

The Lewis Model After 50 Years: Assessing Sir Arthur Lewis's Contribution to Development Economics and Policy Conference, University of Manchester, 6-7 July 2004.

Notes on the Lewis Model and Agrarian Structure

Peter Lawrence

Abstract

This paper considers the implications of the Lewis model for agrarian structure in the process of economic development. Beginning with at what Lewis himself has to say about traditional sector transformation in his model, the paper goes on to raise the question of agrarian structure in the context of the model and its assumptions. Particular attention is paid to the question of whether the transition to development implies the promotion of large-scale agriculture, or land reform and other policies directed to assist the development of smallholder agriculture. In doing so the paper demonstrates the circumstances under which output under smallholder production will be higher than on large farms and, in a situation where labour is abundant, resources will be more efficiently allocated than under large scale agriculture. The conclusion is drawn that Lewis's dual economy model has considerable relevance to agrarian policy, perhaps more in the duality of capital markets than labour markets.

Keywords: dual economy, surplus labour, agricultural sector, agrarian structure, yields, farm size.

JEL Classification: O1, O4, P1, P3, Q1.

Address Peter Lawrence, Department of Economics, Keele University
Staffs ST5 5BG UK (eca02@keel.ac.uk)

1. Introduction

This paper is concerned with a long held interest of mine in agrarian transformation. At the time Lewis wrote his seminal article, such transformation generally meant land reform in the sense of redistribution of land concentrated in the hands of large, often absentee, landowners to those with little or no land. It also came to mean the resettlement of people on irrigated land, or the consolidation of farmers on dispersed plots of land in settlements with the provision of some basic services. It further came to be identified with attempts at 'socialist' agrarian transformation in countries like Tanzania and later, Mozambique, modelled on hybrids of Soviet or Chinese collectivisation and settlement schemes.

In an earlier paper (Lawrence, forthcoming) I revisited the issue of agrarian transformation following the widespread dismantling of collectivised and state owned commercial farming structures in the wake of the demise of state socialism after 1989. In that paper I argued that given circumstances of labour surplus, the privatization of state-owned farms and estates/plantations might be more productively achieved by distributing land to smallholders, whether former employees or those without land, while keeping those aspects of production where scale economies obtained through some form of cooperative organisation. In another paper, I suggested that even under de-collectivisation, there was evidence of farmers wanting to keep some aspects of collective organisation and that there was evidence from elsewhere that voluntary forms of cooperation were chosen where farmers themselves found such cooperation advantageous. The economic theoretical basis for what I called 'smallholder privatization' lay partly in some of the classical ideas and assumptions underlying the Lewis model, and some of the ideas and assumptions underlying 'neo-classical economics'. As with all such theoretical abstractions, the real possibilities for the outcomes predicted depend on the political economy of the specific agrarian structures of which transformation is advocated.

The aim of this paper is to explore these issues in the context of Lewis's model. The next section of the paper considers Lewis's model of development and the role of the agricultural capitalist and subsistence sectors in the development process. Emphasis is placed on the role assigned to peasant agriculture and on the possibility that small scale agriculture could be more efficient given a relative surplus of labour to land and a relative

abundance of labour to capital. The third part of the paper considers the issue of agrarian structure in the development process in the context of Lewis's writing and of re-emergent debates on land reform and rural credit. The final section concludes.

2. Lewis and the agricultural sector

The three *Manchester School* articles which make up Lewis's discussion of the model (Lewis, 1954, 1958, and 1979) say very little about the specifics of agricultural development *per se*. As Philip Leeson pointed out in his introductory contribution to the 25th anniversary of Lewis's original (in both senses) article celebrated in the *Manchester School* in 1979, the two sectors of the model 'were the 'capitalist' and the 'subsistence' sectors, not the industrial and the agricultural' (Leeson, 1979:199). The two sectors cut across the urban rural division. It is indeed empirically observable that plantation and other large scale commercial agriculture, surely a rural part of Lewis's capitalist sector, relied on a supply of labour largely from the rural part of the 'subsistence' sector (Beckford, 1972, Lawrence, 1975). It is further evident that this rural 'subsistence' sector did not simply contain small scale producers who produced food for their own subsistence and perhaps a small cash surplus. This sector was effectively 'pre-capitalist' producing a subsistence income in the classical sense but amenable to the attraction of waged employment in the capitalist sector if the wage was sufficiently higher than the income of these 'subsistence' or as I would prefer to call them, pre-capitalist producers. Lewis did elaborate his view of agricultural development, partly in those articles, and also in more detail, especially with respect to the economic institutions of agriculture, in *The Theory of Economic Growth* (Lewis, 1955) and I shall return to this elaboration below..

