A Study on Structure of the Economy of Udalguri Sub-Division, Assam (India)

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I. On Structure Analysis of an Economy

I.1. Introduction: 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 (Clark, 1951, p. 395). 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 (Blaug, 1983, pp. 24-28). At that time the manufacturing sector made a tiny contribution to the income and 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 (1980, p. 37) 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.

The comprehensive concept of production became the prevailing one, especially after the publication of Marshall's *Economics of Industry* (1879). 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 (Kenessey, 2004).

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 (1951). Regarding the terminology itself Clark informs that the term tertiary industries was originated by Fisher (1935) 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 (Clark, 1951, pp. 395-396).

Leontief in his major work on the American economy (Leontief, 1951, 1953) 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 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 (Boeke, 1953, pp. 3-5). 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, 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 (1954) 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.

Among 20th century researchers Simon Kuznets has been recognized as a foremost authority on studying the structure of economies. In his study "Toward a Theory of Economic Growth" (Kuznets, 1965) 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 (2004), 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 labour 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 labour 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, have grown steadily and have continued to grow in recent decades." 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 (Kenessey, 2004).

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 (1966) also succinctly defines the structure of economy.

I.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 (1975) 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.

Gunter (1998) gives an exhaustive review of the literature on quantification of structural analysis. Branson et al. (1998) 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.

I.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 (1981) 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, 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" (p. 344); or, the rules of the game in a society. His conception of institutions is similar to that of Thorstein Veblen (1899), includes the moral sentiments of Adam Smith (1759), the *n-achievement* of David McClelland (1961) and *pressures* of Harvey Liebenstein (1966), and foreshadows the legal framework of Richard Posner (1992) and social capital of Robert Putnam (1993, 2000). 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 and such a technology can make a dent, it expands the resource base of a socio-economic system.

II. The Rural Economy of India with a Special Reference to North Eastern Region

II.1 The Prevalence of 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 percent 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. 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, agricultural productivity is abysmally low. For example, in the north eastern region the average productivity of a hector of land is 1.6 tonnes/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/year or 13 kg per month. Thus, agriculture provides at most the bare minimum food for subsistence.

II.2. 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 (Chinnappa, 1977). While the national figure of fertilizer (NPK) consumption is 87 kg/hectare, the NER figure is merely 18.11 kg/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 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.3. 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 percent 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.

II.4. Deficient Use of Inputs : Poverty reinforces itself. While about $4/5^{th}$ 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 (1980, pp. 50-51) : "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."

To poor farmers, investment of borrowed fund in farming is also discouraged by unavailability of investible resources at just terms. The village moneylender often charges very high rate of interest and institutional finance in not easily available. Modern methods of cultivation, therefore, are thwarted due to unavailability of finance (Harris, 1977, p. 152).

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 (Schultz, 1970, pp. 31-33).

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 (Sau, 1973, pp. 16-17; Rudra, 1982, pp. 284-294). 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 areas (Rudra, 1982, pp. 64-76; Mitra et al., 1986). In due course, small farmers are reduced to share-

croppers 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 (Mishra, 1984, p. 16). 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 (Rudra, 1982, p. 11). 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.

II.5. 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 (1954) observed that since the marginal productivity of labourers in the subsistence sector 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. 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. (Rudra, 1982, pp. 226-228).

II.6. 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 (Sau, 1973, p. 64; Srinivas, , p. 110). 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 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 (Bharadwaj, 1974, p. 12). 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 (Rudra, 1982, pp. 150-177).

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.

III. The Empirical Study

III.1. The Study Area : The Darrang District of Assam is situated on the Northern bank of the river Brahmaputra. It has two subdivisions - Udalguri and Mangaldai. The Udalguri subdivision lies between 26° 9' to 26° 52' Latitudes and between 91° 45' E to 92° 22' E Longitudes. It is bounded by the Himalayan Kingdom of Bhutan in the North, the Brahmaputra river in the South, river Paasnoi, separating Darrang from Sonitpur District, in the East and the Mangaldai Sub-division in the West. This sub-division covers a geographical area of 1914.80 square kilometers, and is constituted by three Revenue Circles namely Udalguri Circle, Mazbat Circle and Dalgaon Circle-II. Under these three circles there are 534 villages (according to 1991 Census).

According to 1991 Census, the total population of Ugalguri sub-division was 485091, out of which 457663 lived in rural areas and only 27428 lived in towns. The Scheduled Tribe population was 94921 and Scheduled Caste population was 12221; the rest was General population. Thus, 19.57 per cent of the total population was of ST category, 2.52 per cent was of SC population in the area. Among the scheduled tribe population the majority belong to the Boro-Kachary group. The literacy rate of the area was 24.35 per cent.

The sub-division has only two towns - Udalguri and Kharupetia. The infrastructure facilities in the subdivision, especially in the rural areas, are very poor. A railway line, facing East-West direction, passes through the heart of the subdivision headquarter having three stations - at Udalguri, Rowta and Mazbat. The National Highway No. 52 runs through this subdivision touching some small towns like Kharupetia, Dalgaon, Rowta and Orang. A pucca road connects the subdivision with the National Highway at Rowta in the East, another with Bhairabkunda, the bordering town with the neighbouring Bhutan, and yet another road connects the western part of the subdivision and also some parts of the Mangaldai Subdivision. Very few road connections of the different places and villages with the subdivision are graveled - most of them are un-graveled and are not motorable. Some graveled roads too are not in a motorable condition. Many factors are responsible for it, some of which are : many rivers are flowing through the subdivision that erode the roads as well as bridges during rainy season; negligence on the part of the government to take necessary steps to improve the conditions of roads in the area; socio-political unrest leading to the destruction of some of the roads and bridges, etc. Most of the remote villages remain cut-off from the towns and other parts of the world during rainy season. Another most important infrastructure facility that is lacking in most of the villages of the subdivision is electricity. Only 258 of the total villages of the subdivision are fully or partially electrified and the rest have to still live in darkness. Health facilities are scant in the villages, and even if the facilities are available, the medical officers remain absent through out the year. There are a few veterinary hospitals to look after the health conditions of the domestic animals.

