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Some Questions about Labour Force Analysis in Agrarian  
Economies with Particular Reference to Kenya

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Quite properly, problems of the labour force -- usually discussed under the rubrics of employment, unemployment, and under-employment -- occupy a prominent place in the planning strategy of most developing economies. Fuller utilization of the economy's labour resources is essential to the achievement of rapid enlargements in production and has important implications for the distribution of income and welfare as well. Most developing economies -- and Kenya is no exception -- must rely primarily on mechanisms of income distribution tied to the labour force participation. Few resources can be spared for transfer payments (whether <sup>on</sup> private or public account) to support the families of non-participants.

Concern about labour force aspects of economic development is also pertinent from a longer-term point of view. Given the present age distribution of Kenya's population -- with roughly half of the total under 16 years -- the numbers reaching maturity in the next two decades will expand the labour force (as conventionally defined) enormously. The task of providing productive work opportunities for this group is likely to be formidable. It needs to be stressed that this problem is quite independent of the future course of fertility rates. We are referring here only to the absorption into productive work of those already born. But inasmuch as the large group maturing during the next two decades will also be entering the parenthood age ranges, steps toward fertility limitation take on even greater urgency.

So full are those graveyards reserved for erroneous  
/long-range

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\* Any views expressed in this paper are those of the author. They should not be interpreted as reflecting the views of the Centre for Economic Research or of the University College, Nairobi.

long-range economic forecasts that one hesitates before taking on the risk of adding to the strain on their capacity. Yet if any proposition about the next two decades can <sup>be</sup> advanced with reasonable assurance, it must surely be that the labour absorptive capability--on productive terms -- of non-agricultural employments will be unable to accomodate the natural increment in the population of prime working age. This conclusion follows from the quite limited growth in the demand for labour generated in the early stages of industrial expansion.<sup>1</sup> While it is appropriate that governments should encourage the build-up of an industrial base, the resources available for this purpose are not likely to be sufficient to make significant impact on the demand for labour outside agriculture for a considerable time to come. In Kenya's case, the prospects are not brightened by the imminent disruption of the East African Common Market. In short, agriculture must be relied upon to absorb larger numbers while simultaneously increasing productivity.

## II

The significance of these points has been appreciated by those charged with responsibility for economic policy in Kenya. Indeed, the transformation of peasant agriculture into a generator of employment opportunities played a prominent part in the economic strategy of the Swynnerton Plan for the intensification of African agriculture. At the time of its drafting the employment creating prospects of the programme -- which called both for the conversion of traditional land rights into freehold tenure and for the introduction of high value export crops into African agriculture --were necessarily conjectural. The amount of additional demand for labour that could be generated was regarded as subject to three constraints: (1) technical limitations on the acreage suited to /the production

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1. This point has been ably developed by D. M. Etherington in The East African Economic Review, June 1965.

the production of export crops; (2) market prospects for agricultural exports (which, for reasons that could not be foreseen, have turned out to be less buoyant than was earlier hoped would be the case);<sup>1</sup> and (3) the size distribution of agricultural holdings emerging from land consolidation.

The last of these points requires a word of elucidation. Before the fact, no one could calculate with any degree of assurance what size distribution of holdings the consolidation operation would reveal. On the basis of general knowledge about the prevalence of ahoi tenancies<sup>2</sup> and about the numbers repatriated to districts of their origin from the settled areas during the Emergency (most of whom were unlikely to have established rights to land), it was anticipated that the consolidation of fragments and the registration of existing rights would bring to the surface substantial inequalities in holding sizes and indeed that a part of the African population would be landless. Though the details of the outcome were uncertain, much depended on the resulting distribution. This was because the holders of larger units were expected to spearhead the agrarian revolution by planting high-value and labour-intensive crops and by becoming employers of wage labour in the process. Families with small units--a holding of less than four acres was generally thought to be of sub-economic size--could be expected to devote their acreages solely to the production of food crops. Few in this category could spare the land (or the loss of real income while waiting for three to five

/years

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<sup>1</sup>Primarily because of quota restrictions attached to Kenya's participation in the International Coffee Agreement and because of failure of world demand for pyrethrum to expand as anticipated.