It is a mark of the richness of the Lewis model that, despite the criticisms that have been made of it, it continues to occupy an important place, not only in development economics textbook chapters concerned with growth theory, but even in chapters on labour migration theory, although the model proposed a process of labour transfer between a capitalist and a subsistence sector rather than between a rural and an urban sector. However, it is noticeable that what survives of Lewis's article, as opposed to his model, is the bare bones of the model itself, with its key assumptions of zero, or 'negligible' marginal productivity of labour, unlimited supplies of labour and capital accumulation through investment of the surplus produced in the capitalist sector (Lewis, 1954:141).

Those who have taken the model further, such as Ranis and Fei (1961) have concentrated on filling in the perceived gaps in the model. Like Ranis and Fei, this paper concentrates on the rural sector, but is concerned more with the implications for agrarian structural transformation in short and long run. In other words, it recognises that at some point in the growth process, the agricultural sector will have to increase its productivity because MPL in the subsistence sector will turn positive and that this may occur through agrarian institutional change involving changes in agricultural production relations..

The problem that arises here is that Lewis's expanding capitalist sector is both agricultural and industrial and its expansion should both increase industrial output and productivity as well as that for agriculture. Empirically, however, we know that plantation and other large farm commercial agriculture has not necessarily reinvested the surplus in its own expansion. The Marxist distinction between merchant and industrial capital is critical here, since it is merchant capital that operates a low wage low productivity economy with little technical progress and re-investment of surplus, and it is this form of capitalism that has dominated colonial agricultural, and some industrial, production, (Kay, 1975). Lewis appears to recognise that distinction in the following passage:

For the type of capitalist who brings about economic expansion is not the same as the type of employer who treats his employees like retainers. He is more commercially minded and more conscious of efficiency, cost and profitability (Lewis, 1954:146).

Lewis goes on to argue that these producers will be profit maximisers and that through competition there will be a tendency towards the equalisation of earnings on capital. However, 'the key to the process is the use which is made of the capitalist surplus' (Lewis, 1954: 151). Later in his article he elaborates on this point in the context of a discussion of Ricardo, Malthus and Marx on capital accumulation and later still he makes clear, as Leeson (1979) pointed out, that he is basing his model on his reading of the process of 'western' capitalist industrialisation.

The critique of dualism mounted by the dependency school of Andre Gunder Frank proposed that imperialism generated underdevelopment precisely through the expansion

of the capitalist sector. Lewis in his 1954 article¹ does not appear to disagree, and as Leeson notes (1979:206), 'can probably be absolved from the strictures made against 'dual economy' models':

The fact that the wage level in the capitalist sector depends upon earnings in the subsistence sector is sometimes of immense political importance, since its effect is that capitalists have a direct interest in holding down the productivity of the subsistence workers. Thus, the owners of plantations have no interest in seeing knowledge of new techniques or new seeds conveyed to the peasants, and if they are influential in the government, they will not be found using their influence to expand the facilities for agricultural extension. In actual fact, the record of every imperial power in Africa in modern times is one of impoverishing the subsistence economy, either by taking away the people's land, or by demanding forced labour in the capitalist sector, or by imposing taxes to drive people to work for capitalist employers. (Lewis, 1954:149)

Now the object of the exercise was to keep this unlimited supply of labour cheap. The logic of the model was that the subsistence sector would be kept impoverished to maintain the 'reserve army'. However, the model assumed that output in the subsistence sector would be maintained at previous levels because of surplus labour. However, this would surely depend on what kind of labour left the sector. There is plenty of African evidence to show that output in the labour supply areas was reduced through the loss of able-bodied male labour which had a particular role to play in the food production cycle. There is also evidence that other areas increasingly engaged in commercialised peasant-based agriculture sometimes as a consequence of 'reverse migration'. In this sense, '(a)ny outcome is possible when labour leaves the sector'. As Leeson also points out, this could include a rise in output resulting from Lewis's suggestion that there could be negative marginal productivity in the subsistence sector (Leeson, 1979:201).

So it is really not at all clear how Lewis saw the development of the agricultural sector. As Leeson observes, Lewis concerned himself with the 'broad sweep of historical

¹ 25 years later, however, Lewis was arguing that suggesting that 'the fact that some countries are developed prevents the development of any others would be to overplay it'.

change over a prolonged period'. (p.201). In this process the agrarian sector would presumably be transformed by the expansion of the agricultural capitalist sector, increasingly supplied with products from the capitalist industrial sector and increasingly supplying this industrial sector with food products and inputs for processed food. This suggests that peasant family farms would gradually disappear as their labour force is absorbed into the capitalist sector.

