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# GROWTH AND EQUITY IN AGRICULTURAL DEVELOPMENT

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Gower

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*An Economic Model of Rural-Agricultural Sectors*

INTRODUCTION

Models<sup>1</sup> to explain agricultural development and guide policy have proliferated in the last score of years. They have been developed by deductive reasoning from general theories, from empirical observations of a large number of cases, and from case studies of individual experiences. The list of models includes Rostov's five stages, Hirshman's unbalanced growth, Lewis's capital formation with underemployed labour, Frank's metropolis-satellite, Furtado's dependence theory, structuralism, import substitution, neoclassical model, and others. National economies whose experience has been extrapolated into development models include the United States, the Soviet Union, China, France, Sweden, Yugoslavia, Mexico, Brazil, Tanzania (Reynolds, 1975; Wilber, 1979). Special sectors such as industry, agriculture, or trade have been studied intensively with a view toward developing models. Each of these models provides useful concepts and examples and each one also has some limitation as a general theory. In spite of the many models which have been developed, there is general agreement among economists and administrators that there is still room for new models or revisions of those previously articulated (Britton, 1981). This paper presents a model developed by study of labour intensive agriculture in the United States.

The point of view and method of this paper is that of an institutional economist rather than a neoclassical, or neo-Marxist economist. The significant attributes of institutional economics that differentiate it from other theories are in (a) the function of theory, (b) the role of government, (c) the concept of man, (d) the ideal or model economy, and (e) addition to a multidiscipline inductive methodology (Adams, 1980; Gruchy, 1947).

Neoclassical theory presents a rationale for the free market, competitive, capitalist economy. Neo-Marxist theory provides a critique of capitalism and advocates an equitable, classless society. Institutional economists

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emphasize a research method. Institutional economics has a pragmatic, inductive, multi-discipline methodology for solving socio-economic-political problems.

The preferred role of government in neoclassical theory is 'as little as possible'. In neo-Marxist theory the government evolves from central authority to 'as little as possible'. In countries led by adherents to both theories, governments play a dominant central role. The institutional economist recognizes this fact and accepts government as a fundamental institution.

Neoclassical economics assumes man is an individual, economic profit maximizer. Neo-Marxist assumes man is divided into conflicting classes. The institutionalist assumes man is an interdependent and social animal organized with others into social-political units capable of co-operative collective activity in the pursuit of multiple goals.

The ideal of society implied in neoclassical theory is a free market economy guided by the invisible hand. For the neo-Marxist it is a classless society following several preliminary stages. Institutionalists do not advocate an ideal model but their value premises and the literature indicate that they prefer central government planning in contrast to the neoclassical model and democratic, decentralized control in contrast to the Marxist model. A distinctive attribute of institutional economics is that it borrows concepts from several social science disciplines and treats values by investigation.

In this paper we assume that equity is a public value or goal coequal with productivity and efficiency (Schertz, 1981).

## DEFINITION OF THE RURAL-AGRICULTURAL (R-A) SECTOR

The unit of study in this paper requires a definition since it is not a conventional concept. The unit is a geographical and political region with special physical, social, political, and economic attributes. To define this concept it is necessary to differentiate it from the agricultural economists' concept of the 'agricultural sector' from the rural sociologists' concept of 'rural' and to contrast it with the urban-industrial sector.

### *The R-A sector vs the commercial agriculture (C-A) sector*

In US agricultural economic literature the term 'agriculture' refers to commercial agriculture. It refers to a summation of census data describing the larger, full-time, capital-intensive, more-profitable farms. It excludes small and part-time farms and does not refer to political units. The rural-agricultural sector concept of this paper refers to political units – that is towns, townships or counties which are rural and characterized by low-income and labour intensive, less-profitable agricultural enterprises. The conventional definition of agriculture is that of an industrial type sector. The rural-agricultural concept is a political, rural low-income region. The C-A concept refers to business units, the R-A concept to a socio-political unit (Colman, 1968; Brown, 1980).

In the United States these two concepts are spatially distinct. The commercial, capital-intensive large farm agricultural sector embraces mid-west corn-hog farms, Wisconsin dairy farms, large western ranches, and feed lots, 100th meridian wheat farms, and California and Florida citrus groves and vegetable production.