There are 524 primary, 52 middle and 29 high schools in the rural area of the subdivision. There are 4 colleges within this subdivision out of which 2 are in rural area. The number of post offices in the area is 51 out of which only 5 post offices have telegraph facilities. These facilities are situated at the town or semi-urban areas. The rural inhabitants hardly use any such postal services, or telephones, telecommunications, etc.

III.2. The Occupational Structure : The total number of working population in the rural area of the subdivision is 182857 and the number of non-working population is 274806. Out of the total workforce, 144504 are the main workers and 38353 are the marginal workers. Male workers constitute 66.79 per cent, while female workers account for the remaining

33.21 per cent. Again, 60.91 per cent of the total female workforce is marginal worker and only 39.09 per cent constitutes the main workers category. Thus, the working population of the study area is constituted of only 39.95 per cent of the total population, against 44.12 per cent in case of the District of Darrang as a whole, out of which 31.57 per cent is the main workers and 8.38 per cent the marginal workers. So, practically 60.05 per cent of the total population depends on the 31.57 per cent of the main working population. Thus, one person has to support almost two non-working persons (table 1).

Table 1: Distribution of the Rural Population of
Udalguri and Mangaldai Subdivisions into Workers and Non-workers

Subdivision	Population (Rural)	No. of Workers	Main Workers	Marginal Workers	Non-workers
Mangaldai	777213	320035	242763	77272	457175
Udalguri	457663	182857	144504	38353	274806

Source: Rural Primary Census Abstract, 1991, Directorate of Census Operation, Assam.

Table 2: Sector-wise Distribution of Main Working Population of the Study Area, 1991

Occupational Category	**Main Working Population**	**Percent to Total**
A. **Primary**	127600	88.30
1. Cultivators	82822	57.31
2. Agricultural Labourers	29730	20.57
3. Livestock, Forestry, Fishing,Hunting, Plantation, Orchard, etc	15022	10.40
4. Mining and Quarrying	26	0.02
B. **Secondary**	2744	1.96
5a. Manufacturing, Processing, Servicing and Repairing in Household Industry	633	0.44
5b. Manufacturing, Processing,Servicing and Repairing in Other than Household Industry	1332	0.92
6. Construction	869	0.60
C. **Tertiary**	14068	9.74
7. Transport, Communication and Storage	829	0.57
8. Trade and Commerce	4578	3.17
9. Other Services	8663	5.99
Total	144504	100.00

Source: Rural Primary Census Abstract, 1991, Directorate of Census Operation, Assam.

In the study area, main workers are engaged mainly in the Primary sector. The percentage of workers in the primary sector, out of the total main working population, is 88.30 out of which 57.31 per cent is cultivators, 20.57 per cent is agricultural labourers, 10.40 per cent is engaged in livestock, forestry, fishing, plantation, orchards and allied activities; and only 0.02 per cent, in mining and quarrying. In the secondary sector, percentage of workers is 1.96 of the total main working population, out of which 0.44 per cent is in manufacturing, processing, servicing and repairing in household industry, 0.92 per cent in manufacturing, processing, servicing and repairing in other than household industry, and 0.60 per cent in construction works. The percentage of workers in the tertiary sector is 9.74, a little higher than that of the secondary sector. Out of the total workers in the tertiary sector, 0.57 per cent is in transport, storage and communication, 3.17 per cent in trade and commerce and 5.99 per cent in other services. These data indicate that there is a phenomenon of overwhelmingly high percentage of workers in the primary sector and disproportionately small percentages in secondary and tertiary sectors in the study area (table 2).

III.3. The Sample Study : The present study is based on the sample drawn from the villages of Udalguri Subdivision. First, we have selected seven villages by design. These sample villages have been chosen in a manner such that they exhibit three characteristics; variability in location distant from the nearest urban area and availability of infrastructure, variability in community type of habitants and variability in sources of livelihood. Accordingly, some village is as near as 3 kilometers away, while some other is located at a distance of 45 kilometers away from the subdivisional Head Quarters. Similarly, the households of a particular community exclusively inhabit some villages while the households belonging to different communities inhabit some others. In particular the households that are immigrants from Bangladesh exclusively inhabit two villages. Further, households in some villages earn a substantial part of their income from service, while those in some other villages heavily depend on agriculture. At that, households in some villages cultivate for the market while in some other villages they cultivate for home consumption. These variations are relevant for determining the level of living of the households.

From the sample villages we have chosen households randomly. In choosing the number of households from different villages we have been guided by the consideration that their representation in the total sample should be pretty close to the overall structure exhibited at the subdivisional level. Since the villages are of different sizes (as per the total number of inhabitant households) a proportional representation at the village level would grossly distort the said representation at the subdivisional level. Therefore, we have parted with the proportional representation at the village level, but maintained their representation at the subdivisional level. The details of the sample villages and the number of sample households are given in table 3(a). The distribution of population by age, sex, literacy and occupational categories are given in table 3(b).