However, in the 1950s just as now, that process has not advanced in that way. One important reason for that has been that the capitalist sector, whether private or state has simply not accumulated and expanded in a way which has 'mopped up' surplus labour. In other words, the growth of capitalist agriculture and industry has not kept pace with the growth of the labour force, fuelled as it has been by increased population growth. This generalisation does not encompass all developing countries, but is evident across the poorer countries of, mainly, sub-Saharan Africa and south Asia. What we have actually seen is the expansion of the capitalist sector through different routes, many of them international, or as we now prefer it, global, but also the decline of some sectors of capitalist agricultural production associated with declining primary commodities (e.g. rubber, sisal and maybe now coffee). In many cases, small scale family farming has been incorporated into local or global markets either directly through marketing agents or indirectly through subcontracting by multinational food companies or increasingly directly by national or international supermarket chains based in developed countries. Many countries have seen increases in agricultural productivity based on peasant agriculture in a way which Lewis himself suggested possible in his 1958 sequel, although he thought it unlikely that the peasant sector would grow faster than capitalist employment because the enriched peasants would be demanding an increasing amount of non-agricultural goods which would mean the expansion of the capitalist industrial sector at a comparable rate (Lewis, 1958:10).

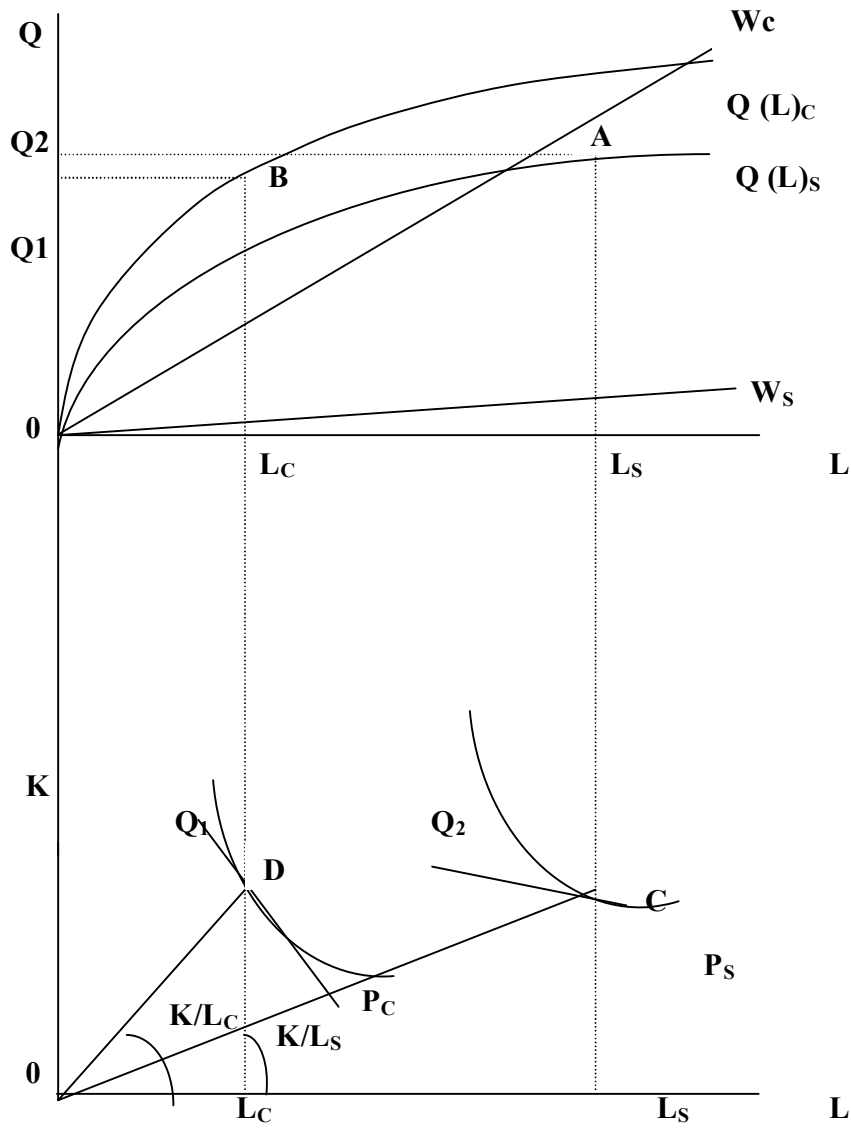
I prefer to put this proposition the other way round. The capitalist industrial sector has not grown fast enough to absorb labour from the subsistence sector. However, population growth, and especially urban sector growth, which has been faster than the former, has required higher productivity from the peasant agricultural sector. Aided by relatively scale-neutral innovation in agricultural production, peasant output has managed to increase as fast, if not faster than commercial large farm output. Lewis's

surplus labour, incapable of being absorbed by a capitalist sector, which is not expanding its demand for labour fast enough, is instead being absorbed by peasant family agricultural activity. This is what Ian Livingstone called the 'sponge effect' in which the surplus rural labour is absorbed into ever more intensive agricultural activity on ever diminishing (in size) plots of land (Livingstone, 1986).