The low-income rural-agricultural sectors are concentrated in the Appalachian region; the Ozark and Ouachita Mountain areas of Missouri, Arkansas, and Oklahoma; the northern counties of Minnesota, Wisconsin, and Michigan; northern New England (Vermont, New Hampshire, Maine); the Black Belt of the old South, along the US–Mexican border in Texas, New Mexico, Arizona, California; American Indian reservations in New Mexico and Arizona; the upper Great Plains; and upper New York (Colman, 1968). The total number of people in the R-A sector is difficult to determine as the census does not include this category. A recent USDA report states that there are nearly 10 million rural poor (Brown, Steward, and Ingalsbe, 1980). The total number of residents of R-A towns probably reaches 15 to 20 million.

Agriculture economists in the United States have focused their attention on the commercial, capital-intensive sector. They define the low-income sector as a social problem rather than an economic problem. Their prescription has been for low-income rural people to move out of agriculture and for rural poverty to be alleviated by welfare programmes not by market focused agricultural policies. This prescription has guided US policies for agriculture and rural areas for five decades (Bergland, 1981).

R-A sectors also differ physically from C-A sectors. R-A land is not prime agricultural land. It usually has poorer soils, more slope, and less water. Commercial agriculture is typically on the better soils, level land with adequate water. This spatial separation between the R-A and C-A sectors also occurs in many developing countries.

### *The R-A sector vs 'Rural' sectors*

Sociologists contribute a great deal to the understanding of rural society but they do not define it in terms of political units. They study poverty, family, attitudes, organizations and so on, without specific regard to geographic areas and political units. While they do find that these characteristics vary between rural and urban areas they also declare that the rural-urban dichotomy is relatively unimportant (Dewey, 1960). Rural society, they hold, is similar to urban society but less developed. This paper makes an opposite assumption that rural society is significantly different from urban society in all critical attributes – government, goals, concept of land, values, mutual dependence, family organization, and way of life (Sargent, 1979).

Residents of rural towns practice direct democracy and self-government. Urban-Industrial regions, because of their size, must practise representative government. In New England, rural towns practise direct participatory democracy with annual town meetings where all interested citizens attend and vote. In rural communities, generally, local government organizations make many local decisions.

Public goals for land use in rural towns are more varied than those of urban governments. Urban goals feature growth in five categories – residential, commercial, industrial, parks, and utilities (Sargent, 1979). In rural areas, governments may pursue at least six goals that are not viable opportunities in urban areas: maintain a rural environment; protect natural areas; preserve wildlife habitats; foster extensive outdoor recreation; maintain natural aesthetic values; and protect wetlands, steep slopes, and higher elevations from development.

In the rural-agricultural sector attitudes of interdependence and co-operation take precedence over the attitude of competition (Sargent, 1979). In the US this attitude derives from the pioneer heritage where people had to work together to maintain security, raise a barn, harvest a crop, run a school, or celebrate a holiday. This attitude is still strong in many rural-agricultural towns in northern New England. An attitude of co-operation rather than competition is also dominant in agricultural sectors in many developing countries.

The concept of land ownership and use varies between rural and urban society. In urban areas, all land is considered developable space. Its value is determined by its distance from the city centre or transportation facilities and the cost of building. Swamps, or even open water, may be considered 'land' as they can be drained or filled and built upon; steep slopes can be levelled. In rural areas, land value is largely determined by its natural physical characteristics and productivity. Its wetness, permeability, fertility, slope, erodibility, elevation, microclimate, view, accessibility, or animal habitat are the natural characteristics that govern its value. Land ownership is valued as a basis for the rural way of life. It provides food, clothing, a store of value, a status indicator, a means of transferring wealth to the next generations, and a source of cash for emergencies or retirement (Sargent, 1979).

#### *The R-A sector vs the urban-industrial sector*

The R-A sector must be differentiated from the Urban-Industrial (U-I) sector in order to explain its growth and decline and justify special policies. The R-A sector is traditional rather than profit or market oriented. This fact has several ramifications. R-A areas have less quantity and quality of housing, education, municipal services, medical services, recreation, facilities, job opportunities, per caput personal income, and supply of capital (Colman, 1968).

The agricultural production process in R-A sectors differs from industrial production in a number of ways and each one leads to lower farm profits.