Table 3(a): Sample Villages from Udalguri Subdivision

Sample Villages	No. of Households	Communities living in the Village	Distance from Subdivisional Head Quarters	Electrification	No. of Sample Households
Barigaon Gerua	49	Boros	15 Kms	No	30
Bhagdal Gaon	163	Assamese, Bengalis, Boros, Nepalese, Tea Gardners	35 Kms	Yes	30
Kalabari	89	Boros, Assamese	15 Kms	No	30
Sapkhaiti (ii)	46	Boros	3 Kms	Yes	30
Nizdal Gaon	236	Assamese	35 Kms	Yes	22
Baruajhar	349	Muslims	30 Kms	No	20
Sialmari	96	Muslims	45 Kms	No	20
Total	1028	---	---	---	182

Table 3(b) Population and Occupational Distribution of Sample Households

	Village	Barigaon Gerua	Bhagdal Gaon	Kalbari	Sapkhaiti	Niz Dalgaon	Baruajhar	Sialmari	All 7 Villa-ges	Per Cent toTotal
1	**Population**	**168**	**187**	**183**	**166**	**115**	**134**	**146**	1099	**100.00**
	Male	77	103	78	82	67	68	79	554	50.41
	Female	91	84	105	84	48	66	67	545	49.59
2	Age below 15	44	50	63	32	38	64	72	363	33.03
	Age between 15-59	120	129	114	126	75	65	64	693	63.06
	Age 60 & above	4	8	6	8	2	5	10	43	3.91
3	Literate (ex 0-6 years)	141	119	**115**	145	107	65	**53**	745	67.78
	Illiterate (ex 0-6 years)	16	53	38	11	2	49	74	243	22.11
4	**No. of Workers**	**93**	**94**	**87**	**74**	**47**	**34**	**38**	467	**42.49**
5	**Cultivators**	**46.9**	**59.4**	**38.2**	**24.6**	**13.4**	**14.5**	**24.2**	221.2	**45.44**
	Full time	35	35	25	17	11	12	20	155	70.07
	Part time	27	42	30	21	11	7	13	151	29.93
6	**Agricultural Labourers**	**4.1**	**0**	**6.2**	**0**	**0**	**7.2**	**3.2**	20.7	**4.43**
	Full time	1	0	4	0	0	4	0	9	43.48
	Part time	7	0	5	0	0	9	10	31	56.52
7	**Other Labourers**	**2.9**	**2.6**	**8.3**	**1.7**	**5**	**4.4**	**2.6**	27.5	**5.89**
	Full time	2	2	7	1	5	3	0	20	72.73
	Part time	2	1	3	2	0	4	8	20	27.27
8	**Hired labours**	**30.6**	**3.9**	**16.9**	**17.5**	**1.41**	10.6	**3.9**	84.81	**15.37****
	Full time	23	0	9	11	1	10	3	57.00	67.21
	Part time	7.6	3.9	7.9	6.5	0.41	0.6	0.9	27.81	32.79

	Village	Barigaon Gerua	Bhagdal Gaon	Kalbari	Sapkhaiti	Niz Dalgaon	Barujhar	Sialmari	All 7 Villages	Per Cent toTotal
9	**Animal Husbandry**	**9.2**	**7.5**	**11.4**	**8.3**	**1.1**	**1.8**	**2.2**	41.5	**8.89**
	Full time	0	0	0	0	0	0	0	0	0.00
	Part time	21	13	26	23	5	5	7	100	**100.00**
10	**Engaged in Fishing**	**0.9**	**0.6**	**0**	**0**	**0**	**0.4**	**1.6**	3.5	0.75
	Full time	0	0	0	**0**	0	0	0	0	0.00
	Part time	2	1	0	**0**	0	1	5	9	**100.00**
11	**Engaged in Plantation**	**12.2**	**0**	**1**	**0**	**0**	**0**	**0**	13.2	2.83
	Full time	10	0	1	**0**	**0**	0	0	11	83.33
	Part time	5	0	0	**0**	**0**	0	0	5	**16.67**
12	**Household Industries**	**8.8**	**8.8**	**5.3**	**7.2**	**2.2**	**0**	**0**	32.3	6.92
	Full time	0	3	0	0	0	0	0	3	9.29
	Part time	20	10	12	20	10	0	0	72	**90.71**
13	**M.P.S. & Repairing**	**0.9**	**0**	**0**	**0**	**0.2**	**1**	**0**	2.1	0.45
	Full time	0	0	0	0	0	1	0	1	47.62
	Part time	2	0	0	0	1	0	0	3	**52.38**
14	**Construction Works**	**1.4**	**1.2**	**0**	**2.7**	**0**	**0**	**0**	5.3	1.13
	Full time	1	0	0	2	0	0	0	3	56.60
	Part time	1	2	0	2	0	0	0	5	**43.40**
15	**Trade & Commerce**	**3**	**6.9**	**7**	**2.1**	**3**	**3.7**	**1.3**	27	5.78
	Full time	3	4	3	1	3	3	1	18	66.67
	Part time	0	5	9	3	0	2	1	20	**33.33**
16	**T & Communication**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	6	1.28
	Full time	1	0	0	0	5	0	0	6	100.00
	Part time	0	0	0	0	0	0	0	0	**0.00**
17	**Other Services**	**2**	**7**	**9.4**	**27.4**	**17**	**1**	**3**	66.8	14.30
	Full time	2	7	9	27	17	1	3	66	98.80
	Part time	0	0	1	1	0	0	0	2	1.20

