employment since manufacturing activities are yet to flourish there. Nearly 40 per cent of the people in the rural areas are living below poverty line.

The primary sector is the mainstay of the rural people in the rural areas. Manufacturing activities are only few and far between. However, a good number of workers are engaged in the tertiary sector. This gives rise to an *hourglass-like occupational structure*, in which the primary and the thin secondary sector hardly warrant a large tertiary sector.[28] In the plains, the main source of income and employment is agriculture and to some extent, animal husbandry. In the hilly regions agriculture is at the primitive level as yet. Shifting cultivation by the slash and burn method is still in vogue. Mining and quarrying using rudimentary methods is only a minor source of income and employment in a few areas.

Even in the plains where settled cultivation is practiced through ages, there is little development of infrastructure for irrigation, supply of inputs like seeds, fertilizers and finance, storage and transportation of the produce to the market and crop insurance. Farmers use the extensive rather than intensive method of cultivation. Due to lack of irrigation facilities and application of primitive technology of farming,

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[28] Mishra, SK (2004) Rural Development in the North Eastern Region of India: Prospects and Constraints, @ http://www.nereco.owns.com/ rural_dev.htm

agricultural productivity is abysmally low. For example, in the north eastern region the average productivity of a hector of land is 1.6 tonnes per year of food-grains. On an average a hectare of land supports 10 persons and employs 4 persons. This gives us the per capita share of output as low as 1.6 quintals per year or 13 kg per month. Thus, agriculture provides at most the bare minimum food for subsistence.

(i) Low Productivity - The said poor productivity of land is explicable on account of several reasons. First, farming is extensive in nature since only 57 percent of total area under food-grains is sown more than once. Secondly, only 22 percent of the area (almost wholly under food-grains cultivation) is irrigated, which not only discourages an intensive use of land, it also precludes application of fertilizers and use of high yielding seeds as inputs.[29] While the national figure of fertilizer (NPK) consumption is 87 kg per hectare, the NER figure is merely 18.11 kg per hectare. Some 30 percent of the gross cropped area in the region is under high yielding or improved variety of seeds, mostly food-grains. Dependency of population on land is very high, since almost 85 percent of the total population is rural and mostly dependent on farming. According to the Census 2001, 38.69 percent of the rural population is in the category of workers (of which 73.5 percent are main workers and the rest are marginal workers). Of the workers, 62.49 percent are cultivators and/or agricultural labourers. Assuming that the dependency ratio is not significantly different for agricultural workers than their counterparts engaged in the non-agricultural occupations, one may conclude that some 60 to 65 percent of the population is dependent on agriculture alone.

Available statistics regarding the region show that in 1981 the average land holding of a rural household was 1.69 hectares. Due to some 58 percent increase in population during 1981-2001, the average land holding size has reduced substantially. Assuming that the average

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[29] Chinnappa, Nanjamma B (1977) Adoption of New Technology in North Arcot District in BH Farmer, ed. *Green Revolution* ? London, MacMillan Publishing Co.

rural household size is 6 persons, the cultivable land per household now is barely 0.95 hectares, out of which some 70 percent is cultivated for food-grains.

(ii) Skewed Land Distribution - But at that, the distribution of land ownership is grossly skewed. In 1981, about 30.51 percent and 22.66 percent households were in 0-0.5 and 0.5-1.0 hectare holding size classes respectively. About 23.83 percent of the households were in the 1.0-2.0 hectare holding size class. Thus, about 77 per cent of the farmers had a land holding size that could not possibly provide them anything more than a precarious subsistence.

In 1991, the conditions deteriorated further. In the three holding size classes mentioned above, the percentages of households were 32.16, 22.94 and 23.44 respectively, summing up to 78.54 percent. For more recent years statistics are not at hand, but it may be safely concluded that the distribution could have become more skewed due to increase in population pressure.