- 1 Many agricultural products are dependent upon biological and botanical growth cycles. The producer of these products cannot adjust production to market conditions in the short run to maximize returns. The industrial producers often can.
- 2 Agricultural production fluctuates with the vagaries of the weather. An agricultural producer cannot produce countercyclically to the

weather to benefit from weather-caused, price fluctuations. Industrial production is not weather-limited.

3 Traditional agricultural production is organized by sole proprietors who provide labour, management, ownership, and make savings by reducing necessary consumption. In industry the functions of ownership, management, labour, savings, and investment are provided by separate specialists. In neoclassical terms the small-scale family farmer is 'submarginal'. In Marxist's terms he would be considered 'precapitalistic'. In institutionalist terms he represents a basic institution – the family farm. Since agricultural production depends on family labour, the labour supply cannot be adjusted to seasonal or annual requirements. Hence, both underemployment and family labour exploitation are endemic. In industrial production, the labour input is adjusted to production requirements and all inputs are provided by specialists.

4 Demand for agricultural products is more inelastic than demand for manufactured products. The agricultural producer faces a horizontal demand curve; the industrial producer a sloping demand curve.

5 Agriculture is closer to pure competition than industrial production. Pure competition produces no economic rent or profit. Agricultural producers cannot increase their price by reducing their supply. Industrial producers generally enjoy an oligopolistic position in the market. They avoid price competition and employ price leadership, product differentiation, and advertising to obtain a monopolistic profit.

6 The equilibrium price of agricultural products tends toward the lowest amount that producers will accept – a return consisting of low wages, low returns to management, a required return to capital, but no economic profit. Industry requires the going rate of return to all factors plus an economic profit to assure continued operation.

7 Product differentiation is difficult for most agricultural products. Product differentiation with attendant higher prices is a general practice in the manufacturing sector.

8 Agricultural production requires close, personal management. This fact leads to increasing costs and diseconomies of scale. Industry, including the processing of agricultural products is favoured by decreasing costs and economies of scale. This leads to growth in firm size and eventual oligopolization. Firms become larger and develop the economic power to initiate vertical and horizontal integration and obtain monopolistic profits.

9 Agricultural production is generally located distant from central markets. Agricultural producers have high transportation costs that more distant agricultural producers must absorb. Industrial production is generally located in urban transportation centres.

10 The agricultural enterprises in the R-A sector are labour intensive, and hence, less productive and less profitable than industry which is capital-intensive.

In summary the R-A sector consists of separate, distinguishable, and significant political, social, and geographical units of low-income farmers

and rural people whose characteristics distinguish them from the commercial-agricultural sector, the urban-industrial sector, and the sociologists' concept of 'rural' society.

### THREE PARTIAL THEORIES

A multidiscipline model of rural-agricultural sectors defined above may be constructed by combining three partial theories taken from five disciplines: (a) urbanization – the concept that central city growth is the central and dominant force in regional economic development (from regional economics); (b) natural resource determinism – the concept that the natural resource base is the major determinant of the location and rate of economic development (from resource economics and economic geography); and (c) government activism – the concept that the government role is to develop public goals, guide resource allocation, and influence income distribution (from institutional economics and political science). Let us review these three partial theories and then combine them to construct a multidiscipline model of R-A sectors.

#### *Urbanization – the driving force of regional economic development*

Urbanization is a familiar concept in several social sciences – regional and resource economics, sociology, human ecology, economic geography, and history. The patron saint of this theory for economists is the German, Johann Heinrich von Thünen. In 1826, he published *Der Isolierte Staat*, which explained the location of economic activities by transportation costs and distance from the urban centre. Researchers in contributing disciplines have updated and augmented von Thünen's model to produce a complex economic development theory based on location and transportation costs.

The urbanization process may be compared to a wagon wheel. The city is a huge hub of industrial, commercial, and financial activity. The spokes are transportation arteries that extend to natural resources in the rural periphery. The spokes carry investment funds and entrepreneurs out to the rural area and bring back raw natural resources for processing, manufacture, and distribution. The hub city (or developed economy) has favourable terms of trade with all of the rural areas (or LDCs) from which it draws resources as its functions are more capital-intensive, mechanized, industrialized, productive, and profitable. The central city continuously accumulates capital and wealth and improved technology. As its area of dominance expands and as the urban centre expands, economic activity extends further into the rural hinterland but with diminishing levels of intensity. The direction, speed, and location of the urban-industrial growth into rural areas is governed by transportation facilities and costs and the suitability of the rural natural resources for economic exploitation. The dynamo that energizes the urban centre is found in the law of economic concentration which operates most effectively in urban centres. This urban-centred economic force is pervasive and strong. It dominates the growth process in the rural hinterlands.



