

# Labor Supply Constraints on Industrialization, and Production Deficiencies in Traditional Sharing Societies<sup>1</sup>

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## I. Introduction

A number of economic historians and economic theorists have suggested that labor surpluses play an important role in industrialization. For instance, Kenwood and Lougheed (1982) contend that "an inescapable condition of successful industrialization is the existence of an expanding, mobile and adaptable labor supply." The theory of surplus labor as put forward by Lewis (1954) (cf. Ranis & Fei, 1961), sees unlimited elastic supplies of labor as providing a basis for the rapid expansion of industrial output, and relatively elastic supplies of labor are believed to have played an important role in rapid industrialization in Western countries. Oshima (1981), however, casts doubts upon the applicability of Lewis's theory of economic development in Asia in this century. In many of the countries which Oshima considers, industrialization has forced up real wages in manufacturing, possibly because of shortages of skilled labor. The presence of any surplus of unskilled labor has failed to keep the level of

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real wages in manufacturing down in industrializing economies in Asia.

The rise of capitalistic agriculture in England and elsewhere in Europe played an important role in releasing labor from the agricultural sector for manufacturing industry. Land enclosures reduced the available common land for the peasantry (Ashton, 1957), increased the availability of skills transferable to secondary industry and provided a source of capital and entrepreneurship for industrialization in Europe (Kenwood and Lougheed, 1982). However, capitalistic agriculture has not evolved in Asia and peasant-family farms have remained dominant (Oshima, 1981). Indeed, Gunnar Myrdal (1968) suggests that Asians need to adopt capitalistic agriculture to ensure economic growth.

It is certainly true that capitalistic agriculture does not exist in many traditional societies some of which are still common in the Pacific and in Africa. These subsistence societies are characterized more by sharing of resources and available commodities than by individualistic self-interest and private property, and landlords are absent. This paper considers some of the implications of sharing arrangements in traditional rural (subsistence) sectors for industrialization or the development of capitalistic industry in such regions. First, an indication is given of the importance of sharing arrangements in traditional societies, and then a simple theoretical model is introduced to predict the impact of these arrangements on the availability of labor for industrialization or its availability for developing capitalistic sectors. Consequences for the level of production and other implications of the analysis are also considered.

## II. Sharing Arrangements in Traditional Societies

Sharing arrangements in the economic sphere can take many different forms in traditional societies. Many of these arrangements imply that individuals or very small groups of individuals within the society receive their average product rather than their marginal product, as might be common in perfectly competitive societies. It may further be, as suggested by Howlett (1973), that sharing arrangements within tribes or clans such as those in parts of Papua New Guinea tend to result in equality of income. In

hunter-gatherer societies or those in which hunting and gathering remains a large component, equality of income tends to prevail. Even when semi-capitalistic agriculture is well established, it is still possible for sharing of economic commodities to be important, at least within sub-groups within societies (Howlett, 1973).

Leakey (1981) claims that the sharing of economic resources and commodities is characteristic of hunter-gatherer groups. They share food gathered and animals captured at least within their clan areas, where common access is available to all clan members. He takes, for example, the Bushmen of southern Africa, and considers the impact on their society of changes from a hunting-gathering economy towards one increasingly based on pastoralism. Once agriculture and pastoralism involving any sizeable investment emerges there is, in Leakey's view, a tendency for sharing between individuals to atrophy. This has been observed in the case of the Bushmen. Nevertheless, it is still possible for some forms of sharing to continue.

The ideas of economic sharing was central to traditional forms of land tenure that persisted in most island countries of the South Pacific during pre-contact times. Family groups and individuals had rights to hold and work part of the community or tribal land in order to meet basic subsistence needs. Such rights were respected regardless of who was recognized as holding ultimate authority over land — whether, for example, it was a king or a noble as in the case of Tonga (Maude, 1981) or a local descent group as in many parts of the South Pacific (Scheffler, 1981).

Institutionalized sharing of land resources has, however, been significantly modified over time with the advent of contact with the outside world and in several cases it has all but disappeared as new systems of land tenure have evolved, including individual freehold titles and various forms of occupational and lease-hold rights. However, land tenure systems that are still traditional in nature, with the corollary of shared rights of occupancy, are still widely found. And even where traditional systems have been drastically modified vestiges of sharing still remain alive as, for example, the sharing of output at the family level.