This is not inconsistent with Lewis's theory in the sense that this flourishing peasant family farm activity is incorporated into labour processes governed by capital accumulation of enterprises to which peasant farms are subordinated. In this sense, peasant production based principally on family labour is part of a sub-contracting relationship driven by the demands of capital accumulation of those who purchase and process the production on the family farms. Why this form of production relations is preferable to that obtaining on plantations and commercial farms is usually put down to the lower transactions costs involved in sub-contracted production and the also to efficiency gains derived from the allocation of plentiful labour to small scale family farming.

The assumption of a dualistic structure is well embedded in these arguments. There is a labour surplus sector which uses little capital input and where the price ratio of labour to capital reflects the abundance of labour and the scarcity of capital. There is a capitalist, relatively capital-intensive, sector where labour is, relatively to capital, more expensive, reflecting the fact that wage labour in the capitalist sector has to be paid more than the peasant receives from his or her labour in order to be attracted to the capitalist sector, and the fact that cheaper credit is likely to be more available to capitalist enterprise. It follows that, as illustrated in Figure 1, small-scale peasant farmers who both produce and consume their output will produce output ($Q(L)_s$) up to the point where the marginal productivity of labour (L) is close to or equals zero at A . It further follows that in this type of economy, where relative prices of capital (K) and labour (L), shown by the price ratio, P_s , reflect the relative abundance of labour. Optimal employment and output is achieved with relatively labour intensive techniques of production. Given the characteristics of the dual factor markets the capitalist sector will employ more capital intensive techniques of production, giving a price ratio more like P_c . They will employ labour up to the point where its marginal productivity equals the wage, w , where the wage bill, W_c , is tangential to the production function, $Q(L)_c$, thus employing, at D , less labour per unit of capital

Figure 1 Optimal output and optimal capital and labour inputs in small and large scale agriculture



(including land) than small farmers at a ratio K/L_C . Small farmers faced with expensive informal credit will extract the maximum yields from land by choosing a capital-labour ratio (K/L_S) at C in corresponding to a level of output of Q_2 , where $Q_2 > Q_1$. It is worth noting also here that the surplus of output relatively to wage bill is higher, but this is not a necessary outcome and will depend on the relationship between yield and wage differentials between the two sectors.

The logic of these rational decisions given relative prices is that small family farming constitutes a more efficient allocation of resources than large scale farming. Even if, crop for crop, yields on large farms are higher than those on small farms, overall output of peasant family farms is likely to be higher for the following reasons. First, smallholder farmers are more likely to engage in joint production of two or more crops with attendant economies of scope where the cost of growing two crops on the same plot of land by the same farmer is less than the cost of growing each crop separately on different plots of land. There may be other, agronomic, reasons for combining the cultivation of particular crops especially where they produce positive externalities by being grown together. Secondly, the mixture of arable farming and animal husbandry creates other externalities which increase small farmer output. Thirdly, because of the seasonality of agricultural production which results in uneven labour demand through a growing season, other income generating possibilities are possible. Taking all these elements together, there is a strong argument for proposing that small, rather than large scale agriculture might provide the basis for capitalist accumulation in the transition from pre-capitalist to capitalist systems.

In the context of a discussion about terms of trade, Lewis clearly saw the possibility of increases in agricultural productivity such as would support the continued expansion of the capitalist sector:

We know that productivity can increase sharply in peasant agriculture if research is being done into peasant problems, and if an agricultural extension system, an agricultural credit system, roads, water supplies and so on are provided on an adequate basis. In practice, failure of peasant agriculture to increase its productivity has probably been the chief reason holding down the expansion of

the industrial sector in most of the underdeveloped countries of the world (Lewis, 1958: 23).

The productivity of which Lewis speaks is presumably both land and labour productivity, though he may have been thinking about sub-Saharan Africa, and he was writing before the effects of the first wave of green revolution technology impacted on Asia. There is considerable evidence since Lewis wrote that peasant agricultural productivity has increased in many countries as a consequence of technical progress being systematically applied to agriculture, but not everywhere. This has given rise to a belief among many agricultural development economists that small scale peasant agriculture should be promoted for at least two reasons. First, because it leads to an optimal use of fertile land, which because of population growth, is in short supply and secondly, because it sets the surplus labour to work on the land, which is to be preferred to surplus labour moving to urban areas with a low probability of finding work and therefore simply swelling the ranks of urban unemployment. As Lewis pointed out, the failure of agriculture to grow at a pace conducive to rapid industrialization means that food has to be imported and this requires manufacturing or other industrial export growth to pay for the imported food.