Rural areas prosper when investment comes in but decline when the natural resource base is depleted or exhausted or more productive resource sources are found. They lack the urban centre's possibility of continuous cumulative growth, continuous capital accumulation, and profitable production.

*Natural resources – the spatial determinant of rural development*

The natural resource base of a rural area, plus the distance to the urban centre and the resource demands of the urban centre, determine the location and rate of rural development. Rural people are drawn into the process as labour when the urban entrepreneurs need manpower to develop and process the resources.

Rural natural resources include agricultural land, extensive recreational land, forests, mineral-bearing land, low-density residential areas, and ski slopes. The greater the quantity and quality of these resources, the greater their proximity to an urban centre; or the stronger the demand, the faster a rural area will develop. Rural areas with few or poor resources, or those too expensive to extract and exploit, or those a long distance from the urban centre, will be developed more slowly.

Erich W. Zimmermann, in his classic treatise, explained the central role of natural resources in economic development (Zimmermann, 1951). It was inherent in Zimmermann's theory that resources change with changes in technology and, therefore, so does their impact. This principle has been demonstrated in northern New England. With the replacement of water power by hydroelectric power and the settlement of more productive agriculture land in the West, the hill town communities in northern New England declined. Timber resources, plus a harbour, stimulated the development of many rural seashore communities in New England. They gradually declined after the timber resource was depleted, and wood was replaced by steel in boat building. The economic history of most small rural towns in northern New England can be explained in terms of several cycles of exploitation of the natural resource base.

In the very long run, rural areas tend toward an equilibrium between the carrying capacity of the resource base and the population. This equilibrium is achieved by inflow or outflow of people. The level of living at equilibrium is low when the resource base is poor and high when the resource base is varied and productive. This adjustment toward an equilibrium often requires several decades or even generations. Rural towns in Vermont have gone through a number of cycles of growth and decline based on resource discovery exploitation, depletion, and then decline. This has occurred on the basis of potash, lumber, grain, sheep, butter, cheese, milk, and tourism.

*Government management – allocating resources, developing public goals, distributing wealth*

Neoclassical economic theory minimizes and misrepresents the role of government. The value premise that market resource allocation is good and government interference is bad leads to a failure to see how government and

market complement each other and a failure to adequately recognize the necessary functions of government. In capitalist, mixed, and socialist countries alike, the government has three necessary functions: (a) to establish public goals; (b) to participate with the market in varying combinations to allocate resources, and (c) to influence wealth distribution through taxing and spending policies. These three functions are carried out with varying degrees of efficacy at the local, regional, and national level. In northern New England, rural towns set their public goals which are invariably different from the public goals of cities. National and regional governments set national or regional goals and determine resource allocations to the public sector. The third function – influencing income distribution – is a major responsibility of national governments. National tax laws, credit subsidies, and spending programmes may favour various sectors in various degrees. A policy may favour the wealthy and rely on trickle-down to distribute income to others. It may feature a transfer of wealth from urban centres to the rural-agricultural hinterland. US agricultural policy has for several decades favoured large, capital intensive, commercial farms over small, labour-intensive, family farms. President Johnson's war on poverty programme provided an income transfer to low-income R-A regions. President Reagan's tax relief for high-income people constitutes a transfer from low-income to higher-income recipients.

The national government establishes the rules of the game concerning the distribution of wealth produced by natural resource exploitation. The extent to which the national government taxes this gain and the way it distributes it determines the income distribution pattern of the country.

## ECONOMICS OF THE R-A/U-I RELATIONSHIP

Utilizing these three partial theories we now have the building blocks for a model. Rural development or decline is the result of the interaction of these three major processes: (a) the urbanization process; (b) natural resource exploitation; and (c) the governmental action in developing public goals, allocating resources and distributing wealth. We can now develop an economic model based on these forces and the exchanges between the R-A sector and the U-I sector. The descriptive part of this model may be detailed in 10 propositions.

1 The urban-industrial centre and the rural-agricultural hinterland interact to constitute an economic system – one providing capital, manufactured products, and a market; the other, providing agricultural products and primary raw materials.