IV. Main Findings

IV.1. Income from Various Sources : From the chosen sample households data on income from various sources have been collected through filling in the questionnaires by a personal visit. As the data reveal, the mean household income (annual) is Rs. 66.5 thousand. Of this, about 50.71 percent is contributed by the primary sector and about 40.06 percent is derived from the tertiary sector. The secondary sector contributes a meager 5.71 percent of the total. This distribution is like an hourglass, an inverted pyramid mounted on a pyramid - with a wide base, very slim waist and a

wide apex - characteristic of the occupational and economic structure in the northeastern region of India in particular. (Table 4)

Table 4: Income of Sample Households from Various Sources

Sources of Income	Income (in Rs)	Average Household Income (in Rs)	Percent to the Total
A. **Primary Sector**	6138707.00	33729.15	50.71
1. Agriculture	3897050.00	21412.36	32.19
2. Labour	638808.00	3509.93	5.28
3. Animal Husbandry	247740.00	1361.21	2.05
4. Fishery	327390.00	1798.85	2.70
5. Orchard	762719.00	4190.76	6.30
6. Plantation	265000.00	1456.04	2.19
B. **Secondary Sector**	691290.00	3798.3	5.71
7. Cottage Industry	225490.00	1238.96	1.86
8. Mill/Factory	130800.00	718.68	1.08
9. Construction	335000.00	1840.66	2.77
C. **Tertiary Sector**	4850364.00	26650.35	40.06
10. Trade & Commerce	663740.00	3646.92	5.48
11. Services	4186624.00	23003.43	34.58
D. **Property**	425440.00	2337.58	3.51
Total	12105801.00	66515.39	100.00

IV.2. Holding Size Distribution and Agricultural Productivity : A perusal of tables 5 and 6 reveals that there is an acute inequality in distribution of land holdings among the farm families. Many farmers are sharecroppers cultivating on very small areas of land. The sharecroppers have to give a half of the produce raised on land to the owners of the land. On an average, it requires 12 to 15 labour days to raise paddy (the main staple crop) on a bigha of land. The prevailing mean wage rate of hired labourer is Rs. 50 per day, a barely subsistence wage rate (ILO, 1996; Mishra & Lyngskor, 2004). Some 8 to 10 monds of paddy can be raised on a bigha of land. Harvest prices of paddy are as low as Rs. 150 per mond while the peak prices seldom cross the upper limit of Rs. 200 per mond. In this milieu, the *medial* productivity of a bigha of land is barely Rs. 2000. Now, if the sharecropper has to give a half of the produce (valuing Rs. 1000 or so) to the landlord, he is left with Rs. 1000, which is only a little over the remuneration that he would get for 15 days' labour in the casual labour market. Seen in this light, the sharecropper is only slightly better off than the casual agricultural labourer. The surplus over that cost goes to the landlord. In the midst of uncertainties of successful crops, frequency of occurrence

over cases (farmers) and time, tendency to *institutionalization* of frequent experience, etc. determine the conventional share of 50:50 between the landlord and the sharecropper. This, in part, provides a tentative answer to the question regarding the most frequently observed ratio of share of the produce between the tenant and the landlord (Rudra, 1982, pp. 111-115).

Except in the last two villages (inhabited by the immigrants from Bangladesh) farmers often cultivate for consumption and not for the market. Therefore, paddy is the main crop in the first five villages. However, farmers of the last two villages often produce vegetables for the market, which fetches good returns.

Table 5. Land Base and Farm Size Distribution of Cultivators

Sl.No.	**Category of holdings of sample farm families**	**Size Group (in bighas)**	**Number of owners having TCL**	**Number of FF cultivated on purely own land**	**Number of FF cultivated as purely tenants**	**Number of FF cultivated as mixed of own and tenant**	**Number of absentee land owners**
1	Marginal	Up to 7.5	59 (220.8)	20 (90.9)	5 (23.5)	9 (38.5)	13
		Percent	38.56%	31.25%	83.33%	14.29%	
2	Small	7.5 to 30	79 (1159.1)	37 (596.4)	1(8.0)	43 (645.7)	6
		Percent	51.63%	57.81%	16.67%	68.25%	
3	Medium	30 to 75	14 (588.5)	6 (227.5)	0 (0.0)	11(400.5)	0
		Percent	9.15%	9.38%	0.00%	17.46%	
4	Large	75 and above	1 (85.0)	1 (85.0)	0 (0.0)	0 (0.0)	0
		Percent	0.65%	1.56%	0.00%	0.00%	
	Total FF		153 (2053.40)	64 (999.8)	6 (31.5)	63 (1083.2)	19
		Percent	100.00%	100.00%	100.00%	100.00%	

Note: TCL = total cultivable land, FF=Farm Family. (Figures in the brackets represent area in bighas; The % shown below the numbers of farm families belonging to different categories are the % to the total farm families.)

Table 6. Yield and Cost of Production of various Crops in the Sample Villages (In Rs.)