It is useful to consider some ways in which sharing of commodities can occur. These include the following:

- (a) Sharing of *available* commodities within a group such as an extended family, clan or tribe, irrespective of the nature of claims to resources from which these commodities are derived.
- (b) The widespread availability of common-property or common-access areas for a village, tribe, etc., such as reef areas for fishing and gathering, to which all village groups have common access.
- (c) When rights exist for a small group, such as an extended family, to use a parcel of land for its exclusive economic benefit and sharing occurs within the group, parcels may be redistributed between groups over time so as to maintain some equality of income. Land is not owned by individuals and the right to use it can in some societies be altered by the chief or by collective tribal deliberation.

Sharing in such societies is a hedge against economic risks, including those brought about by natural calamities, and helps to ensure cooperation in activities, such as hunting, which by their nature require cooperation. It provides social security and helps to promote social cohesiveness.

It may be of interest to consider some economic sharing arrangements in the Pacific. The following are examples:

- (1) The sharing of available commodities within extended family groups is common in the Pacific. In Western Samoa, for example, the typical family unit (*aiga*) consists of the head of the family — usually an elderly titled male (*matai*) — and family members including both close and distant kinsmen as well as those 'adopted' into the wider group. Fairbairn (1973) and Lockwood (1971) found in their respective surveys of a number of sample rural villages in Samoa that the *aiga* averaged 16-17 members in size but that it could vary from as much as 50 to as low as 2 members. Largely self-sufficient in production, the *aiga* is the primary social and economic unit in the village community. As family head the *matai* exercises authority over family land, directs work activity and ensures that every member of the family shares in what is produced. In some groups in the Pacific sharing of commodities extends beyond the family unit to the clan or tribe — for example in New Guinea gift-giving is important for maintaining social

status (Howlett, 1973). These processes tend to result in averaging of income in the group where the individual is located.

- (2) The holding of resources in common-property within the Pacific is another element tending to average up incomes in local communities. Within each village in Melanesia, Micronesia and Polynesia, as a rule all have equal access to adjoining reef resources and to adjoining fishing areas (Olewale and Sedu, 1980). However, these areas, which are also used for recreational purposes, are not shared with other villages. Catches may be shared in the village, but usually in Polynesia each extended family engages in its own reef activities and sharing is restricted to the family and it is traditionally understood that catches should not be greater than required to satisfy local subsistence needs (cf. Johannes, 1982).

So far as land and related resources are concerned Western Samoa provides a well-documented case study of a traditionally-based society where the principle of sharing is still strong. With much of Samoa's land area (at least 80 percent) still held under traditional customary tenure, it can be said that "every Samoan is still a landowner in so far as the land holdings of each family are the common property of the members of the family and no decision concerning this land can be made without the unanimous consent of all who claim active membership." (Holmes, 1981).

Right over such land is vested in a chiefly title so that authority over it resides at any time with the holder of that particular title. Rights are based on the usufruct principle so that the land used by a family remains with that family so long as it continues to use it. The family group under the *matai* works the land in common and the fruits of the family's labor are nominally the property of the family head, but since he is responsible for the welfare of all living with him and is concerned with keeping his household satisfied, Holmes claims that an equitable distribution is made. (Holmes, 1981). Apart from occupied land, almost all rural villages in Samoa possess substantial areas of virgin unused and unclaimed land over which villages have equal rights of access. Such land typically lies inland from the coastal villages and stretches over large areas up to the foothills and mountain slopes. Essentially

common land, these areas are used not only to establish temporary plantings but also for foraging and hunting purposes (for instance, for wild pigs and birds) as well as for its forestry resources.

The continuing significance of sharing arrangements in the traditional life of Western Samoa is not exceptional in the Pacific region. It is pervasive in the rural sectors and communities of the region though varying a great deal from place to place in its relative strength and form of expression. As a rule, sharing has remained most significant in the social and economic life of predominantly traditional societies, such as Western Samoa, and among the smaller isolated island countries. On the latter, Crocombe (1981) has observed that in Tokelau, a small coral atoll with a land area of 2,500 acres and population of under 2,000, about a quarter of the atoll's land area is "held in common and jointly exploited." He also points out that members of any household in the atoll are associated with several 'distribution groups' (*inati*) for the distribution of certain categories of vegetables produced, fish and fresh water, thus providing an "egalitarian distribution of the island's resources."