So although Lewis's analysis was concerned with a long term transition from pre-capitalism to capitalism, he clearly recognized that peasant agriculture might have a role to play in the process of transformation in spite of the implication that capitalist enterprise *per se* would expand and become the dominant organizational form. A support for a key role for peasant small scale farming also comes from the widespread empirical literature which proposes an inverse relationship between farm size and land productivity. Regarded as something of a stylized fact and supported by several empirical studies, it is now the subject of hotly contested debate. More rigorous econometric analysis suggests that when other factors, especially land fertility, are controlled for, the inverse relationship breaks down (Bhalla and Roy, 1988). Political economy based analysis suggests that large scale commercial farming has been able to take advantage of technical change (new seeds fertiliser etc, together with more favourable access to credit for these inputs) so that the inverse relationship has also broken down. (Dyer, 1996, 2004)

However, it is evident whatever view is taken on this issue, and we shall return to it below, that many developing countries suffer from high levels of unemployment or underemployment, however unreliable some of the actual statistics on the matter are perceived to be. Such high levels of unemployment (recently estimated in South Africa, for instance, to be around 40% of the labour force) do constitute a labour surplus or a reserve army of the Lewis type. The issue is whether support for small scale 'peasant' agriculture can alleviate the poverty signaled by such unemployment during a period of transition to capitalism as envisaged by Lewis, and if so, in which way can such agriculture be supported. This is where we arrive at the question of agrarian structure.

3. Issues of Agrarian Structure

(i) *Land reform and the agrarian structure debate*

Agrarian reform and its rationale has been the subject of considerable debate carried out recently in the pages of the *Journal of Agrarian Change*. In a paper concerned to re-establish the case for redistributionist land reform, Griffin, Khan and Ickowitz (2002) essentially restate the broad neo-classical arguments for smallholder agriculture in the context of relative labour abundance. Protagonists for redistributionist land reform have been challenged on technical, historical / contextual and factual grounds (see for example, Byres, 2004). This paper is not the place to elaborate on the detail of this discussion, but there are several points in this debate which are relevant to the subject of this paper.² The key argument for re-distributive land reform, as opposed to other kinds mentioned above, is that the concentration of land in the hands of landlords results in a lower level of output and a more unequal income distribution than a redistribution of concentrated land among those who have little or no land. This relies on the inverse relationship of size and yield, but theoretically on a variant of the analytical framework in Figure 1 of this article. Such a redistribution has to be accompanied by policies which assist small scale producers to increase their productivity and income. Turning Lewis on its head the argument employed here is that in reducing poverty by increasing rural incomes through a redistributive land reform, the urban wage will rise and also reduce urban poverty. (Griffin et al, 2002).

² The many-sided rebuttal of Griffin et al can be found in the *Journal of Agrarian Change*, 4,1&2, 2004; a response by these authors can be found in the following number of the same journal.

The critics of this approach as gathered together in a special double issue of the *Journal of Agrarian Change* come at the redistributionist argument from several standpoints. The view that small scale agriculture is more efficient than large scale is heavily challenged with much evidence from Africa and Asia. But there are other strong reasons for casting doubt on this idea as a universal proposition. The most important is that it abstracts from the political social and economic structure of power relations. So for example, the very landlords who might have their land redistributed will have well developed relations with sources of political power, if not political power itself. In some circumstances this could militate against land redistribution while in others (e.g. Zimbabwe) it might not, although that itself does not mean to say that land redistribution will have the results attributed to it by its supporters (see Sender and Johnson, 2004).

The issue of agrarian structure, especially in the shape of land reform, is not of course new and long predates Lewis's model. Much of early development economics with respect to the agrarian sector was taken up with the need for land reform. Byres (2004) quotes a United Nations publication (UN, 1951) thus:

For many countries, the agrarian structure, and in particular systems of land tenure, prevent a rise in the standard of living of small farmers and agricultural labourers and impede economic development, both by preventing the expansion of the food supply and by causing agriculture-usually the major economic activity-to stagnate. (p.2).

Since then, there have been many different versions of agrarian reform which have included:

....redistributive reforms of ownership rights,.....the establishment of collective or communal forms of farming, state-sponsored land colonization schemes in frontier areas and land tenure reforms, i.e. changes in the contractual arrangements between the landowner and those who cultivate the land. In addition, tax (and credit) measures intended to create incentives for large landholders to sell part of their holding sometimes are described as 'market friendly' land reforms. Griffin et al, 2002).