<sup>2</sup>Under this arrangement--unique to the Kikuyu tribes of Kenya--a person with established rights to land could permit those without them to cultivate part of his holding. As a regular practice, rentals were not systematically charged, though gifts were often presented to the landholder. With due notice, the tenant could be dismissed. Even when occupying the land, his freedom of action in planting permanent crops was severely constrained.

years for tree crops to yield return) by planting tea or coffee. One of the presuppositions of the strategy was that a family should give first priority to producing its own subsistence requirements; such acreages as were surplus to these needs could then be allocated to export crops. Thus the holders of larger units were relied upon to provide wage employment for those with small holdings or without land titles at all.

The effect of <sup>the</sup> size distribution of holdings <sup>the</sup> on/outcome of the plan was indicated clearly in a statement, with examples drawn from Nyeri District, presented to the Kenya Legislative Council by Mr. Roger Swynnerton in 1959:

If half the Nyeri district had twelve-acre holdings, the farmer would need to employ something of the order of 51,000 labourers. That is based on our experience of planned farms. If half the Nyeri district were developed to this extent, it would produce an income of about £64 per acre net--that includes coffee and cash crops--and the total net income of this district would be about £6 million, or thirty times as much as it is at present.

If the other half of Nyeri were to be in six-acre holdings, it could be expected to provide an income of the order of £1.25 million, but it would not employ much labour. This is based on an output of £18 per acre. If the Nyeri district were divided into four acre holdings, about £6 per acre would be about the best that one could expect, without employing any labour at all. The total income would then be about £1.25 million at best. To summarize: with half the district in large holdings and half in economic holdings, the total income would be approximately £8 million; whereas if it were split into four-acre holdings, it would be about £1.25 million.

An understanding of the implications of this statement may be enhanced if the possible outcomes discussed are adjusted to indicate the number of holdings of various sizes they would yield. For the Nyeri district--with an area of approximately 200,000 acres--the possibilities would appear to be as follows:

/wage employment

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<sup>1</sup> Kenya Legislative Council Proceedings, 23rd April, 1959, as quoted by Elspeth Huxley, The New Earth: an Experiment in Colonialism, Chatto and Windus, London, 1961, p. 241.

	Wage Employment (numbers)	Net Income (£'s)
Possibility I { 8,333 holdings of 12 acres	51,000	6,000,000
{ 16,667 holdings of 6 acres	negligible	1,250,000
Total	51,000	7,250,000
Total holdings: 25,000		
Possibility II { 50,000 holdings of 5 acres	nil	1,250,000
Total	0	1,250,000

Clearly, given the assumptions around which the plan was framed, the size distribution of holdings revealed by consolidation would have a considerable influence on the prospects for success in the effort to raise incomes. In the second of the cases, each family would be expected to devote most of its energies to producing its subsistence needs, with little space left over for high-value export crops. But in the first, the prospects for raising income would be far brighter. Families with larger units could exploit the high-value (and labour-intensive) crops and would require wage employees to supplement their own efforts. It is noteworthy, however, that these estimates were constructed on the basis of the numbers of full-time wage-earners required for the projected intensification process. No assumptions about wage rates were set out explicitly.

The size distribution of holdings revealed when consolidation operations were completed in 1959 corresponded to neither of these hypothetical cases. Some 43,107 holdings were registered, distributed approximately as follows:

/Nyeri District

Nyeri District, Distribution of Agricultural  
Area and Holdings by Size Groupings:<sup>1</sup>

<u>Size group in acres</u>	<u>Percentage of total holdings</u>	<u>Percentage of total agricultural area</u>
Under 2.5	19.5	12.1
2.50 - 4.99	59.2	36.7
5 - 7.49	36.8	22.8
7.50 - 9.99	16.2	10.0
10 - 14.99	16.2	10.0
15 and over	13.5	8.4

These results-which were produced from a sample survey--do not agree in all particulars with the official records; both the calculations of the total number of holdings and the total size of the agricultural area are somewhat lower than those reported officially. Nevertheless, the proportionate distribution of holdings may be regarded as a reasonable representation of the general pattern.

