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THE PEASANT ECONOMY: A REVIEW OF THE DIFFERENT THEORIES*

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ABSTRACT: *This paper reviews various theories of the peasant economy. It is shown that the theories have differences as well as similarities. The 'formalist' school, profit maximization and utility maximizing peasant theories take efficiency as a central issue in their analysis. In contrast to the profit maximizing assumption, 'risk averse' peasant theory, formalist theory and some of the political economy theories argued that the aim of peasant production is to avoid risk in the production of household food requirements and not to maximize profits by taking decisions involving high levels of risk. Others argued that profit is alien to peasant producers. Still others, argued that 'risk aversion' behaviour does not preclude profit maximization behaviour. No theory can be said to fully explain all aspects of peasant production; indeed, for the present, all of the theories may have relevance in explaining different aspects of the peasant economy.*

1. INTRODUCTION

The aim of this paper is to present a critique of the major theories of peasant household production. Theories are reviewed because of the lack of a single theory of peasant production that covers all aspects of peasant life.

It is important first to define the term 'peasant', to delineate the focus of attention, before embarking on a discussion of the theories of peasant production. Defining the term 'peasant' has been a controversial issue for a long time, and still continues to be so (see, for instance, [21, 117]). Peasants have been defined by identifying their behaviour and attributes of societies: permanence of production system, markets and general exchange relationships; association with outsiders; internal homogeneity of societies; the role of subsistence production; land ownership; intensity of family labour; objective of production; the dominant economic activity; and, culture and attitudes. Several combinations of the above have been used in characterising peasants.

As far as economists are concerned, a number of characteristics have been considered in defining peasants.[1] Peasants do not operate on the basis of 'profit and loss' accounting[48, 115]. Peasant farms are production units as well as consumption units.

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They consume part of their produce and sell part of it to meet their cash requirements (by purchasing goods not produced at home) or to pay for obligations imposed on them (e.g., taxes) by the outside world [64, 102, 117,128]. They are engaged in agriculture (mainly cereal production), pastoralism, gathering (fruits, nuts), fishing and crafts. They are 'part-societies' within a dominant national economy [102, chapter 2], [128]. Their economy has been viewed as a non-self sufficient mode of production [52], but the control they have over their production gives them a certain level of independence [133]. However, this control can be restricted by government interventions [71], as has been the case in Ethiopia from 1975 to 1990, or when they are engaged in sharecropping arrangements.

Some of the anthropologists and sociologists argue that viewing peasants as economic performers alone is wrong [21]. Shanin gives five basic characteristics that could be used to delineate peasants from the rest of the society [117, pp. 52-54], i.e., political organization, tradition, social organization, social reproduction of the social structure, and fundamental patterns and causes of structural change.[2]

It is clear from the above writings that analysts limit themselves in defining peasants because of the complexity of combining the different characteristics as an integral part of a working definition. However, it is important to keep the rest of these characteristics in mind when using the term 'peasants'. The following definition, which draws heavily from Ellis [39], is to be used in this paper.

> Peasants are farm households, with access to a piece of land and utilizing mainly household labour in farm production. They are located in a larger dominant economic and political system that could affect their production behaviour, but fundamentally they are characterised by partial engagement in markets, which tend to function with a high degree of imperfection.

The remainder of the paper is divided into two parts. The first part covers the major part of the paper on the different theories of peasant production: substantivism and formalism (i.e., economic-anthropological writings); political economy theories; and, three alternative economic theories of peasant behaviour namely: 'profit maximizing', 'risk averting', and 'utility maximizing' peasant theories.[3] The second part presents a summary and conclusions.

2. THEORIES OF PEASANT PRODUCTION

2.1. The Economic-Anthropological

Two theories are reviewed here. The major dividing line of the theories is the position they take regarding whether individual actions or institutional factors have a determining factor in peasant production. Substantivists believe that institutional factors determine individual action and that differences in institutions make different societies incomparable; therefore, institutional analysis should receive the greatest stress. On the other hand, formalists argue that institutions have similarities in different societies, and in all societies individuals act so as to maximize their individual gains.