- (3) Social mechanisms also exist in many Melanesian, Micronesian and Polynesian societies for redistributing claims on resources such as land where 'private rights' to *use* it have been granted. Land is not private property but family or clan groups may be granted rights to use its usufruct, claims being redistributed over time so as to maintain equality. Howlett (1973) points out that in the New Guinea highlands (Goroka area), customs have been such that "wealth and power are dissolved with the passage of each generation" even though these customs are now going through a transition. Gregory (1981) also provides evidence for the persistence of land sharing arrangements in the New Guinea highlands. However, in some other areas of the Pacific traditional arrangements for sharing of land have been modified, for example, in Tonga (Maude, 1973; Crocombe, 1971) and although an attempt has been made to retain land sharing it has not been possible to provide land for a large proportion of the population.

However, in the case of Western Samoa and also in other relatively land-plenty island groups (e.g., Rota Island in the

Northern Marianas) land redistribution is largely effected through the settlement of unused common land areas usually located some distance away from the central village. Such common lands provide a means for equalizing wealth and incomes in these societies in cases where population expansion among a particular village or family group may have led to a decline in their economic welfare. This does not, of course, preclude land redistribution on already occupied land, especially in cases where reserves of unused virgin land are not available or are limited, as in the case on many Pacific islands.

Despite the fact that sharing arrangements are not perfect in many Pacific societies and many of these societies are in a state of transition as a result of Western influence, sharing of commodities is of sufficient importance for the theory considered in the next section to have some relevance to the area. It also has some relevance to parts of Africa and other regions where sharing of commodities is common.

### **III. Economic Sharing and the Availability of Labor to the Capitalistic Sector and for Industrialization — Some Simple Theory**

Lewis (1954) adopts the assumption that an unlimited (unskilled) labor supply is available for industrialization from the traditional sector. As pointed out earlier, Oshima (1981) casts doubts on the applicability of this theory to countries embarking on industrialization in this century.

The model outlined here does not assume an elastic labor supply. Nevertheless, as pointed out later, it can be easily modified to allow for an elastic labor supply in the long run along Ricardian lines of population increase in response to rising wages, for instance.

The main purpose of this model is to take account of the sharing of commodities in the rural (or subsistence) sectors of traditional societies upon the supply of labor to a developing industrial or capitalistic sector in these societies. It will be seen that this sharing reduces the available supply of labor for the in-

dustrial or capitalistic sector in comparison to that when economic sharing is not prevalent, land is privately owned, landlords exist and a market system is in operation. The relevant theory has basic similarities with the theory of common-property resources (Gordon, 1954; Tisdell, 1972).

It is assumed in this model that all units of labor employed in the rural or subsistence sector receive an income equal to their average product.<sup>2</sup> The product is shared equally and rent is absent. This may occur because all have common access to natural resources or for other reasons outlined above. In the industrial sector or capitalistic sector, labor is assumed to be paid its marginal product.<sup>3</sup> It will also be supposed that labor gravitates to the sector which pays it the highest income and that, for simplicity, there are no transfer costs involved in the movement of labor.

Assume that the total population (labor force) of the economy is  $N$  and that initially (adopting a comparative static approach), the economy contains no capitalistic sector. Average product in the rural or subsistence sector of the economy is declin-