(iii) Deficient Use of Inputs - Poverty reinforces itself. While about 4/5th of farmers have land holdings too small to cultivate efficiently, their income is too meager to permit savings for investment. Moreover, since cultivation is mostly rain-fed, it is risky to invest one's tiny savings or the borrowed fund. Poor farmers have to be risk-aversive. To quote Galbraith: "For the affluent ... farmer crop failure means loss of income. This is disagreeable, but it does not involve physical deprivation ... To the family that lives on the margin of subsistence, however, failure means hunger ... so regarded, risk is not something to be accepted casually. Among the very poor, risk aversion ... is very high and for reasons that are wholly rational."[30]

To poor farmers, investment of borrowed fund in farming is also discouraged by unavailability of investible resources at just terms.

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[30] Galbraith, John K (1980) *The Nature of Mass Poverty*, New York, Penguine Pelican Books, pp. 50-51.

The village moneylender often charges very high rate of interest and institutional finance is not easily available. Modern methods of cultivation, therefore, are thwarted due to unavailability of finance.[31]

There is another reason why poor farmers would prefer to use the traditional farming to the modern one. The traditional farming is largely riskless since it has been tested time and again, and all farmers know it well. The traditional farming is also robust enough to meet the irregularities in input mix and can resist changes in wither side.[32]

In spite of all risk aversive behaviour and allegiance to traditional farming, small farmers often cannot do without borrowing. On account of ceremonial social obligations and quite often for the purchase of a number of necessities from the market, they need money. For this, they have to borrow money from the local moneylenders, who charge an exorbitant rate of interest. To meet the exigencies as well as to pay off the debt, therefore, small farmers often sell a significant part of their produce just after harvest when prices are at the lowest. Such sales are often called 'distress sales' that make the larger part of the market arrival of food-grains.[33] In the later part of the year, these farmers run short of food-grains and for sustenance they have to purchase them from the market, albeit at much higher prices. For this purpose too, they borrow from the local moneylenders. This cycle is complete in the next year. Thus, small farmers perennially live in debt.

Indebtedness often captivates the productive resources (land and labour) of small farmers. Mortgaging and sale of land and bondage of labour for the repayment of debt is not uncommon in the rural

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[31] Harris, J (1977) Pahalgama: A Case Study of Agricultural Change in a Frontier Environment in BH Farmer, ed. *Green Revolution ?* London, MacMillan Publishing Co., p. 152.

[32] Schultz, Theodore W (1970) *Transforming Traditional Agriculture*, Ludhiana, Lyall Book Depot, pp. 31-33.

[33] Sau, Ranjit K (1973) *Indian Economic Growth : Constraints and Prospects*, New Delhi, Orient Longman, pp. 16-17; Rudra, Ashok (1982) *Indian Agricultural Economics: Myths and Realities*, Delhi, Allied Publishers Pvt. Ltd. pp. 284-294.

areas.[34] In due course, small farmers are reduced to sharecroppers or landless labourers while the larger farmers acquire their lands. This process leads to accentuation of inequality in the rural peasantry.

Small farmers and agricultural labourers often go in for share cropping of the land owned by their better off counterpart. It has been observed that there is an odd against the sharecropper since he gets inferior, distantly located and small plot of land for cultivation.[35] Almost as a rule, the sharing of produce of the land under sharecropping is 50:50 between the sharecropper and the landlord although some minor local variations are seen here and there.[36] While the average productivity of a hectare of land is 1.6 tonnes (of food-grains) per year, and to cultivate it some 80 labour-days are required, it can be shown that the sharecropper gets no more than the wages of 80 days for cultivating a hectare of land. In fact, when farming is primitive, mostly rain-fed and meant for subsistence, *and* the wage rates of agricultural labourers are at the subsistence level (due to over supply of labour in the rural economy), the labour coefficient of agricultural production ensures that a half of the produce is given to the landlord and the other half remains with the sharecropper. What remains with the tenant sharecropper is the opportunity cost of cultivation - the income foregone that would have accrued to him if he worked as a casual labourer for as many days as he worked for cultivating the land. The surplus over that cost goes to the landlord. In this sense, a sharecropper is an agricultural labourer in disguise.