2 The energizer of this system is the urban-industrial centre. As this urban area grows in productivity, population, wealth, technology, and economic activity, demand for rural natural resources grows and investment capital is accumulated.

3 A circular urban-rural flow of money is established. Urban entre-

preneurs take savings from the urban centre of capital accumulation and invest it in the rural area to exploit the natural resources. Returns to capital, entrepreneurship and investors flow back to the urban centre. Wages for labour and small local expenditures remain in the rural area. This circle may have some modifications. Some capital is saved and invested by local people, but on the other hand capital intensive production spends very little in local wages or supplies.

4 A circular flow of people develops. Entrepreneurs and labourers go to the rural, resource producing areas when rural production is expanding. When the resources are depleted the rural economy declines and unemployed people move back to the urban centre. Those committed to the rural way of life remain.

5 A flow of resources occurs. Natural resources move from the rural sector to the urban area where they are processed or manufactured and distributed throughout the urban centre's trade area. Some are returned to the rural area as manufactured goods.

6 The urban-rural flows of capital, people, resources and goods continue until the rural natural resource is depleted. As rural resource production declines the rural level of living declines and a rural to urban flow of people commences.

7 These flows between urban and rural areas constitute an economic system that provides continuous growth at the urban centre and growth, decline, and stagnation cycles in the rural periphery.

8 The R-A sectors have inferior terms of trade *vis-à-vis* the U-I sector. This is because of the differential productivity between urban and rural areas. Rural-agricultural production is labour intensive, utilizing much hand labour, and is less profit-producing per caput. The U-I sector is capital-intensive, employing large inputs of machinery and technology and is more profitable.<sup>2</sup>

9 Governments set the rules for the relationship between urban and rural sectors. They may favour the urban capital accumulators and entrepreneurs, or they may tax U-I wealth and transfer it to the R-A sector in the interests of market stabilization or equity or they may do some of both. Government policy is critical.

10 Rural natural resources are exploited by the urban entrepreneur. Whether or not rural people are exploited depends upon their mobility, their alternatives, government policies, and resource ownership.

This urban-rural exchange constitutes a dynamic system. Urban centres expand continuously, drawing on an ever-widening circle of rural areas, until growth is restrained by government policies. Rural areas fluctuate according to the resource base. They may grow as long as the resources supply the fuel. If the resource base is depleted they can decline to a subsistence level economy. Rural areas in the United States have grown, declined, grown again, and declined again as the natural resource base was exploited and depleted; and then a new resource is discovered and, in turn, developed, exploited and depleted.

The direction and magnitude of these circular flows explains the relative

poverty in the rural-agricultural sector. The most significant ratio is the amount of wealth produced and exported from the rural town to the city compared with the amount of wealth sent from the U-I sector to the R-A sector. Urban entrepreneurs and investors require a profitable return while rural workers will work for a minimum wage in order to pursue their preferred rural way of life or because they have limited alternatives. Urban areas have a near-monopoly on industrial technology, entrepreneurship and capital and so can charge a higher-than-competitive price for their products. Rural production is under conditions closer to pure competition and so wages are reduced to the lowest amount workers will accept. This means that the R-A sector has disadvantageous terms of trade *vis-a-vis* the U-I sector. The late E. F. Schumacker called this relationship 'internal colonialism' (Schumacker, 1977).

### GOVERNMENT POLICIES, AGENCIES, AND CONTROLS

The foregoing presents the spatial, physical, and economic framework of the U-I – R-A relationship and shows how economic forces operating under free market conditions lead to a low level of living for the R-A sector in comparison to the U-I and C-A sectors. To complete this model it is necessary to indicate the government policies that must be employed to mitigate and compensate this result. Governments may use a variety of policies, agencies and controls: supervised credit, co-operatives, taxation, subsidies, investments, and regulatory laws. The objective of these policies is to achieve a national goal of greater equity as well as greater productivity.

Direct government investment in social infrastructure and consumer subsidies is a proven method. Subsidies for housing, water supply systems, fish ponds, sewage disposal systems, schools, meals, playgrounds, community centres and health services will contribute the largest percentage assistance to the lowest income recipients (Johnson, 1980). This type of assistance found in antipoverty programmes of the L.B. Johnson administration in the United States was very effective in raising the floor of the level of living of people in R-A sectors generally.