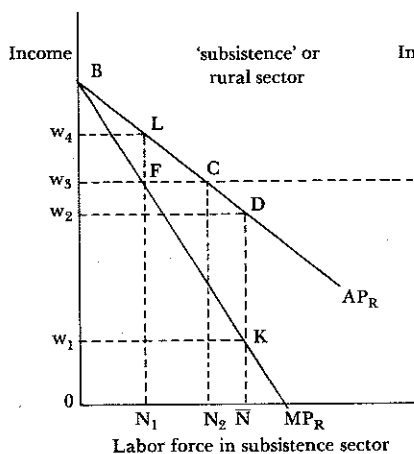


Figure 1

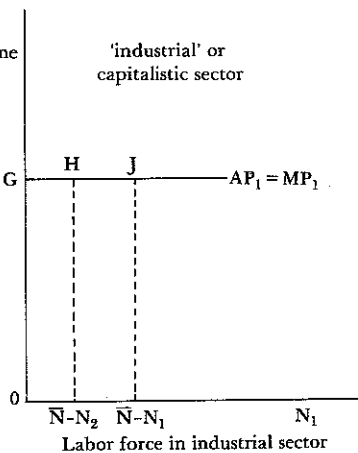


Figure 2

<sup>2</sup> This is same assumption as made by Cline (1970) for the income of a family worker on a family farm or peasant farm. It is implied as a particular case of Sen's peasant model (Sen, 1966).

<sup>3</sup> This also accords with the assumption of Cline (1970) about the wage rate on capitalist farms.



ing like that shown by line  $BCDAP_R$  in Figure 1, and the corresponding marginal product curve is  $BFMP_R$ . Income per head in the rural sector is equal to  $w_2$ , income being measured using a staple commodity as the numéraire.

Suppose now that an industrial sector develops with a constant average product and constant marginal product curve for labor as indicated by line  $GHJ$  in Figure 2. The product of the capitalistic or industrial sector (which may be a mining sector) may be entirely exported and staples imported.

The marginal product of labor is higher in the capitalistic sector than the level of average product and income initially in the subsistence sector,  $OG > w_2$ . Consequently, given that there are no capital or demand constraints on the expansion of the industrial sector, labor is drawn from the subsistence sector to the industrial sector. This process continues until the average product of labor in the subsistence sector is equal to the marginal product of labor in the industrial sector, that is, until incomes are equalized in both sectors.<sup>4</sup> Consequently, in equilibrium  $\bar{N} - N_2$  of labor is transferred from the rural sector to the industrial or capitalistic sector. Only  $N_2$  individuals remain in the subsistence sector.

On the other hand, a much greater supply of labor would be made available to the industrial sector were the rural sector itself to become capitalistic with rents being paid for lands to landlords with most of the rural population working as hired laborers. In that case, labor in the rural sector would also be paid its marginal product (given neoclassical assumptions) and movements of labor equalize the marginal product of labor in all sectors of the economy. Consequently, the total transfer of labor from the subsistence sector to the industrial sector is  $\bar{N} - N_1$  and is substantially in excess of the available supply when there is economic sharing in the subsistence sector. Given the linear model illustrated in Figures 1 and 2, the rural work force is *halved* compared to that under sharing arrangements. Hence, the impact on available labor supplies for industrialization of economic sharing in the rural sectors (compared to the alternative of capitalistic activity) is considerable.

<sup>4</sup> The possibility of remittances by one set of income earners to another set are ignored for the time being.

The general results hold, of course, even if the per-unit productivity curves are non-linear. Provided that the average product curve in the subsistence sector is downward sloping (in the relevant range), the marginal product curve lies below it and the comparative results still hold. The average product of labor in the capitalistic or industrial sector can also slope downwards<sup>5</sup> thus carrying the corresponding marginal product to fall below it, and the main conclusion still follows, namely, because the income of labor is equal to average product in the subsistence sector and to its marginal product in the industrial sector, a greater amount of labor is retained in the subsistence sector than would be the case should that sector be replaced by a capitalistic rural sector.

Apart from making available a greater labor supply for industrialization, a capitalistic rural sector could also foster industrialization in other ways. If the landlord class is small, and inclined to investment, it may have considerable resources, as a result of rents collected, available for investment in industrialization. In the case shown in Figure 1, the rents available to landlords when the rural population is  $\bar{N}$  would be equal to the area of  $\Delta BKw_1$ . Note that the existence of private ownership and of rents can cause considerable income inequality to emerge, inequality, however, that can, but need not be, a source of enterprise and investment for industrialization. (cf. Todaro, 1977, Ch. 5).

The size of the industrial sector may, apart from being constrained by the availability of labor supplies (of sufficient skill) be constrained by shortages of capital, declining productivity or a declining demand for its product. The model considered above can be modified to allow for these factors and the proposition still holds that economic sharing arrangements in the rural sector, if they exist, reduce the supply of labor to the industrial sector and hamper its growth.