Substantivists start their discussion of primitive and peasant economies by stating what these economies are not [35]. Polanyi [97] defined these economies as the negative of capitalist economies, particularly singling out the profit motive as a hallmark of capitalist production; as was the absence of this motive in the noncapitalist societies. Polanyi regarded production as the process of creating material means for society. According to him, humans adapt to particular environment in order to produce materials necessary for the society and these material production processes could be distinguished from other processes in the society. But, the different institutional arrangements in different economic systems make the systems fundamentally incomparable. Therefore, so the argument runs, the institutions must receive the greatest attention in the analysis of peasant societies. The substantivists emphasised the behavioural differences between non-western societies and western societies. They specified the uniform values, institutions and exchange relations that typify a society [81]. They believed that capitalist institutions are fundamentally different from those in non-capitalist societies, thereby making theories developed to analyze the capitalist system irrelevant for the noncapitalist societies. The same view has been expressed by Manilowski [74, 75]. Dalton [28, 29, 30, 31] and Sahlins [106] added to and refined Polanyi's arguments. Sahlins [106], for instance, argued that it is incorrect to detach the principle of profit maximization from its bourgeois context. Therefore, peasant society is considered to be what capitalist society is not.

Formalists, by contrast, argued that institutions in different societies are not so different that all economies cannot be analyzed using theories developed to explain capitalist economic behaviour. They argued that individuals in any society act so as to maximize their individual gains (e.g. [42, 43, 44, 50, 53]). Later works tried to apply the principle of maximization in the context of different constraints. For instance, Orans [94] regarded Indian peasants as maximizing their interests within a given system of values, moral rules and legal sanctions. Others tried to demonstrate that the principles of neoclassical economics make sense in peasant societies (e.g. game theory by Davenport [32]). However, it was argued that even though neoclassical economics could be applied to peasant societies, it needs adaptations to take into account the institutions of these societies that are different from capitalist economies [107].

2.2. Political Economy Approaches

Most socialist writers have chosen the framework of Marxian political economy to explain peasant production and its role in the capitalist system. Marx held that social development progresses from one mode of production (defined by the sum total of productive forces, i.e. technology and production relations) to another following the law of historical materialism. According to this law, technology advances with the development of science and thus the productive forces of society continually change. Sooner or later, incompatibility develops between the advancing technology and the fixed production relations. The resulting contradiction leads to a revolution and emergence of a mode of production which would be compatible with the development of the productive forces. Accordingly, Marx identified primitive communal, slave, feudal and capitalist modes of production as the dominant and consecutive modes of productions in the world history. Peasant production, according to the classical Marxian analysis, is regarded as a non-dominant transitory mode of production. It is argued that capitalist expansion would penetrate and transform any pre-capitalist production systems. Dispossession of the peasants from their means of production would result in the creation of potential wage workers and expansion of capitalism in agriculture as it did in the developed countries.[4] Recent studies have questioned the validity of this traditional formulation. They argue that the expansion of capitalist exploitation is not incompatible with the existence of peasant production (see for instance [4]).

In the early 1960s, the 'dependency' and 'underdevelopment' schools came up with theories explaining the backwardness of countries dominated by peasant economies (see [93]). Most of these theorists treated peasant production as the end point in the chain of production systems, interconnected by and serving the international capitalist system. Theorists like Baran [10], Frank [45, 46, 47], Dos Santos [36], and Wallerstein [130] had a basic premise that development of some countries actively led to underdevelopment or distorted development of the backward countries of the world making them the periphery of the world capitalist system. Some of them argued that capitalist accumulation (a *sin qua non* of the capitalist system) on the periphery has dynamics of its own which distorts the basic structure of capitalist productive class relations, even creating a new mode of production (see for instance [6, 7, 9, 16, 24]). According to these writers, any analysis of peasant production has to be seen within this context.

However other socialist writers pointed out the 'inefficiency of capitalist development', particularly the failure of capital to penetrate agriculture, as being the factor responsible for the backwardness of these communities (see [62, 63, 131]). These theorists of political economy have counterparts in economic-anthropology, particularly the French anthropologists (see [37, 49, 55, 83, 84, 106, 127]), most of whom wrote in response to the Substantivist and Formalist schools of economic anthropology.

2.3. Economic Theories

Three alternative economic theories of peasant household behaviour are presented below. Each category of theories assumes that the peasant household has an objective function to maximize, with a set of constraints. The first one is the model of the 'profit maximizing' peasant. It assumes that peasants have the objective of maximizing profit. Mostly in reaction to this model, other economists have crafted the 'risk aversion' peasant theory. This model argued that the objective function of peasant households is to ensure the survival of the household by avoiding risk. Significantly, both profit maximizing and risk aversion theories tend to ignore the consumption aspect of a peasant household production. Since the process of decision making of peasant family involves both production and consumption aspects, these models ignore a major side of

the peasant household decision making process. The role of consumption decision in production is an important factor in explaining peasant decision-making behaviour.