Name of Crops	Paddy	Wheat	Potatoes	Green Vegetables	Onion	Chillies	Spices	Oilseeds	Jute	Average
Crop Yield Per bigha (in Rs.)	2934.59	2312.50	5340.98	10686.08	11377.02	7176.19	9363.64	1063.77	3908.97	6018.19
Cost of Production per Bigha (in Rs.)	912.32	1700.00	2996.82	4309.33	3574.47	2841.39	5045.45	250.00	1903.64	2614.82

IV.3. Negligibly Small or Near-Zero Marginal Productivity of Labour : A Cobb-Douglas type of production function is fit with land (**£**), family labour ($\mathbf{L_F}$), hired labour ($\mathbf{L_H}$) and other expenses (proxy for capital, **K**) as inputs. It is found that the elasticities with regard to family as well as hired labour are statistically not different from zero (see tables 7.a and 7.b). When composite labour (family labour plus hired labour) is used as input, the elasticity

remains statistically indifferent from zero. Since the elasticity η (of production, P) with regard to any particular input (say L) is given by η = (δP/δL)(L/P), and if η is statistically indifferent from zero, it implies that the marginal productivity of L = (δP/δL) is statistically indifferent from zero. Viewed differently, the elasticity η may be considered as a ratio of marginal productivity of L (that is, δP/δL) to the average productivity of L (that is, P/L), which may also be interpreted as the product of the marginal productivity of L (that is, δP/δL) and the average labour-output coefficient (that is, L/P). Since the average productivity of L (or the average labour-output ratio for that matter) will not be infinitely large (or zero for that matter), the conclusion derived above stands that if η is not different from zero then the marginal productivity of labour as well cannot be different from zero. This finding also indicates an excessive degree of disguised unemployment in the rural economy of the sample villages.

Table 7.a. Regression Summary for Dependent Variable: $\log_e(P)$

Variables ($\log_e$ values)	Coefficient	Std. Error	't' Value	Prob level
Intercept	4.557070	0.662496	6.878638	0.000000
Land (bigha)	0.499488	0.106818	4.676070	0.000008
Family Labour (Mandays)	0.001225	0.115111	0.010643	0.991527
Hired Labour (Mandays)	0.021095	0.062358	0.338285	0.735787
Other expenses (Rs.)	0.562071	0.072816	7.719036	0.000000

R^2= 0.785 Adjusted R^2= 0.777; F(4,111)=101.05 p < .000 Std.Error of estimate: 0.51465; When any input value is zero, the observation has been excluded.

Table 7.b. Regression Summary for Dependent Variable: $\log_e(P)$

Variables ($\log_e$ values)	Coefficient	Std. Error	't' Value	Prob level
Intercept	3.822299	0.682353	5.601645	0.000000
Land (bigha)	0.477175	0.095434	5.000038	0.000000
Family labour + Hired Labour (Mandays)	0.171037	0.134350	1.273068	0.205630
Other expenses (Rs.)	0.542676	0.071547	7.584943	0.000000

R^2=0.787 Adjusted R^2=0.781; F(3,112)=138.56 p < .00000 Std.Error of estimate: 0.50895; When any input value is zero, the observation has been excluded. Functional Form is given as: $P = A[£^{\alpha}(L_F + L_H)^{\beta}K^{\gamma}]\varepsilon$

The near-zero marginal productivity of labour coupled with primitive technology of cultivation leads to a large value of the *realized* labourer-output ratio, far larger than the *optimal* labour-output ratio. In this regard, the imports of the well-known Leontief's paradox and further investigations into the reasons thereof are highly instructive that suggest to discriminate labour supply/endowment from the labourer supply/endowment. Its direct consequence is a small size of dividend from farming to be distributed among a large number of people. This amounts to a small income per capita, which in other words is poverty.

IV.4. Distribution of Income among the Sample Households : In table 8 we present the distribution of households according to the income (accruing from all sources) per capita per month. We observe that about 50 percent of households have income below Rs. 550 (per capita per month)

and they are the recipients of only 17 percent of the total income. On the other hand, some 18 percent households (with per capita per month) income above Rs. 1600 command over 50 percent of the total income.

Table 8: Income Distribution of the Sample Households

Per Capita Monthly Income (Rs.)	No. of Persons	Share of Monthly Income (Rs)	Percent of Persons	Share (Percent) of Monthly Income
Below 200	124	18673.42	11.28	1.85
Below 300	261	55139.79	23.75	5.47
Below 400	394	101639.33	35.85	10.09
Below 500	530	162191.83	48.23	16.09
Below 600	581	190057.08	52.87	18.86
Below 700	636	226963.58	57.87	22.52
Below 800	674	254433.33	61.33	25.25
Below 900	737	308150.83	67.06	30.58
Below 1000	770	339427.83	70.06	33.68
Below 1100	799	369946.67	72.70	36.71
Below 1200	823	397603.58	74.89	39.45
Below 1300	849	430588.25	77.25	42.73
Below 1500	889	486622.08	80.89	48.29
Below 1700	934	558467.50	84.99	55.42
Below 2000	972	627739.58	88.44	62.29
Below 2500	1039	784024.67	94.54	77.80
Below 3000	1057	832696.50	96.18	82.63
Below 4000	1084	922678.25	98.64	91.56
Below 6000	1093	968880.75	99.45	96.14
Below 7000	1099	1007750.17	100.00	100.00

Inequality in income distribution is often measured in terms of the Gini index, which is graphically presented by the Lorenz diagram. The Gini index is the Gini coefficient expressed in percentage form. The Gini coefficient is calculated as the ratio of areas on the Lorenz curve diagram. If the area between the line of equality and the Lorenz curve is A and the area underneath the Lorenz curve is B, then the Gini coefficient is given by A/(A+B). The Gini coefficient is often calculated with the more practical Brown's formula given as

$$G = \left|1 - \sum_{k=0}^{n-1} (X_{k+1} - X_k)(Y_{k+1} + Y_k)\right|$$

where G = Gini Coefficient; X = Cumulated proportion of the population variable; Y = Cumulated proportion of the income variable. In developed economies Gini index is often between 24 to 36 (exceptionally, USA has

exhibited Gini index higher than 40 for the last several decades), while in some countries such as Mexico, Latin America it exceeds 50. In India the value of Gini index is about 32.5 (the United Nations Human Development Report 2004). The observed values of Gini index in the sample villages are considerably high. In the first five villages the Gini index is 41.84 while in the last two villages it is 48.69. Overall the value of Gini index in the sample villages is 44.31. By any standard, these values convey that the extent of inequality in the sample villages is alarmingly high.