It is also true that such sharing arrangements imply that the total product of the country is not maximized in relation to its employed resources. Expressing national production in terms of a common numéraire (e.g., a staple good) for output to be at a maximum it is necessary that the marginal productivity of labor

<sup>5</sup> Demand factors for an exported capitalistic product could cause the downward slope.

(and other resources) be equal everywhere and that marginal productivity be declining for the allocation achieved. As observed earlier, marginal product is not equalized when the rural sector is based on economic sharing and a capitalistic sector exists. Marginal product in the rural sector remains below that in the capitalistic sector under such conditions and production is not maximized. (cf. Cline, 1970).

Adaptations of the model to long-term conditions are possible, for example, population may be assumed to grow along Ricardian lines. In that case, in long-term equilibrium, the country will support a lower level of population if economic sharing is prevalent in its rural sector, assuming that the level of total national production is the long-term constraint on the sustainable level of population. Similarly, the model could be adapted to allow for technical progress in the sectors considered.

#### IV. Further Aspects of the Basic Model

The basic model assumes that pooling of income only occurs within the traditional sector. In particular, it supposes that clan or family members in the capitalist, advanced or industrial sector do not pool their income with remaining members in the traditional sector.

If clan or family groups were to pool their income obtained from both sectors and to divide their collective income equally, income per head in the group would be maximized by ensuring labor movements to equate marginal product in both sectors and a Paretian ideal allocation of labor would be achieved. Pooling in this case would create no factor misallocation, unlike in the earlier case where pooling occurs in only the traditional sector. Given the conditions illustrated in Figures 1 and 2, marginal product is equated for the sectors when  $N_1$  of labor remains in the traditional sector and  $\bar{N} - N_1$  of labor moves to the capitalist or industrial sector. Note that for this allocation (and given the assumed sharing of income in the traditional sector) income per head in the traditional sector is  $w_4$  compared to  $w_3$  in the traditional sector. Pooling and equalizing of incomes in equilibrium would therefore require income to be transferred from workers in the traditional sector to those in the industrial sector. In practice,

however, transfers in this direction are uncommon and incomes in the traditional sector are usually below those in the industrial sector. But it seems likely that actual situations are disequilibrium ones. Nevertheless, it may be more realistic to suppose that sharing is a one way process between sectors, if it occurs.

To the extent that sharing of income between sectors takes place it appears principally to be a one way process with remittances flowing from those employed in the capitalist or advanced sector to those remaining in the traditional sector. Let us consider, in terms of the basic model, the impact of such remittances on the supply of labor to the industrial or capitalistic sector.

The possibility of these remittances may make for a speedier convergence to the new equilibrium distribution of labor. For example, labor may be more quickly 'pushed out' from the traditional sector given the bonus of remittances and those leaving may feel psychologically more secure knowing that they can make remittances to their family or relatives remaining in the traditional sector. Nevertheless, even if these dynamic properties hold, these remittances will result in a smaller quantity of labor being allocated *in equilibrium* in the traditional sector than is the case for the model outlined in the last section. In equilibrium remittances from the industrial sector reduce the quantity of labor available to the industrial or capitalistic sector. This can be illustrated by considering Figures 3 and 4.

These figures show the average product curves for labor in the rural (traditional) sector and industrial or capitalistic sector as before. However, one must now take account of incomes after remittances from the industrial sector. Making the same assumption about population levels as before, curve RD in Figure 3 indicates average income in the rural or traditional sector after remittance from those moving to the industrial sector. Given that remittances occur, curve RD will be above the line  $AP_R$ . Incomes in the industrial sector after payment of remittances therefore will be below  $MP_1$ . If for simplicity a constant proportion of income is paid after remittances from income, income per head in the industrial sector might be as represented by TU. Given that pooling continues in the rural sector and that incomes are equalized (after remittances) between sectors,  $\hat{N}$  of labor is retained in equilibrium in the traditional sector and  $\bar{N} - \hat{N}$  is released to the