There are economic models that try to incorporate both consumption and production goals of the household. The major theories attempting to do so can be classified into Chayanovian or utility maximizing and the new household economic theories. Chayanov's model shows the influence that family size and structure has on the peasant family farm through the subjective valuation of labour time of the household. It argues that, in order to maximize utility, peasants equate the marginal value of products to the marginal value of labour. The new farm household models are similar to Chayanov's, but are based on a different set of assumptions and have wider scope and predictive power.

2.3.1. Profit Maximizing Peasant Theories

Schultz's hypothesis that, '...(t)here are comparatively few significant inefficiencies in the allocation of the factors of production in traditional agriculture' [109, pp. 37-38], gave rise to a debate among economists that resulted in a new wave of empirical works to test it. Schultz referred explicitly to **allocative** efficiency [optimal combination of units or amounts of inputs so as to maximize profit, i.e., equating marginal value product (MVP) to marginal factor costs (MFC)] and, implicitly, to **technical** efficiency (the manner in which the same units or amounts of inputs are combined in order to maximize output). Reference to allocative efficiency or economic efficiency (attaining technical and allocative efficiency at the same time) drew one to profit maximization behaviour, because, economic efficiency is defined in the context of perfect competition (where inefficient firms are thrown out of business or become competitive by improving efficiency and where entrepreneurs display non-diminishing marginal utility of money income) as happens when profit maximization coincides with maximization of satisfaction [111].

Several studies subsequently used the allocative efficiency criterion (MVP/MFC) to test whether peasants were efficient or not (i.e., whether they were profit maximizers or not). Hopper [57], for instance, tested the Indian peasant behaviour, others applied it to African peasant farms (e.g. [91, 92]). These studies reached the conclusion that

peasants were, indeed, efficient producers. Others found out that peasants were not efficient (e.g. [19]). Still others argued that these studies had mistakenly concluded that peasants were efficient because of a mistake in the method of calculating the allocative efficiency ratio. For instance, Shapiro [118] showed that correction of mistakes in some of the works that established that peasant producers are efficient result in figures that demonstrate peasant farmers are not efficient.

Another criticism of the approach is that the criterion relies on the 'average' production function (as opposed to the 'best practice' firm conditions) thereby not showing the different levels of technical competence between farmers. Moreover, the single point on the production function identifying allocative efficiency poses problems in statistical interpretation [39]. Furthermore, it ignores the technical efficiency aspect of the overall concept of economic efficiency. Since the production function approach, based on the ordinary least squares, by definition averages out the differences between different levels of outputs for the same level of input, it hides the differences in technical efficiency. A linear programming approach has been used and technical inefficiencies were shown to be widespread relative to the 'best practice' firms. Shapiro [118] in the case of Tanzanian farmers and Lingard *et al.* [69] in the Philippines sought to demonstrate this situation. Dawson [33] used a frontier production function analysis to show the inefficiency of peasant farms.

Probably the most important criticism is that the model does not consider uncertainty and the risk in agricultural production. Lipton's [72] criticism sought to show how the existence of uncertainty and risk eroded the theoretical basis of the profit maximizing model. McPherson [82] argued that farmers do not generally try to equate MVP to MFC of their resources but allow for higher order moments of revenue and costs.

2.3.2. The Risk Averse Peasant

Peasants produce under a very high level of uncertainty because of natural hazards (weather, pests, disease and other natural disasters), market fluctuations, and social uncertainty (insecurity associated with control over resources, such as land tenure and state interventions and war) [39]. These pose risk to peasant production and make peasants very cautious in their decision making.

Lipton coined the term 'survival algorithm' to describe the strategy adopted by peasant farmers to overcome disasters [72]. He argued that peasants are of necessity risk averse, because they have to ensure their household needs from the current production or face starvation. There is no room for aiming at higher income levels by taking decisions with a higher risk [70, 71, 72].

A few studies have attempted to analyze the risk taking behaviour (e.g. [17, 18, 34]). Some concluded that peasants are, indeed, risk averse (e.g. [18, 91, 92, 135]). Others reported that peasants are not risk averse at all; for instance, Roumasset [105] concluded that peasants are ready to gamble and they do take risks.