The government planning process (local, regional, and national) may be co-ordinated as a tool to improve the R-A sector position. Potential centres of rural growth may be identified and supported through a national programme of decentralization of government facilities. These centres (in Latin America they are called *polos de desarrollo*) with national government assistance, can be encouraged to develop processing plants and small industries.

Taxation policies should be based on comparative productive efficiency. This would lead to heavier taxes on the more productive U-I and C-A sectors and lower taxes on the R-A sector.

Co-operatives, a supervised farm credit system, and a law to discourage corporate purchase of farmland are necessary institutions. Saskatchewan, Canada, provides one of the best examples of a cluster of policies that

effectively promote the interests of the family farm dominated R-A sector rather than corporate farming and the commercial-agricultural sector. Co-operatives help the small producer or consumer to capture a larger proportion of the rural-urban flows of capital, wages, salaries, interest, and profits from the urban-manufacturing sectors. Co-operatives are also expressions of rural attitudes of mutual, local, self-dependence. Agricultural economists have long appreciated these aspects of co-operatives and have been in the forefront in advocating and supporting them as ameliorative rural institutions.

The issue of free trade versus managed trade has been debated in the literature for many decades. First British and then US economists advocated free trade while European and later LDC economists explain the necessity for managed trade and import substitution. This model helps clarify this controversy. Developing countries are predominantly rural-agricultural. Their terms of trade are generally disadvantageous *vis-à-vis* developed (urban centre) countries as they export more competitive and less profitable primary products and import manufactured goods. Free trade, based on comparative advantage, continues this unequal exchange. The economic returns to the LDC would not be sufficient to permit them to accumulate capital necessary for massive investments in more profitable, capital-intensive, industrial production. In order to escape the vicious circle of low productivity and poverty a LDC must change the structure of its trade. It must set goals of providing basic human needs to its own people and processing its own raw materials as well as exporting to earn foreign exchange. To accumulate capital to implement this programme it must take full advantage of trade which is the prime source of foreign hard currency. This can be accomplished only by managing trade to assure that all hard currency earned is invested in support of the national development plan rather than spent for luxuries or private consumption (Sargent, 1961).

## SUMMARY AND CONCLUSION

The polarization fostered by the conflicting theories of neoclassical and neo-Marxist economics inhibits development of an alternative model to explain and provide policies for rural-agricultural, low-income, labour-intensive sectors. The pragmatic and inductive method of the institutional economist can make a contribution. The basic concepts of urbanization, natural resource determinism, spatial analysis, and democratic government may be combined to produce a multidiscipline model. First we divide the economy into three sectors: urban-industrial, commercial agricultural, and rural agricultural. Next we analyze the relationship of these three sectors. Third we propose policies to achieve greater equity for the rural-agricultural sector.

## NOTES

<sup>1</sup>A model is 'a theoretical projection in detail of a possible system of human relationships (as in economics,...)'. Webster's *Third New International Dictionary*, unabridged, 1971.

<sup>2</sup>Mary H. Osgood states 'as distances from an urban center increase, so does the incidence of poverty. In the most distant and sparsely settled counties, the poverty rate is 2½ times that in metropolitan areas: nearly half (44%) of the nation's poor reside in nonmetropolitan areas', *Social Work*, Vol. 22, No. 1, January 1977, pp. 41-7.

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## DISCUSSION OPENING - FAISAL KASRYNO

The model presented by Professor Sargent is an institutional economics approach to rural development and is an appropriate model for explaining agricultural or rural development in developing countries.

Institutional economics basically contains two objectives: a) to explain the evolution of economics and b) to analyse the effects of institutions on resource allocation and income distribution. The usefulness of institutional economics in explaining economic phenomena rests on its ability to clarify some facts that appear at the outset to contradict classical and neoclassical

economic predictions, such as the existence of tenancy together with wage labour and contracts indicate failure in the markets for some factor of productions. Rural institutions are dynamic and changing over time and vary across regions due to variations in prices, resource endowment as well as political aspects. For example *Bawon* is a rural institution that governs the harvesting labour share of the rice harvest and this varies between regions in Java and changes over time. In 1969/1970 *Bawon* or the harvesting labour share of rice was  $\frac{1}{8}$  of the yield in the northern plain of Java. In 1979/1980 the labour share declined to  $\frac{1}{8}$  or  $\frac{1}{10}$ . If the share remained at  $\frac{1}{8}$ , compulsory work was added by the inclusion of transplanting and weeding tasks in order to obtain the right to harvest and receive  $\frac{1}{8}$  of the yield. These changes are the results of increasing population on a limited supply of land and nearly unchanged employment opportunities in the non-agricultural sectors.