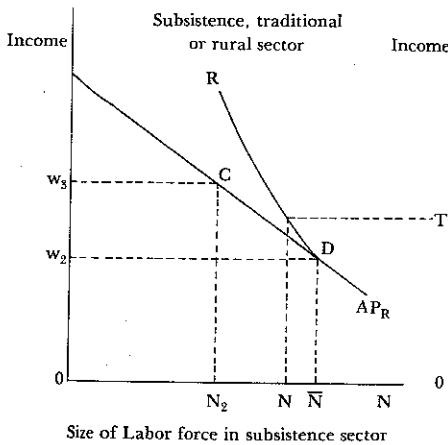


Figure 3

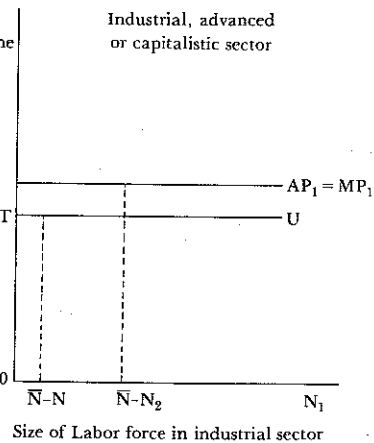


Figure 4

industrial sector. Thus a smaller amount of labor is transferred to the industrial sector than in the absence of remittances, assuming pooling in the rural sector. In the latter case,  $\bar{N} - N_2$  of labor is released to the industrial sector.

The actual size and pattern of remittances may depend upon many factors. However, for the above conclusion to hold, it is only necessary for there to be a positive level of remittances from those in the industrial sector to those remaining in the traditional sector.

It should be emphasized that the above theory abstracts considerably from factors influencing the migration and movement of labor. Migration or labor movements may be permanent or temporary and one needs to consider psychic factors and transfer costs as well as material income. Bell (1972) discusses some of these influences on migrant labor. Nevertheless, the general conclusion continues to hold that sharing arrangements in the traditional sector tend to reduce equilibrium supplies of labor to the industrial or capitalistic sector, a tendency that is reinforced by remittances from the industrial or capitalistic sector.

## V. Consequences of the Analysis and Conclusion

Actual socio-economic systems are complex and varied. Although many traditional sharing subsistence societies are now going through transition as a result of Western cultural and economic contact, sufficient economic sharing continues to exist in the rural economies of some traditional societies, such as those in the Pacific and Africa, for the theory outlined above to be of some relevance. Labor supplies to capitalistic sectors are reduced by such sharing arrangements and this is likely to retard industrialization.

The existence of traditional sharing sectors may, of course, have additional consequences for the growth of a capitalistic sector and industrialization. The absence of rent and the absence of private property lessens the availability of local capital. The mobility of capital is also hindered, given the local social obligations of individuals, and entrepreneurship may fail to flourish because local leaders concentrate on obtaining status within their local traditional community rather than on branching out into new capitalistic sectors. Consequently, in such societies, industrial development is likely to come from abroad, and the capitalistic sectors of such economies may be dominated by foreign-owned enterprises. Such societies are likely to become heavily dependent on outside countries for industrialization or development of capitalistic sectors. This is clearly borne out by the experience of countries such as Papua New Guinea, Fiji and Vanuatu where manufacturing, tourism, private finance and mineral development are dominated by foreign-owned enterprises. In many cases, this development is fostered by foreign aid rather than direct investment.

Whether or not traditional subsistence societies should strive to become more capitalistic is a moot point. While greater market-orientation of a society may increase the level of its national production in the short or medium term, in the long run it may bring economic, environmental and cultural dangers. The ideal development policy is not clear in such circumstance. It certainly cannot be assumed that traditional subsistence sectors should be cast aside as a matter of course, despite the economic deficiencies noted here. Increased involvement of a nation in capitalistic or market activity may bring substantial economic

risks (cf. Tisdell and Fairbairn, 1984), break down the cohesiveness of a society, and erode its cherished cultural values, traditions and customs. Furthermore, the growth of an industrial or capitalistic sector cannot be taken as a sure sign of the development and progress of a society. For example, it is possible for the growth of a market capitalistic system to result in unsustainable development (World Conservation Strategy, 1980; Tisdell, 1983a) and in the inferior use and conservation of natural resources (Tisdell, 1983b). Clearly it is not easy for any of us to know what is the best society out of all the alternative societies that may be chosen by a nation, if, indeed, a nation does have a genuine choice.

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