The theory of the risk-averse peasant holds that, if the sources of risk are removed, peasant agriculture could develop. The major argument here is to introduce measures to mitigate the ravages of nature, e.g., by introducing irrigation [71, 72, 73]. Risk aversion behaviour does not preclude efficiency. Some researchers have concluded that peasants could maximize profits within the constraints of risk aversion criteria (see [39, p. 26], [92, p. 88]).

Nonetheless the theories do tend to ignore the social relations of peasant production. For instance, they neglect the existence of non-market forms of economic interaction that are helpful in reducing the effect of uncertainty, such as the social security of the family, the village and the clan provide in the face of disaster. However, the theory does hold when a disaster affects the whole community as in drought.

Scott [112] approached the problem from a different point of view and came up with a theory that emphasised the collective action of peasants as opposed to the isolated peasant household framework. He started his analysis with the premise that the peasant household and the community as a whole have a 'subsistence ethic' (safety first), which compels them to strive for survival in the face of uncertainty about food. In this regard he wrote that:

> (t)he amount of rice a family could produce was partly in the hands of fate, but the local tradition of seed varieties, planting techniques and timing was designed over centuries of trail and error to produce the most stable and reliable yield possible under the circumstances... Patterns of reciprocity, forced generosity, communal land, and work-sharing help to even out the inevitable troughs in a family's farm resources which might otherwise have thrown them below subsistence. [112, pp. 2-3].

Thus, he identified two aspects of peasant production as major determinants of the system: striving to achieve stability of output in order to attain security; and, the development of a set of social relations with a redistributive character to mitigate extreme hardship during unfavourable periods.

Scott did not accept that peasants are driven by a profit maximization motive. He even explained peasant uprisings as being a reaction of peasants when this security of subsistence is threatened by the introduction of institutions such as colonialism, the market, etc. Popkin [100], in contrast, questioned Scott's approach. He argued that peasant uprisings were caused by the desire of peasant households to improve their economic status (not to maintain subsistence production as Scott argued) and increase their political power.

Sharecropping peasant arrangements (both viewed from the point of view of the peasant and the landowners) as well could fit into the category of risk aversion theories. In sharecropping, land rent is fixed as a percentage of total physical output obtained. To a risk averse peasant this is an acceptable arrangement as it ensures that the peasant pays only if crops are forthcoming. Sharecropping had been investigated extensively by economists since the 1960s (see for instance, [12, 19, 22, 26, 121, 123, 125]).

2.3.3. Utility Maximization Theories

There are a number of utility maximizing theories that have been applied to peasant production behaviour. Here, attention is devoted to only one, that of Chayanov's Theory [128].

Chayanov's peasant household model relies on two key elements labour and income, where labour has a disutility while income has utility. Income is a function of labour and stated formally this takes the form:[5]

Maximize:

$$U = u(L, Y)$$

$$\partial U/\partial L < 0 \; ; \; \partial U/\partial Y > 0 \quad (1)$$

(this condition ensures that the indifference curves are convex towards the origin where the maximum L is reached).

where U is utility
L is labour time
Y is income

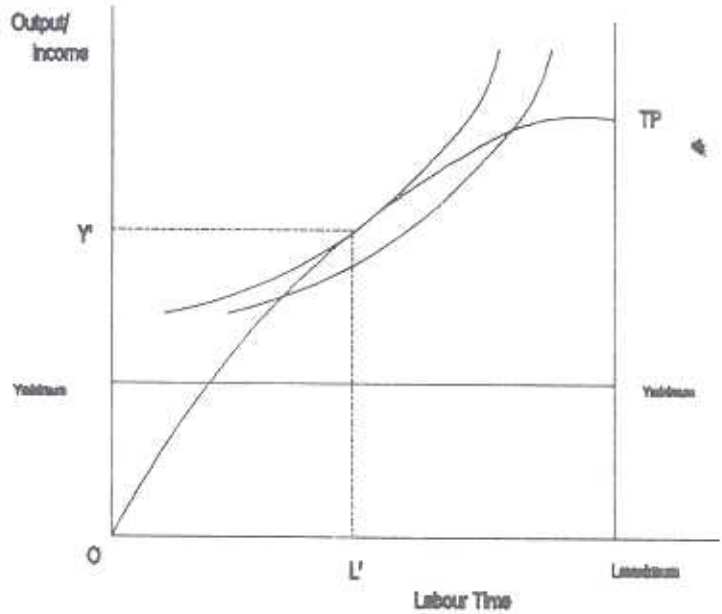
Subject to:

$Y = f(L, P)$; $Y \geq Y$ minimum subsistence; $L \leq L$ maximum labour time physically possible

where P is price.