Ideas of land reform derived from analyses of agrarian structures that suggested that land concentration resulted in neglect or underuse of land and that were land redistributed from such concentrated ownership to people who had little or no land, output would increase and rural poverty would be reduced. Advocates of various forms of agrarian socialism advocated both land redistribution and forms of cooperative enterprise based on land pooling which allowed cooperators to take advantage of economies of scale that existed in capital equipment for cultivation and, where appropriate, first stage on-site processing. Such forms of voluntary cooperation have developed in non-socialist systems for the same reasons. The co-existence of cooperative or collective forms of organization existed side by side with individual peasant production in the state socialist economies and it has been interesting to see how forms of cooperation have re-emerged out of the disruption caused by the abandonment of collective agriculture (see Lawrence, 2003;; Kitching, 1998 and 2004).

It could therefore be argued that agrarian reform would be perpetuating or creating pre-capitalist forms of production and simply delaying the inevitable and potentially slowing down the rate of growth by reducing the size of the labour surplus which is after all necessary to Lewis's growth model. However, this view neglects the issue of time. The process of capitalist sector expansion and the dissolution of pre-capitalist economy and society is a lengthy process. Development is about more than saving, investment and growth. It is uncomfortable to see the abject poverty of surplus labour as it waits to be swallowed up by the capitalist sector. Even if there is a clear transition to a modern capitalism taking place, there may well be a role for the promotion of small scale agriculture as a way of solving problems of unemployment and poverty, as well as food availability during that transition.

Of course peasantries are not homogeneous, as critics of a smallholder based agricultural strategy point out, however often they appear to be in the classical and neo-classical models. Differentiation among the peasantry can be quite widely observed such that the richer peasants become more like capitalist farmers as they market the bulk of their output while still producing food for their own consumption. Poorer peasants may to a greater or lesser degree supply labour to richer peasants, so that these rich peasants might be seen as capitalist farmers in embryo. As Lewis himself observed, 25 years after publishing his model, technical progress in agriculture (the 'green revolution') has

resulted in the adoption of labour saving devices such as tractors, resulting in a labour surplus likely to exit to the towns.

Unfortunately, much of the discussion around these issues lacks historical context and country specificity. There is very little point in redistributing land away from high productivity large scale commercial farmers to small scale producers. There may however be possibilities for land to be made available to those with little or no land to engage in small farming activity as outgrowers or as worker-farmers linked to the large farms as a way of developing a more diverse rural economy and raising rural output as a whole. However, where economies of scale exist solely in the on-site processing of crops, it might be appropriate in a situation of surplus rural labour, to parcel out that land to outgrowers who would cultivate the crop but also provide for their own food subsistence. Whether they can form cooperatives to run the processing activities and begin to pool land for large scale mechanical cultivation where appropriate will clearly be an issue in the development of such enterprise.

(ii) *Lewis on agrarian structure*

In his 1958 article Lewis concludes by seeking:

to warn the reader that he should not try to deduce directly from this model of economic expansion any prescription relating to the social institutions which economic development requires (Lewis,1958:31).

However, it is implicit in his model that the economic development of the capitalist sector has as a consequence the creation of surplus labour by its very expansion into those pre-capitalist sectors which it supplants. It is difficult to see that the thrust of his model is nothing less than the creation of the social institutions of capitalism – the joint stock companies in particular with their shareholders and managers. In those areas where surplus labour does not exist in agriculture, Lewis suggested that surplus labour would be created by the ‘expansion of capitalist production at the expense of pre-capitalist forms of handwork, in manufacturing, in agriculture and elsewhere’. Once this process was complete, there would not longer be a labour surplus (Lewis, 1958:25)

In an interesting passage in his 1979 article, Lewis argues against the view that the expansion of the modern sector will necessarily adversely affect the traditional sector, but also against the reliance on 'trickle down' as a reason for not taking direct measures to develop the traditional sector directly. He suggests that development economists have 'advocated strong measures to raise agricultural output, including land reform, agricultural extension, irrigation, (and) cheap credit'. (p.217). He considers the obstacles to agricultural transformation are not ideological (he is here clearly critical of any 'urban bias' on the part of economists, though not necessarily governments), but technological, and apply especially to those living in arid, rather than tropical, areas.

However, he does not elaborate on this with any theorizing about the way in which such processes of technical change in agriculture might change agrarian structure. Indeed, Lewis does argue that the 'expansion of small scale activity in the modern sector is an important part of the development process' (1979:222). But at this point his examples are from manufacturing and he seems to have renamed his capitalist sector 'modern' and his subsistence/traditional sector 'rural'/'traditional'. Yet his argument about the importance of small-scale enterprise could also apply at least to those specialist labour intensive agricultural activities such as horticulture, or animal rearing. It is no coincidence that these are some of the very activities which developed side by side with collective farm production in the state socialist countries, which ended by underpinning the collective system and partly surviving de-collectivisation. (see especially Kitching, 1998 and 2004).