IV.5. Extent of Poverty in the Sample Villages : In 1999-2000, the poverty line for the rural Assam was at Rs. 365.43 per capita per month. Below this line 92.17 lakh people were there (40.04 percent of the total rural population of the state). Our data were collected during 2002-2003. During this period it is expected that prices increased by 16 percent or so (Indiaonestop.com, 2004). Taking this price rise into account, we may take Rs. 425 as the poverty line for our sample villages. However, some 25 percent of the consumption basket of sample households contains home-grown stuff, unaffected by the inflationary rise in prices. Therefore, one may fix the poverty line somewhere at Rs. 408 or so. In any case, it is unlikely that the poverty line would be below Rs. 400 and above Rs. 425 per capita per month.

Our study indicates (tables 9 and 10) that at least 35.85 percent of the population (and 33.52 percent of households) in the sample villages is below poverty line (at Rs. 400 per capita per month). On the other hand, no more than 39.5 percent of the people (and 37.36 percent households) is likely to stand under the poverty line (at Rs. 425 per capita per month). At the village level there is some variation (table 9). Poverty is more widespread in Bhogdal Gaon and less acute in Nizdal Gaon.

Table 9: Households below Poverty Line in the Sample Villages

Sample Villages	No. of Sample Households	No. of Households BPL (Rs. 400 PC/Month)	Percent of Sample Households	No. of Households BPL (Rs. 425 PC/Month)	Percent of Sample Households
1. Barigaon Gerua	30	9	30.00	11	36.67
2. Bhogdal Gaon	30	12	40.00	15	50.00
3. Kalbari	30	11	36.67	12	40.00
4. Sapkhaiti (ii)	30	8	26.67	9	30.00
5. Nizdal Gaon	22	6	27.27	6	27.27
6. Baruajhar	20	7	35.00	7	35.00
7. Sialmari	20	8	40.00	8	40.00
Total	182	61	33.52	68	37.36

Table 10: Number and Percentage of
Rural Population below Poverty Line (BPL) in Assam and the Study Area

Description	Assam* (1982-1983)	Assam* (1993-1994)	Assam* (1999-2000)	Study Area** (2002-2003)	Study Area** (2002-2003)
No. of Persons	73.43 Lakh	94.33 Lakh	92.17 Lakh	394 (Out of 1099)	434 (Out of 1099)
Percentage of Persons	42.60	45.01	40.04	35.85 (10.09% of Income)	39.49 (11.73% of Income)
Poverty Line (Rs. Per Capita/Month)	98.32	232.05	365.43	400.00	425.00

Source of Information : * Planning Commission, Govt. of India (Extent of Poverty in different states of India 1982-2000), ** Based on the present study. Our sample data do not provide the least support to the figures on poverty for the State (and the districts therein) given elsewhere (P&RD, Govt. of Assam).

IV.6. Pattern of Consumption Expenditure and the Empirical Poverty Line : A perusal of consumption expenditure of the sample households (table 11) reveals that on an average the households below the poverty line spend more than their income. Consequently, they are indebted and their productive resources (land/labour) are captivated by the lenders. Households with mean PC income of Rs. 671 (in the range of Rs. 425 - 1000 per capita per month) consume almost 96 percent of their income. However, the households with monthly per capita income larger than Rs. 1000 can save. The share (percentage) of expenditure on non-durable items and home-grown stuff (imputed) decreases with increase in income while the share of expenditure on durable consumption goods/other items and purchased commodities increases with an increase in income. The households below the poverty line consume homegrown stuff that constitutes a little over 28 percent of their total consumption outlay. Overall, the average propensity to consume (as observed for our sample households) is about 79 percent of the income. Yet, a regression analysis of the data reveals that the marginal propensity to consume is quite small (0.34). The regression equation is C= 29396.19 + 0.34Y where C is the annual household consumption expenditure and Y is the annual household income. The computed t values for the intercept and the coefficient are 11.49 and 13.61 respectively, with degrees of freedom = 180. The value of adjusted R^2 is 0.505. These findings indicate that overall, the sample households are thrifty, but they must spend for the pressing necessities of life. As most of them are poor (or not so poor), a major part of their income is spent on the necessities (leading to high average propensity to consume), but as soon as they have anything beyond the necessities, they save. So consumption increases in much less proportion than does the income (leading to a small value of the marginal propensity to consume). A small value of the marginal and a large value of the average propensity to consume also suggest an acute inequality in income distribution.