Chayanov assumed that there is no labour market; farm output valued at market prices may be consumed at home or sold; there are no restrictions on the amount of land available for cultivation; and a social norm determines the acceptable income level per person. Chayanov's model is summarized in Figure 1.

Figure 1. Optimal labour and income level conditions in a family farm



Source: Nakajima [90]

Output or income is depicted on the vertical axis and labour time on the horizontal axis. Total labour time can be used either for leisure or for work. Hence OL' gives the work time. The curve TP depicts the production function (or the family income curve). The consumption behaviour is represented by indifference curves (I) describing given amounts of utility provided by combining leisure and income. The indifference curves are assumed to be horizontal below minimum income levels necessary for the household, as no amount of leisure can compensate for loss of income below this level; and they are assumed to be vertical once L maximum is reached, because it is impossible to increase labour time what ever income is offered. Assuming that it is the production function which is the main constraint, the solution will be where the marginal rate of technical substitution of leisure for income equals the marginal value product of labour.

2.3.4. The New Household Farm Models

The new household farm models have been popular since the 1960s, after the resurgence in the interest to reinterpret Chayanov. Most of the recent studies in this field are associated with the World Bank. We will look at one of the basic and important models in the field.

The new household models start by dropping two major assumptions of Chayanov: non-existence of labour market and unlimited supply of land. This has a major impact on the decision making process of the household as shown below. The household models usually incorporate the 'new home economics' [14] theory to the basic structure developed by Chayanov (later modified by other economists, see [85, 86, 89, 90, 113]). Accordingly the utility function of the household represents its preference ordering between a range of final characteristics of home produced goods and services. The household is conceived as a production unit (instead of a consumption unit) which converts purchased goods and services as well as its own resources into use values or utilities (called Z goods) when consumed.

Nakajima held that the degree of subsistence consumption of own output and family labour usage as proportion of total labour employed could be used as a criteria to identify any farm. In the extreme case where all output is consumed by the household

and all labour is family labour we have pure subsistence production and in the other extreme we get the pure commercial farm where all output is sold and all labour is employed labour. All the rest farms fall in between these two extremes. Nakajima used