Lewis, in *The Theory of Economic Growth*, does state his position with respect to agrarian structure in the shape of economic institutions likely to support economic growth.

From the point of view of economic growth, we are interested in the tenure of agricultural land, in the size of farms, and in the relationship between these matters and incentives, capital formation and technical innovation (Lewis, 1955:120).

He rejects communal tenure in favour of individual tenure on the usual 'tragedy of the commons' grounds. He also takes the view that collectives and cooperatives have incentive/distributional and supervisory problems which militate against their success

and that '(t)he cooperative form of enterprise is excellent for stable societies, but it does not survive easily as a productive unit (as distinct from marketing or credit) once the lower levels of subsistence have been passed' (Lewis, 1955: 66). However, he does later modify this view, suggesting that collectives of 'not more than five or six families' (p.135) could be successful, but not collectives involving larger number such as the whole population of individual villages.

Insofar as he took a view about tenure, he seemed to support land tenurial reforms which give small farmers freehold or equivalent, again largely on incentive grounds. He clearly takes the view that large scale agriculture is more efficient where there are scale economies in mechanization, but not where there is abundant labour relatively to capital, 'as it is in India and China' (p.129). He also recognizes some advantages of small scale farming in situations of high land-population ratios, and the existence of an inverse relationship between farm size and crop yields as a result of the greater intensity of land use. He finally considered that small scale farming held considerable advantages in terms of supervision and managerial costs when compared with large farms and plantations whether private, state or collectively managed (Lewis, 1955:134).

Oddly, much of this discussion is not related to the process of economic growth. There are hints that some of these organizational forms are considered to be transitory, but there is no discussion of how these different organizational forms might interrelate or change. There is an interesting discussion of how credit and marketing cooperatives could support agriculture and of how credit cooperatives could assist growth by increasing their lending for productive investment in new technologies applicable to small scale farming or assist a programme of agricultural extension and joint use of capital equipment to maximize scale economies. The question of credit is one to which I shall return at the end of this paper.

One important aspect of Lewis's work was to distinguish between neoclassical assumptions and models and those of the classical school. Thus his horizontal labour supply curve at a subsistence wage reflects the surplus labour conditions of pre-capitalist economies. The hiring of this unlimited supply of labour at a wage sufficiently above subsistence allied to the increasing application of capital inputs generates high rates of labour productivity and high surpluses comprising interest/dividends paid on

borrowed capital and profit available for re-investment. The assumptions about surplus labour are incorporated into the diagrams in Figure 1.

When Ranis and Fei raised the issue about what happens when Lewis's rural surplus labour is used up and the labour supply curve begins to turn upward, they introduced a dynamic (albeit comparative static) dimension to the analysis of transition. For the process to continue requires an agricultural sector that also generates an investible surplus which results in pushing the agricultural production function further outwards from the origin. This requires that some attention be given to what is going on in the agricultural sector. What we observe will vary across developing countries depending on the specific production relations obtaining in different regions and localities which will itself depend on their specific histories and socio-economic, or better, class structures.

(iii) The issue of rural credit

As I noted earlier, one issue which Lewis raised in the context of agricultural change was that of credit availability. His view of peasants is that they very easily find themselves in debt largely for consumption purposes and therefore they show very little prospect of significant capital formation. They cannot borrow from private lenders because of lack of security and it is only the advent of village cooperative credit societies which have given peasants the opportunity to borrow cheaply for production as compared with borrowing from moneylenders or their landlords (Lewis, 1955: 129). Of course, rural credit markets have developed in the 1950s with attempts at channeling government subsidized credit to small farmers, and with the development of micro finance institutions. The existence and further development of informal credit markets, borrowing from moneylenders, from landlords in credit contracts implicitly or explicitly linked to sharecropping contracts, or from family and friends, has led to the view that these markets are efficient as they take account of lenders' risk in setting interest rates.³ Nonetheless, differential access to credit is more than likely to accelerate differentiation among the peasantry and lead increased rates of accumulation by these richer groups, especially as they take advantage of new technologies. So the possibility of cooperative based credit solutions helping those sections of the peasantry without preferential access to credit is one way of improving their condition and alleviating rural poverty. The growth of such cooperative

³ See Bell, (1988) for a thorough overview of rural credit arrangements and interlinked transactions.

groups as rotating savings and credit associations (ROSCAs) in many developing countries is an important part of the poorer farmer survival strategy (Nissanke and Aryeety, 1998). It would appear that, in countries which have undergone financial liberalisation, there has been an expansion rather than contraction of informal lending, suggesting at least in the medium run, that the main thrust of economic growth may come through the informal/traditional sector, rather than through the expansion of the capitalist/modern sector. In this sense, the duality of the credit markets in developing countries might constitute an obstacle to the growth of the capitalist sector but a source of capitalist development and accumulation to those who can.