A question that may need further discussion is whether rural institutions create inefficiency in resource allocation and income distribution or promote efficiency. If rural institutions, such as tenancy or land tenure, create inefficiency, should government abolish the institution, for example through agrarian and land reform or create or induce changes in other factor markets, for example by creating/inducing employment opportunities in the non-agricultural sector.

The economic model presented on pp. 169–170 is, perhaps, one that can be fitted into activity analysis such as I.O or L.P. models with multiple objective functions. If this is so, the question will be what is the relevance of the institutional economics approach in the model.

I think in explaining the existence and evolution of institutions or economic organization, such as contracts, conventional economic tools such as costs, benefits and equilibrium still can be applied. To explain resource allocation and income distribution and their changes over time and differences across regions, institutional economics can be used in conjunction with classical and neoclassical economics and not as an alternative. And this matter may need further discussion in this session.

Differences between the marginal productivities of factors of production and factor prices may perhaps be due to an inability to measure the level of inputs used, and the appropriate costs to be included, such as costs of information and supervision and political aspects. The solution by contracts or through institutions will approach the competitive market solution. Studies in Java have noted that imputed wage rates for the *Bawon* system and contract labour are nearly the same as market wage rates. Returns to factors of production (land and labour) in share tenancy arrangement were also nearly the same as the level of market land rent and wage rates, whenever appropriate costs were computed, such as supervision, information and search costs. To quote Roumasset, 1978:

If property rights are well established, contracts are easily enforced, information costs are negligible, and numbers are sufficient to make attempts to monopolize unstable, then factor of production will be

allocated efficiently and receive their competitive factor payments, whether markets exist or not.

If search and information costs exist then the set of institutions which minimize excess burden or maximize the difference between benefits and costs will evolve. Problems of course will arise in measuring the excess burden. The role of government could be in providing information.

## GENERAL DISCUSSION – RAPPORTEUR: B. H. KINSEY

It was pointed out that the paper, while very interesting, may represent a minority viewpoint and raises two explicit questions: (a) What is the theoretical standing of the concept of a 'sector' defined in geographical terms? and (b) How is a 'resource' to be technically defined within this concept of a sector? It appeared possible, for example, for what was defined as a resource in the urban areas to be considered no longer a resource outside this area.

Experience in the UK indicated that, with a somewhat broader scope, it was not necessary to confine the definition of a sector to a geographical area. Boundaries have been defined for the 'less-favoured' areas in the UK but the definitional problem does not arise because additional categories – such as non-viable farms or an unfavourable age structure in agriculture – can be employed to identify the rural agricultural sector. There was also disagreement with the observation that the rural unemployed drift into the towns, as UK experience had shown the opposite – or at least that the unemployed 'back up' in the rural sector. The question was also raised as to what additional policy instruments were advocated by the author for improving the situation described.

It was also pointed out that value systems differ in rural and urban sectors, a fact which creates difficulties so far as achieving equity is concerned. What is the goal of the rural sector in relation to equity?

Concern was expressed as to whether the ecological considerations could be given due weight in the rural-agricultural sector model. Economics and ecological considerations may well dictate different patterns of land allocation to different activities. Is it possible to have a pattern of land use incorporating the concept of common property resource use?

Frederic Sargent responded that the importance of politics and political choice in relationship to resource ownership and use is recognised. The setting for the paper – the US state of Vermont – may impose restrictions on the general applicability of the model, but Vermont should be regarded in this sense as a laboratory, and other researchers will have to tailor the concepts in the rural-agricultural sector model to their own particular circumstances.

An improvement in social services is a common prescription for improving the situation of that part of the population living in the rural-agricultural sector, but the inefficiency of such services has to be both



recognized and lived with – the latter because rural-agricultural dwellers do have different values. Surveys have been done to determine people's own definitions and concept of equity as well as their psychic value systems, and the differences are clearly revealed. It has also been established that ecological considerations rank as important in their value systems.

Participants in the discussion included Michel Petit, G. W. Furness, Takeo Misawa and M. G. Chandrakanth.