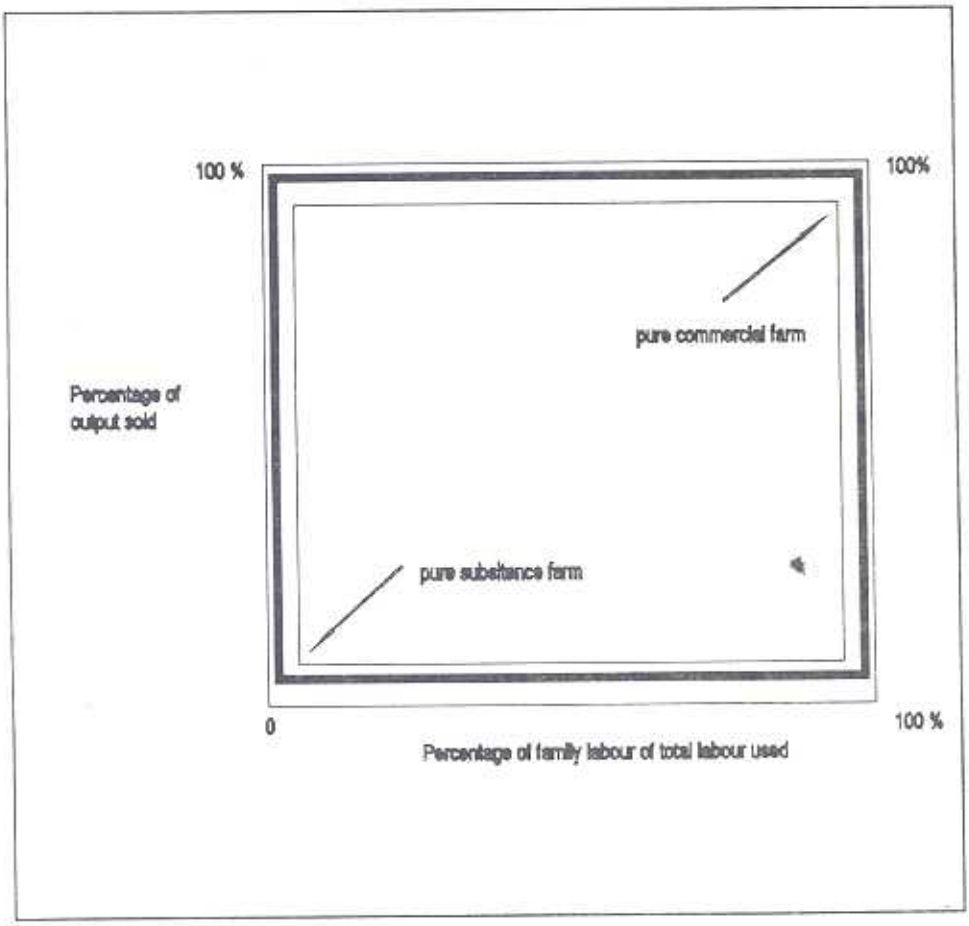


Figure 2. Nakajima's Criteria for Classification of Family Farms.

a two dimensional plane (positive quadrant) to identify any farm in the world (see figure 2).

According to this model the farm decision making process could be divided into production and consumption. The decision flows from production to consumption in condition where the peasant family farm is a price taker and where a labour market

exists. In such a condition the decision making process could be regarded as recursive, because time spent on leisure and used in production become independent. Moreover, family labour utilization will be directly linked to the market determined wage rate. The decision process is shown in figure 3.

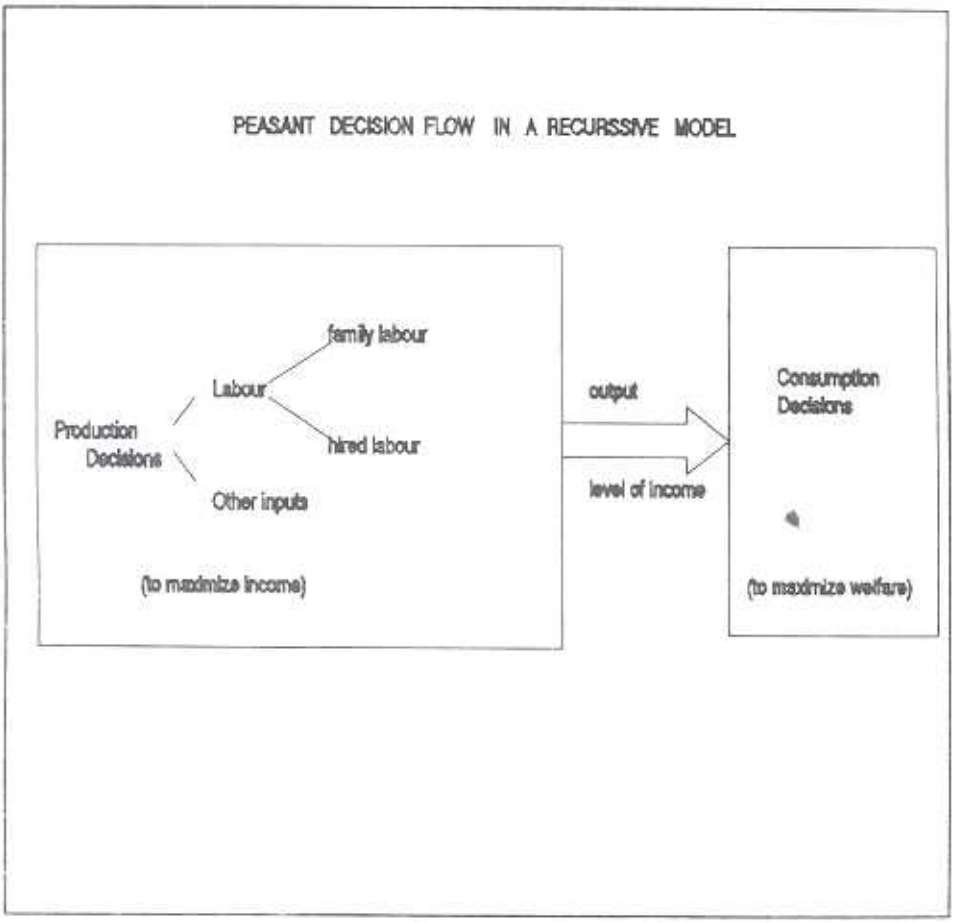


Figure 3. Peasant Decision Making Process under Recursive Model Assumption

Once such an assumption is made, income is singled out as the only link between production and consumption. In the absence of the labour market, the decision may not be recursive because the family will be left to decide on the percentage of its total