Conclusion

This paper has looked at the implications of the Lewis model for agrarian structure and agrarian policy in developing countries. Although Lewis explicitly warned against deriving any conclusions for agrarian institutional structure from his model, there is evidence both from his model and from other writing on the agricultural sector, that suggested a role not only for large scale agricultural enterprise but also for small scale and a role for land tenurial reform, particularly where landlords were absentee. He clearly saw the possibilities of peasant agriculture taking advantage of technical change but, like many classical and neo classical economists, treated the peasantry as a homogeneous class without recognition of the extent to which peasant differentiation generated a class of rich peasants employing permanent and casual labour beyond the family. Together with large farmers, they constitute a class of agricultural producers able to extend the capitalist sector of Lewis's model and generate agricultural growth. However, given these processes of change take place over long periods of time, there is a continuing role for the middle and poor peasants, not simply in supplying labour to those farmers who require a wage labour force, but in increasing their own marketed production through greater intensity of land use. It is the lot of this group of producers and the dynamics of their development during a process of transition which is left out of such models as that of Lewis. However, there is enough in the writing of Lewis, both around his model and on growth generally that suggests that improving the lot of poorer rural inhabitants of developing countries through changes in agrarian institutional structures can contribute to the process of economic growth.

Bibliography

- Beckford, G. (1972), *Persistent Poverty*, New York and London: Oxford University Press
- Bell, C (1988), Credit Markets and Interlinked Transactions, in H Chenery and TN Srinivasan (eds), *Handbook of Development Economics* Vol 1, Amsterdam: Elsevier Science.
- Bhalla, S.S. and Roy P. (1988), 'Mis-specification in Farm Productivity Analysis: The Role of Land Quality', *Oxford Economic Papers* **40**, pp. 55-73.
- Byres, T.J (2004), Introduction: Contextualising and Interrogating the GKI Case for Redistributive Land Reform, *Journal of Agrarian Change*, 4, 1&2.
- Dyer, G. (1996), 'Output per Acre and Size of Holding: The Logic of Peasant Agriculture under Semi-Feudalism', in (eds H. Bernstein and T. Brass), *Agrarian Questions: Essays in Appreciation of T. J. Byres*, London: Frank Cass.
- Dyer, G (2004), Redistributive Land Reform: No April Rose: the Poverty of Berry and Cline and GKI on the Inverse Relationship, *Journal of Agrarian Change*, 4, 1&2.
- Griffin, K, AR Khan and A Ickowitz (2002), Poverty and the Distribution of Land *Journal of Agrarian Change*, 2, 3.
- Kay, G (1975), *Development and Underdevelopment: A Marxist Analysis*, Basingstoke: Macmillan.
- Kitching, G (1998), The Revenge of the Peasant? The Collapse of Large-scale Russian Agriculture and the Role of the 'Private Plot' in that Collapse, *Journal of Peasant Studies* 26, 1: 43-81.
- Lawrence, P (1975), Plantation Sisal: the Inherited Mode of Production, in L. Cliffe et al (eds) *Rural Cooperation in Tanzania*, Dar es Salaam: Tanzania Publishing House.
- Lawrence, P (2003) Rural Cooperation and the Renewal of Rural Socialism in Africa, *Review of African Political Economy*, 30,96: 241-248.
- Lawrence, P (forthcoming) The 'Sponge Effect' and the Transition from State to Private Agriculture
- Leeson, PF (1979) The Lewis Model and Development Theory, *The Manchester School*, 47, 3:196-210.
- Lewis, W.A. (1954), 'Economic Development with Unlimited Supplies of Labour', *The Manchester School*, 22, 2: 139-191.
- Lewis, WA (1955), *The Theory of Economic Growth*, London: George Allen and Unwin.

- Lewis, WA (1958) 'Unlimited Supplies of Labour: Further Notes', *The Manchester School*, 26, 1:1-32.
- Lewis, WA (1979), The Dual Economy Re-visited, *The Manchester School*, 47, 3:211-229.
- Livingstone, I. (1986), 'Rural Development, Employment and Incomes in Kenya', Aldershot: Gower.
- Nissanke, M and E Aryeety (1998) *Financial Integration and Development: Liberalization and Reform in sub-Saharan Africa*, London: Routledge
- Ranis G and JCH Fei (1961), A Theory of Economic Development, *American Economic Review*, 51,4
- Sender J and D Johnson (2004), Searching for a Weapon of Mass Production in Rural Africa: Unconvincing Arguments for Land Reform, *Journal of Agrarian Change*, 4, 1&2.
- United Nations (1951), Land Reform: Defects in Agrarian Structure as Obstacles to Economic Development, New York: United Nations Department of Economic Affairs.