The actual distribution of holdings was not, to be sure, as favourable (as construed within the assumptions of the plan) to the intensification operation as might have been the case if a higher proportion of the holdings had been in the larger size groups. Nevertheless, more than half of the land area was held in units of five acres or more which, presumably, were capable of generating a demand for wage labour. Certainly the outcome should have been one (if the presuppositions of the plan were correct) in which there should have been few bottlenecks in the supply of a wage labour force. More than 19,000 holdings were below three acres in size and nearly 5,000 were of one acre or less.<sup>2</sup> In addition, some families failed to establish any claims to land at all. In 1960 it was estimated that they numbered

/about

<sup>1</sup>Source: Kenya African Agricultural Sample Census, 1960/61, part I, pp. 19-21.

<sup>2</sup>District Gazetteer, Nyeri District.

about 4,000<sup>1</sup> though an estimate prepared for 1962 suggested that 8,500 (on about 16 per cent of the families in the district) was closer to the mark.<sup>2</sup> In principle, members of these groups should have been eager to improve their incomes through wage earning.

For Nyeri district, officials of the Department of Agriculture estimated (as of 1960) the wage labour requirements per acre to be as follows:<sup>3</sup>

Coffee	1 labourer per acre
Tea	1 labourer per acre
Pyrethrum	1 labourer per acre
Pineapples	1 labourer per acre
Arable ley/ livestock	$\frac{1}{2}$ labourer per acre

These calculations presupposed that subsistence crops could be sufficiently tended by the family unit without hired help. Further, it was estimated that, given the potential of the district for labour-intensive crops, that total requirements for hired labour might well take <sup>an</sup> expansion path indicated in the following table (which was published after consolidation had been completed, though the extent to which the resulting distribution of holding sizes was taken into account is not clear):<sup>4</sup>

Hired Labour Requirements Projection,  
1960 - 1965, Nyeri District

	Arable Ley/ Livestock	Coffee	Tea	Pyrethrum	Pine- apples	Total
1960	2,666	3,007	667	500	25	7,165
1961	7,679	9,006	834	2,639	305	20,663
1962	12,690	15,005	2,347	4,778	585	35,405
1963	17,702	21,004	3,860	6,917	865	50,348
1964	22,705	27,003	5,373	9,056	1,145	65,282
1965	27,732	29,996	6,886	11,198	1,145	76,957

<sup>1</sup> Ibid., Section entitled "Introduction to Political Economy", p.3.

<sup>2</sup> Some Economic Aspects of Agricultural Development in Nyeri District, 1962, Farm Economics Survey Unit, Report No. 21, August 1964, p.8.

<sup>3</sup> District Gazetteer, Nyeri District.

<sup>4</sup> Ibid.



These estimates, of course, must be regarded only as highly tentative projections of the potential latent in the district. They refer only to the gains attainable from agricultural operations directly and do not include the demand for labour arising from the expansion in processing activities implied by the projected growth in the output of export crops. Nor do they allow for the secondary effects on employment locally stimulated by the anticipated growth in money incomes.<sup>1</sup>

For selected crops, it is possible to compare the actual acreages planted by 1964 with those projected in the expansion schedule above and to derive the amount of wage employment they should have generated if the assumptions concerning wage labour requirements proved to be valid. The results of these comparisons appear below.<sup>2</sup>

Projected and Actual Plantings of Selected Export Crops and Potential Labour Requirements, Nyeri District, 1964

	<u>Actual Crop acreage (000's)</u>	<u>Projected Crop acreage (000's)</u>	<u>Wage Labour "Requirements" (000's)</u>
Coffee	14.6	27.0	14.6
Tea	2.0	5.4	2.0
Pyrethrum	1.3 <sup>(a)</sup>	9.1	1.3

(a) 1963 acreage figure.

In any interpretation of these comparisons, it must be borne in mind that acreage limitations imposed by the International Coffee Agreement could not have been foreseen at the time the schedule for expansion was drafted, nor were the disappointing market prospects for pyrethrum anticipated.

It will now be of interest to examine, not the official estimates of labour requirements per acre of the various export  
/crops

<sup>1</sup>

It is noteworthy that the drafters of these estimates anticipated that wage employment in the itemized agricultural operations would stabilize after 1965, if the acreages under export crops expanded at the scheduled rate.