(iv) Low Marginal Productivity of Labour - It is often held that the marginal productivity of labourers in the rural economy of India (especially on small farms) is very little or zero. Lewis observed that since the marginal productivity of labourers in the subsistence sector

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[34] Rudra, Ashok (1982), *Ibid*, pp. 64-76; Mitra, Mrinal K, Roy, DC and Mishra, SK (1986) Rural Indebtedness : Concept, Correlates and Consequences : A Study of Four Tribal Villages in the North Lakhimpur Subdivision, Assam, *NEHU Journal of Social Sciences and Humanities*, 4(4), 37-43.

[35] Mishra, SK (1984) *Evaluation of Public Policies for Agricultural Development in Less Developed Regions*, Kharagpur, IIT Press, p. 16.

[36] Rudra, Ashok (1982), *Ibid*, p. 11.

is zero, a large number of them may be withdrawn to work for the development of the social overhead capital, without adversely affecting the agricultural output.[37] The hypothesis of zero (or near-zero) marginal productivity of labourers in the subsistence sector is plausible due to many reasons. First, while almost 70 percent of cultivators have very small land holdings, the average size of the family is 6 with two (or more) working members. The small piece of land cannot keep them productively engaged throughout the year. Secondly, they do not have any avenue to be employed elsewhere in the off seasons. Yet, in the peak seasons of farming, they are inadequate to meet the demand and thus wage labourers are employed. The short lived spurt in demand for labour in the peak season followed by a long stretched off season explains why the overall near-zero productivity of labourers coexists with the subsistence wage rate for the hired labourers. That is why some authors (who count for the productivity of labourers only for the farming period, not on the overall annual basis) have found that the near-zero marginal productivity of labourers in the subsistence sector is only a myth. It has been found that on (nearly) 80 percent of farms the marginal productivity of labourers exceeds their wage rates.[38]

(v) Inefficient Large Farms - So far we delved on the plausible reasons of low productivity on small farms. Turning to larger holdings we find that these too are inefficiently cultivated. Big farmers very often hold land just as a portfolio asset rather than a productive resource. In the rural areas, land ownership is also a prestige symbol.[39] Moreover, larger holdings are in distantly scattered small plots of land, often so due to distributive inheritance, random and ubiquitous acquisition, and lack of mutual agreement for consolidation. That makes mechanization impossible. Management and supervision of

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[37] Lewis, William, A (1954) *Ibid.*

[38] Rudra, Ashok (1982), *Ibid.* pp. 226-228.

[39] Sau, Ranjit K (1973), p. 64; Srinivas, MN (1979) *The Remembered Village*, London, Oxford Univ. Press, p. 110.

cultivation by the landowner on such holdings is often deficient. Further, availability of hired labourers in the farming season is constrained. Lack of marketing facilities and necessary infrastructure are the additional factors to keep the productivity of these holdings low, sometimes lower than that of the smaller holdings. This fact has been recorded as the inverse relationship between productivity and the holding size.[40] However, in the areas where big farmers have gone in for market-oriented farming and use of modern methods of cultivation larger farms are more productive and efficient.[41]

Market-oriented farming cannot prosper unless infrastructure is well developed to facilitate irrigation, electrification, transportation and storage on the one hand and supply of inputs and finance on the other. Additionally, it requires insurance. In less developed areas such as the North-eastern Region (and many other parts of the country), infrastructure is terrible deficient. A good harvest often leads to over supply in the local markets depressing the prices too low to be remunerative. At that, poverty constrains the demand to be deficient. As a result, enthusiastic farmers cut a sorry figure. That mars the very spirit of enterprise in farming.

In short, prevailing conditions have constrained the rural economy in less developed regions to function at a low level of equilibrium. Small farmers as well as big farmers are inefficient, although due to different reasons, at differently unbalanced input mix, at variance with the optimal mix necessary for efficient production. The structural analysis of a rural economy has to address the issues outlined above.

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[40] Bharadwaj, Krishna (1974) *Production Conditions in Indian Agriculture*, London, Cambridge University Press, p. 12.

[41] Rudra, Ashok (1982), *Ibid*, pp. 150-177.