available time to be devoted to production (the difference being assumed to be on leisure).[6] Hence the separability condition between consumption and production does not exist. The decision process becomes circular as consumption affects income and income affects consumption. A synthetic model (presented below) combining both on farm consumption and labour market (based on Nakajima's model) has been widely used.[7]

For any production cycle, a farm household is assumed to maximize a utility function[8] (U):

$$U = U(X_a, X_m, X_l) \tag{2}$$

Where X_a = agricultural staple
X_m = a market purchased good
X_l = leisure

U is maximized subject to the following constraints:

i) a cash income constraint:

$$P_m X_m = P_a(Q_a - X_a) - P_l(L - F) - P_v V + E \tag{3}$$

Where P_m = price of the market purchased commodity
P_a = price of the staple
Q_a = the household's production of the staple
Q_a-X_a = the household's marketed 'surplus' staple
P_l = the market wage rate
L = total labour input
F = family labour input
L-F = net labour sold or bought
V = a variable input (fertilizer)
P_v = price of the variable input
E = nonlabour and nonfarm income (it decreases when a family makes payments such as taxes and increases as the family gets income from outside, example children working outside the area sending money to the family)

ii) Time constraint:

$$X_l + F = T \tag{4}$$

Where T is the total stock of household time.

iii) Production constraint (the production function):

$$Q_a = Q\ (L,V,A,K) \tag{5}$$

Where A = the household's fixed quantity of land and K is its fixed stock of capital.

These three constraints can be collapsed into a single constraint by substituting the production constraint into the cash income constraint for Q_a and substituting the cash income constraint for F.

Where :

$$p_m X_m + p_a X_a + p_l X_l = p_l T + \pi + E(6) \tag{6}$$

$$\pi = p_a Q_a(L,V,A,K) - p_l L - p_v V$$

and is a measure of farm profit.

In equation (6) $p_m X_m$ = expenditure on market good

$p_a X_a$ = 'purchase of own product'

$p_l X_l$ = 'purchase of its own time' in the form of leisure.

Hence the left hand side of equation (6) is 'total household expenditure'. The right-hand side is Becker's 'full income' [14]. Maximization of total household utility subject to the single constraint yields the following first-order conditions:

$$p_a \frac{\partial Q}{\partial L} = p_l \tag{7a}$$

$$p_a \frac{\partial Q_a}{\partial V} = p_v \tag{7b}$$

$$\frac{\partial U}{\partial X_a} / \frac{\partial U}{\partial X_m} = \frac{p_a}{p_m} \tag{8a}$$

Plus the constraints. Equations 7(a) and 7(b) show that the household will equate the marginal revenue products for labour and fertilizer to their respective market prices.

$$\frac{\partial U}{\partial X_l} / \frac{\partial U}{\partial X_m} = \frac{P_l}{p_m} \tag{8b}$$

Provided second order conditions are met, only L and V appear as endogenous variables and the other endogenous variables, X_m , X_a, X_l, do not appear, therefore, do not influence the household's choice of L or V. Farm labour and fertilizer demand can be determined as a function of prices (p_a, p_l, and p_v), the technology parameters of the production function, and the fixed area of land and quantity of capital. Equations 7(a) and 7(b) represent the standard conditions for profit maximization.

The maximized values of profits can be substituted into equation (2) to get:

$$p_m X_m + p_a X_a + p_l X_l = Y* \tag{9}$$

Where Y* is the value of full income associated with profit maximizing behaviour. Equations (8a), (8b) and (9) can be regarded as second maximizations. The household having maximized profits [equations (7a) and (7b)], the household then maximizes utility subject to its (maximized value) of full income. Equations 8a, 8b and 9 can then be solved to generate the demand equations for X_m, X_a, and X_l as functions of prices and full income. Given the assumptions made about markets, even though the household's production and consumption decisions may be simultaneous, they can be modelled recursively [61, 90, 124].