<sup>2</sup>

Annual Agricultural Report. Nyeri District.

crops, but the actual amount of hired labour employed. Data bearing on this point are fragmentary in the extreme. Indeed the study conducted by the Farm Economic Survey Unit in Nyeri District in 1962 is one of the few thus far to throw light on this important point. Though perhaps the best material yet available, the results of this study are not ideal from all points of view. It was not the objective of this study to depict a cross-section of farming practices throughout the district. Instead it was restricted to "that small group of farmers whose technical operation was thought to represent the best in the District."<sup>1</sup> In addition this group was stratified in order to gather data on labour inputs of tree crops at various stages of maturity.\* The general picture emerging can be summarized in the following table.<sup>2</sup>

Hired Labour Inputs per Acre of Export Crops,  
Nyeri District, 1962

	(work-hours)**				
	1st year	2nd year	3rd year	4th year	5th year
Coffee	1162	374	740	853	1179
Tea	2199	1196	569	1439	1411
Pyrethrum	603	802	379		
Pineapples	1370	206	450		

/opinions may

<sup>1</sup>Some Economic Aspects of Agricultural Development in Nyeri District 1962, Farm Economics Survey Unit, Report No. 21, August 1964, p.3

Upon completion of the study, it was noted, however, that while "all of the farmers should have been amongst the best ... many of the cases selected were not, in fact, good farmers at all, so far as the specific crop was concerned upon which the study was centred." Ibid., p. 106.

\* i.e. as the study was conducted over a twelve-month period and as one of its objectives was the collection of data on labour employed on export crops at differing stages of maturity. Five groups of farmers were studied in the cases of coffee and tea growers--one covering each year in the evolution of the crop from planting to full bearing.

<sup>2</sup>Some Economic Aspects of Agricultural Development in Nyeri District, 1962.

\*\* A work-hour, for purposes of the study, was defined as 1 man hour= 1 woman hour=2 children hours.

Opinions may differ with respect to the co-efficient appropriate for the conversion of these calculations of work-hours into man-year equivalents. This task is particularly difficult inasmuch as the bulk of the hired work force on these farms was engaged on<sup>a</sup> casual basis and not as a permanent work force. From the employer's point of view, these terms of contract were rational responses to the marked seasonal variation in labour requirements and the differing labour inputs called for at various stages in life of tree crops.\*

For the purpose of adjusting the survey results and the Department of Agriculture's estimates to comparable units of measurements, one procedure is at least<sup>as</sup> defensible as the more obvious alternatives: namely, adjusting the recorded bill for hired labour by the most commonly quoted monthly wage. Though wage rates can be expected to vary from employer to employer and from crop to crop, sixty shillings per month has been reported as the going standard for permanent workers in Nyeri, a figure consistent with the average hourly wage of 25 cents (if one assumes an 8-hour day) for adult males found by the survey in 1962.<sup>1</sup> On this basis, the number of man-months of hired labour input applied during the cropping years in which the largest /number

\*With coffee, for example, labour inputs are especially heavy during the first year of planting when the hard tasks of preparing and manuring the holes must be performed; the findings of the survey indicate, however, that roughly two-thirds of the work-hours devoted to the crop at that stage are put in during a single month which, as it happens, coincides with the planting of food crops. The labour resources of the family unit must then be supplemented from outside sources. In subsequent years, variations in the timing of coffee operations are less extreme. But even when the tree is in full bearing, the seasonal distribution of labour requirements remains uneven. Peak labour inputs are required for pruning (about mid-year) and for berry picking and transport in the last quarter of the year. Labour inputs for tea, on the other hand, are much less subject to wide seasonal swings. As the operations of plucking, weeding, and pruning are carried on throughout the year, this crop provides better prospects for the engagement of a permanent labour force.

<sup>1</sup>Some Economic Aspects of Agricultural Development in Nyeri District, 1962, p.5.

number of work hours were hired comes out as follows:<sup>1</sup>

Crop	Actual man-months per acre (Survey results)	Projected man- months require- ments per acre (1960 estimates)
Coffee (mature)	4.7	12
Tea (first year)	7.5	
(mature tree)	4.3	12
Pyrethrum (second year)	2.3	12
Pineapples (first year)	5.4	12

Other assumptions are, of course, possible for the derivation of such calculations. But, by any reckoning, the actual demand for hired labour appears to have fallen substantially short of the anticipated levels on these labour-intensive crops.