Table 11. Mean Per Capita (per month) Income and Expenditure of Sample Households

PC Income Range	No. of House-holds	Mean PC Income	Consumption Expenditure (Total)	On Non-durables	On Durables	On Other Items	On Home-grown (imputed)	On Purchased Goods
Up to 425	68	277.31	520.63 (87.74)	405.68 (77.92)	45.41 (08.72)	69.55 (13.36)	147.35 (28.30)	373.29 (71.70)
425 - 1000	58	670.59	642.77 (95.85)	489.86 (76.21)	69.30 (10.78)	83.62 (13.01)	182.48 (28.39)	460.29 (71.61)
1000 - 2000	35	1436.88	997.42 (69.42)	646.57 (64.82)	144.72 (14.51)	206.13 (20.67)	223.36 (22.39)	774.05 (77.61)
2000 - 7000	21	3106.67	1364.38 (43.92)	830.23 (60.85)	263.34 (19.30)	270.80 (19.85)	289.81 (21.24)	1074.57 (78.76)
Overall	182	952.10	748.60 (78.63)	527.82 (70.51)	97.27 (12.99)	123.52 (16.50)	189.60 (25.33)	559.00 (74.67)

Figures in the parentheses are percentages. In case of consumption expenditure (total) percentage is to income. For the cases, they are as share percentage to total consumption expenditure.

In the regression equation mentioned above, the intercept is interpreted as the level of consumption expenditure occurring at the income level zero. Naturally, this expenditure is backed up by borrowing, mortgaging, dis-saving, etc. This expenditure is the basic requirement of survival; a must to keep body and soul together. Now, in our sample study there are 1099 persons in 182 households. On the basis of that, per capita per month minimal consumption expenditure (MCE) works out to be Rs. 405.68 [= {29396.19/(1099/182)}/12] = [{α/(n/N)}/12] where α is the regression intercept in the estimated consumption function ($C = \alpha + \beta Y$) and n is the no. of persons in N number of sample households. This estimate is 405.68 ± 35.5 in view of the standard error of estimate giving us the range of Rs. 370 - 441. This MCE is the cut off point and may be used as the poverty line. Earlier we estimated the poverty lines Rs. 400 at the lower and Rs. 425 at the higher ends. These lines are based on normative principles since they are obtained from the official data (Rs. 365.43 in 1999-2000) adjusted for inflationary increase in prices during 2000-2003. The official (Govt. of India) line of poverty is estimated on normative principles. However, the MCE estimates are made on purely statistical basis, obtained purely empirically, without any reference to norm. Yet, we see that the normative and the empirical MCE estimates are very close to each other.

IV.7. The two Groups of Villages are Structurally Distinct : At this juncture it is pertinent to highlight that our sample villages (and the households therein) represent two different social, attitudinal and cultural settings. The inhabitants of the first five villages (call them Group-1 villages) are indigenous, settled in their environs for generations. On the other hand, the inhabitants of the last two villages (Group-2) are immigrants displaced from Bangladesh. Thus the two populations are not only religion wise different, they are also different from the viewpoints of culture, feelings of social security, drive to survive in the midst of socio-economic uncertainties, etc. The classic studies by Weber (1904), Tawney (1926), Mishra (1962),

Hofstede (2001) and Noland (2003) suggest the impact of values and religious beliefs on economic achievements. Hirsch (1978, pp. 137-151) also highlights the relationship between values and economic performance. In our case it can be conjectured that these variables have led to structural differences between the two groups of villages. We have found that attitudinal and cultural variables matter in giving a shape to the structure of an economy. However, due to small number of sample villages in the two groups, our findings are indicative only.

We observed that the last two villages (Group-2, Baruajhar and Sialmari, inhabited by the immigrants from Bangladesh) indicate somewhat different structure than the first five villages (Group-1). It prompted us to investigate if these two groups of villages are structurally different from each other.

Table 12(a) . Distribution of Per Capita Per Month Income from Agriculture

Per Capita Income Class (in Rs./Month)	No. of Households Group-1 Villages	Percentage to Total	No. of Households Group-2 Villages	Percentage to Total	No. of Households All Villages	Percentage to Total
Nil	23	16.20	9	22.50	32	17.58
Up to 200	64	45.07	10	25.00	74	40.66
200 - 400	35	24.65	7	17.50	42	23.08
400 - 600	10	7.04	4	10.00	14	7.69
600 - 800	7	4.93	0	0.00	7	3.85
800 - 1000	3	2.11	2	5.00	5	2.75
1000 - 1200	0	0.00	2	5.00	2	1.10
1200 - 1400	0	0.00	2	5.00	2	1.10
1400 - 2000	0	0.00	0	0.00	0	0.00
2000 - 2500	0	0.00	3	7.50	3	1.65
2500 - 3000	0	0.00	0	0.00	0	0.00
3000+	0	0.00	1	2.50	1	0.55
Total	142	100.00	40	100.00	182	100.00

Table 12(b). Inequality in Income Distribution in the two Groups of Villages

Income Class Per Capita/Month	No. of Households Group-1 Villages	Per cent to Total	No. of Households Group-2 Villages	Per cent to Total	No. of Households All 7 Villages	Per cent to Total
Rs. 0-425	53	37.32	15	37.50	68	37.36
Rs. 425-1000	46	32.39	12	30.00	58	31.87
Rs. 1000-2000	28	19.72	7	17.50	35	19.23
Rs. 2000-4000	13	9.15	5	12.50	18	9.89
Rs. 4000-6000	2	1.41	0	0.00	2	1.10
Rs. 6000 & above	0	0.00	1	2.50	1	0.55
Total	142	100.00	40	100.00	182	100.00

As table 12(a) suggests, there is a remarkable difference in the distribution of income accruing from agriculture to the households of the two groups of villages. In Group-1 villages the range of income is narrow and inequality in income distribution is relatively mild. On the other hand, income from agriculture accruing to the households of Group-2 villages is more dispersed. Similarly, household incomes (from all sources) also have inter-group difference in their scatter (table 12(b)). Saving behaviour also is different in the two groups of villages (table 13).