The theories have serious shortcomings in fully explaining peasant economies. Like the profit maximizing theories they ignore the uncertainty and risk involved in peasant production. The social context in which peasant production takes place is assumed to be given and no attempt is made to incorporate it. When such analysis is backed by such powerful organizations as the World Bank and has the aim of providing advice to policy makers on how to influence production behaviour, it may have serious implications, for instance to income distribution.

Market imperfections are completely ignored. This has significance to prices and analysis based on the prices. Since all the assumptions of neoclassical economics are based on perfect competition and full knowledge of the participants in the market [110],

market imperfections in the peasant societies is likely to weaken the claims of the results of analyses based on the theories.

These new household utility maximizing models are increasing in complexity. Nakajima's original model as compared, for instance, to Pitt and Rosenweig [96] is a much more simplistic model, yet even the latter models could be regarded as oversimplistic and not descriptively realistic. However, given the limitations imposed by mathematical tools available to economists, these have been stretched to the limit. Despite this technical shortcoming, it is claimed that it has proven value in predicting peasant economic behaviour [124].

3. SUMMARY AND CONCLUSION

This paper has offered a review of various theories of the peasant economy. It has been shown that some theories have many features in common. The 'formalist' school, profit maximization and utility maximizing peasant theories, for instance, take efficiency, i.e., profit maximizing in a competitive economy, as a central issue in their analysis. It has been alleged that the high risk and uncertainty faced by subsistence producers erode the theoretical basis of these theories. In contrast to the profit maximizing assumption, 'risk averse' peasant theory, 'Substantivist' theory and some of the political economy theories argued that the aim of peasant production is to avoid risk in the production of household food requirements. Substantivists argued that profit is alien to peasant producers. The political economy theorists posed profit maximization as an objective of the sectors that use the peasant producers as sources of surplus (i.e., the capitalist sector), not the objective of the peasant producers. Still others argued that 'risk aversion' behavior does not preclude profit maximization behavior. According to these theorists, peasant production could include profit maximization on specific products as well as maintaining risk aversion on subsistence food production.

Some of the theories, for instance the political economy theories, assume that peasant production is a transient production system. This assumption is a point of departure for the analysis of peasant production by Marxists and Neo-Marxists. Others

too assume that peasant production would give way to modern production systems as it did in Europe, converting itself from subsistence to commercial producer.

No theory can be said to fully explain all aspects of peasant production; indeed, for the present, all of the theories may have relevance in explaining different aspects of the peasant economy.

NOTES

1. These characteristics have been taken from different sources as shown and none of the definitions is comprehensive enough to include all the characteristics. Arguably, the most important definitions have been the ones given by Kroeber [64], Redfield [102], and Wolf [134].

2. Rogers gives thirteen characteristics based purely on the attitudes and cultures of peasants [104].

3. It is important to note that these theories are not mutually exclusive, and the categories used here are based on the major themes contained in the theories described.

4. For the writings of Marx regarding social development and the peasants see the following writings in Marx, K. and Engels, F. [80]

a) *Grundrisse: A contribution to the critique of political economy.*
b) *The German ideology* (Section I)
c) *Capital* (Vol. I, II, III)
d) *Eighteenth Brumiere of Louis Bonaparte* (sect. iii-iv).

Lenin [68] argued that the peasants in Russia were already under the grip of capitalist development and were doomed in the pre-Bolshevik period. A detailed anaysis of the writing of classical Marxists is given by Hussain and Tribe [59].

5. This basic model was later modified by Mellor [85], Sen [114] and Nakajima [89, 90]. But the basic structure in these works remains the trade off between total factor income and leisure, even though the constraint of 'absence of a labour market' was removed from these latter works unlike Chayanov's basic model.

6. The time spent ill by ill persons cannot be classified as leisure.

7. The following works could be cited as examples:

Country	Author(s)
India	Yotopoulos & Lau [137]
Taiwan	Lau, et al. [67] and Yotopoulos et al. [136]
Japan	Kuroda & Yotopoulos [65] and Kuroda [66]
Malaysia	Barnum and Squire [13]
Korea	Ahn [5]
Sierra Leone	Varian [129]
Ethiopia	Teklu [126]
Thailand	Adulavidhaya, et al. [3]

8. The presentation and notations closely follow Strauss's work that presents the utility and production functions of the family peasant farm as a recursive model (see [124]). However references are made to other works to clarify the presentation. The diagrams that are drawn to illustrate some of the points in the model are taken from Nakajima [90] with some adaptations.

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