These calculations, of course, may not be accurate in all particulars. Nor, for that matter, is it necessarily the case that the original projections were themselves soundly constructed. These matters, however, are <sup>of</sup> minor significance relative to a larger question, i.e., whether or not additional labour inputs into the agrarian pattern would have more than repaid their costs in terms of higher value productivity. The evidence required for a definitive answer to this question is, unfortunately, unavailable in systematic form. But there is at least a strong presumption that marginal value product from additional labour inputs would /considerably

<sup>1</sup> As calculated from Ibid.

considerably exceed the going wage rate. One student of farming economics in Nyeri District has forcefully asserted this to be the case.<sup>1</sup>

### III

If this is, in fact, a correct presumption, one must then ask why the employment-generating expectations of the implicit model around which the Swynnerton Plan was constructed have not been more fully translated into practice. Several explanations of this phenomenon suggest themselves. One hypothesis might trace the root of the difficulty to imperfections in the labour market arising less/<sup>from</sup> monopolistic or monopsonistic influences (as the argument would be developed in western economies) than from a residual of traditional attitudes. From the point of view of the buyer of labour, for example, there may be substantial reasons for hesitation before a commitment to a permanent labour force is made. In districts in which the ahoi tradition of tenancy has been well developed, the land-owner might reasonably ask whether he would not thereby be exposing himself to the risk that his labourers might assert more rights on his land than he intended. Similarly,<sup>on</sup> the seller's side of the labour market, the hangover of traditional attitudes might dampen the willingness of even the very poor to accept wage labour on the terms available. This consideration is heightened by the male's distaste for working under the supervision of women -- a temperamental trait by no

/means unique

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<sup>1</sup> E. S. Clayton, Agrarian Development in Peasant Economies, Pergamon Press, Oxford, 1964.

means unique to Africa, though there women have more direct charge of productive agricultural operations than is usual elsewhere. Moreover, in traditional societies the world over, some loss of dignity seems always to go with the acceptance of wage-earning jobs in traditional lines of work in one's locality of origin. If one must accept this plight, it is far less painful to do so in non-traditional lines of work--particularly when they are available at a distance from one's friends and relatives. In social systems in which the virtues of a self-reliant family enterprise--capable of meeting its basic requirements without submitting to external disciplines--have held sway,\* the persistence of these attitudes is not difficult to comprehend. Nevertheless, tolerance on this point must be tempered. In all rich societies, the bulk of the labour force works under the supervision of others and it is unlikely that any economy can proceed very far along the path toward high incomes unless similar adjustments are made.

Another explanation of the apparent stickiness in the labour market might take the form of asserting that producers, unlike homo economicus of the textbooks, are indifferent to considerations of income maximization. As this argument goes, members of agrarian systems typically have a high preference for leisure, relative to the satisfactions obtainable from higher income and --like the monopolist in Western societies--prefer

/to enjoy

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\* Even under the ahoi tenancy system in Kikuyuland, this condition was largely fulfilled.

to enjoy a quiet life. A variation on this theme is sometimes played, with the argument that family ties are such that obligations to distribute the rewards from high incomes among less fortunate kinfold deter those with the resources to do so from acquiring high incomes in the first instance.

Though there may be something of merit in these arguments, it would be erroneous to give them great weight. No one can look at all closely at the circumstances of most of the Central Province without being impressed by a vigorous desire for higher income. Nor is this a phenomenon of only the very recent past. The reports of the district and provincial marketing officers over at least the past two decades--with the frustrations they express with regard to the circumvention of their controls over the movements of marketable produce and the collection of cesses--testify to the presence of maximizing impulses of long-standing. This is not to suggest that all of the population was caught up with this fever; in all countries, the behavioral postulates of economics must be understood as generalizations about large groups of buyers and sellers, and not as applicable to every individual. Nor does it follow that these impulses were always optimally directed. In certain instances at least, the attempt to maximize short-run gains has meant long-run losses. The maize grower, for example, who sells his early-ripening crop to obtain high prices in a season of general shortage is likely to find himself a victim of perverse seed selection: by planting subsequently from the crop that ripened late, he may / well discover

well discover that the resulting delay in maturity changes the timing of his operations and means that plantings for the cycle a step beyond--if possible at all--are late and yields correspondingly reduced. Similarly, it is not at all clear that much of the energy directed into trading through irregular channels--though proceeds<sup>per</sup>/unit sold exceed those obtainable on officially-regulated markets--would not have reaped higher returns had they had been applied systematically to the intensification of agricultural production.