Table 13. Annual Savings of the Households in Per Capita/Month Income Classes

PC Income Class (Rs./Month)	Group-1 Villages				Group-2 Villages		All 7 Villages			
	N	1990-95	1995-2K	2K-03	N	2K-03	N	1990-95	1995-2K	2K-03
Up to 425	53	NA	666.04	453.80	15	400.00	68	NA	519.12	441.67
425-1000	46	NA	1166.96	1850.72	12	796.30	58	NA	1041.03	1224.43
1000-1500	25	733.34	760.00	1108.90	5	1946.67	20	550.00	570.00	1318.33
1500 & above	28	21.43	896.43	847.13	8	3645.83	36	16.66	697.22	1463.90

N=No. of Households; 2K=2000; Savings are deposits in financial institutions (exclude savings at home)

Table 14. Discrimination of the Two Groups of Villages on the three Criteria

Group	% Correct Class (P)	Group-1 (P)	Group-2 (P)	% Correct Class (Y)	Group-1 (Y)	Group-2 (Y)	% Correct Class (C)	Group-1 (C)	Group-2 (C)	**Total**
Group-1 (First 5 Villages)	100.00	142	0	97.89	139	3	100.00	142	0	142
Group-2 (Last 2 Villages)	45.00	22	18	42.00	22	18	0.00	40	0	40
Total	87.91	164	18	86.26	161	21	78.02	182	0	182

But these statistics provide us only a hypothesis that the two groups of villages are structurally different. We have to statistically ascertain if this conjecture is tenable. To this end we used the technique of discriminant analysis. Table 14 summarizes the findings of discriminant analysis carried out on three sets of criteria, namely (a) farming practice, P (b) sectoral composition of income, Y, and (c) consumption pattern, C. While the criterion of farming practices (agricultural inputs and output) correctly classify all 142 households of the Group-1 villages, they misclassify as many as 22 households of the Group-2 villages. Thus, according to this criterion only 18 households from Group-2 villages are correctly classified. The misclassified households of Group-2 villages are labourers or small farmers who do not partake of the characteristics of Group-2 (market-oriented farmers). Similarly, the criterion of sectoral composition of income correctly classify 139 (out of 142) households from Group-1 villages and 18 (out of 40) households from Group-2 villages. As in the case of the first set of criteria,

the misclassified households from Group-2 villages are poorer farmers and three misclassified households from Group-1 villages are rich households. There is an overlapping between the two sets of criteria in which 11 households from Group-2 villages are common. Lastly, the criteria of consumption pattern cannot discriminate between the households of the two groups of villages. All households exhibit the characteristics of the Group-1 type.

This analysis indicates (Daimari and Mishra, 2005) that market-oriented farming alters the structure of the rural economy. It tends to accentuation on inequality in income and asset distribution.

IV.8. Impacts of Urban Neighbourhood : We make an attempt to assess the possible impacts of urban proximity on the structure of the village economy. Using distance of the villages as one of the explanatory variables, we attempted the explain the structural differences among the villages. Urban impacts are not significant on farming practices and productivity, but sectoral composition of income responds to urban proximity. Income from the tertiary activities is larger in the proximate villages. The most remarkable impact of urban proximity is on the consumption pattern. Tables 15(a) and 15(b) reveal that while the household consumption expenditure varies directly with distance (as well as income), the consumption expenditure on durable consumer goods and other items decrease with distance of the villages from the nearby urban center (Udalguri township). It has been observed that the households buy various articles that are of foreign origin and have recently flooded the markets in Assam and other states of the North Eastern Region.

Table 15(a). Consumption Expenditure (Rs/Year) on Non-durable goods as a function of Income (Rs/Year) and Distance (kms); R^2=0.53, df=179

Variable	Coefficient	Std. Error	t value	Probability
Intercept	19111.55	2283.569	8.369	0.000000
Income (Rs/Year)	0.19	0.014	13.860	0.000000
Distance (kms)	213.24	77.550	2.750	0.006578

Table 15(b). Consumption Expenditure (Rs/Year) as function of Income (Rs/Year) and Distance (kms)

Expenditure	Consumer Durables R^2=0.226, df=179			Miscellaneous Expenditure R^2=0.244; df=179		
Variable	Coefficient	Std. Err	t value	Coefficient	Std. Err	t value
Intercept	5473.489	1470.719	3.72	8019.140	2164.028	3.71
Income (Rs/Year)	0.061	0.009	6.88	0.092	0.013	7.03
Distance (kms)	-122.787	49.945	2.46*	-228.272	73.490	3.11

* Significant at 2% prob. Other Coefficients significant at ≤ 1% prob.

IV.9. Concluding Remarks : We found only a weak interrelationship among various sectors of the economy of Udalguri subdivision. The urban sector has little impact on the productive system, mainly due to poor infrastructure. Conspicuous and ceremonial expenditure is substantial, specially in the Group-1 villages. The economy is subsistence driven and productive resources are underutilized. Marginal productivity of labour is near-zero and productivity of land provides only subsistence. Poverty keeps consumption and savings low. Capital formation in the rural sector is negligible. Especially, the indigenous farmers are less enterprising vis-à-vis the immigrant farmers. Overall, the economy is in the trap of low-level equilibrium.

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