Though there is an element of truth in the judgment that labour markets we are considering are "imperfect" and that productive resources are not exploited to their full potential, these statements add little to our knowledge. What we should like to know is why these results come to pass. The hypotheses examined above can lead us only part way--at best--toward an understanding of the problem. One cannot reasonably expect analysis shaped by Western concepts of market "perfection" to yield complete insight into situations in which market activity is far from ubiquitous.

Whither then should we look for a more satisfactory account of the matter? An appropriate point of departure may be found in a more detailed inspection of the special properties of peasant economies. One of the important influences on economic activity in these systems--seasonality--is common to agricultural operations the world over. But in traditional agriculture, the impact of seasonality is complicated by the forms of specialization practiced.

/It is not



It is not the functional specialization usual in industrial societies (in which the division of labour is characterized by task specialization within a highly interdependent network of economic activities). Instead the division of labour in a peasant system is typically worked out along lines of age and sex. There are some indications that the traditional rules in Kenya are being modified with the introduction of unfamiliar crops. Yet they are still a long way from complete dissolution.

Another feature of the form of the division of labour practiced in peasant agriculture in Africa is notable. While there is specialization in activities reserved for particular sex or age groups, specialization -- in the sense of concentrated attention to any single activity -- is necessarily absent. Each member of the family productive unit is likely to participate in a variety of tasks, some within the farming operation and some outside it-- e.g., in trading or in wage earning (particularly by men).\*

/These points

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\*This is one of the reasons for the inadequacy of a number of generalizations about the nature of economic progress; Colin Clark's renowned "conditions", for example, in which the course of economic progress is depicted as a process in which an economy moves from a stage in which the bulk of its labour force is committed to primary production to higher stages in which secondary and tertiary production make larger proportionate claims on manpower. In this scheme of things, a traditional agrarian system is depicted as entirely engaged in primary production. In fact, it distributes its labour resources between all of these activities, though few individuals can be found who devote all of their energies to any one of them. This point is occasionally brought out inadvertently by some who otherwise attempt to super-impose categories devised in industrial economies upon agrarian systems. In the preparation of national income accounts in Southern Rhodesia, for example, the familiar problem of the valuation of non-marketed African agricultural production arose. It was decided to use the retail price of the major foods in urban markets as a base. The difference between this price and the price paid to the producer (which included allowances for transport, processing, and distribution) was then identified as the imputed value of African household services! This procedure meant that non-performed services were included in the national income while many actually performed on own account were left out.

These points are too familiar to require emphasis. Yet a more detailed inspection of their implications may be highly illuminating and may lead us closer to an understanding of the constraints on a fuller utilization of labour/<sup>in</sup>peasant situations. In the absence of a higher degree of specialization in work performance than is typically possible in the situation of an agrarian household, various worthwhile tasks compete against one another in their time phasing. The planting and tending of high value export crops, for example, may require labour at precisely the time when food crops must be put in. Moreover, the continuing claims on time -- particularly among the women in the labour force -- for the purposes of firewood collection and petty marketing -- particularly when considerable distances must be traversed -- competes with the input/<sup>of</sup>productively worthwhile effort within the farming pattern. To a considerable extent, the consolidation of formerly highly fragmented holdings has relieved cultivators of the necessity to spend many hours in unproductive movement between widely separated plots. It may, however, have added to the demands on time in the collection of firewood, as much tree acreage near farm homesteads was destroyed during Emergency villagization and in the process of consolidation itself. Similarly, competing demands on labour time have, in some instances, frustrated the Department of Agriculture's attempts to encourage certain yield-maintenance measures (such as the arable/ley rotation). So heavy are the claims on labour inputs in the breaking up of grass by hand methods that cultivators may be physically unable to perform this operation

/without

without neglecting other productive tasks. Frequently, it would appear, the easiest course is chosen: pasture and arable layouts remain unchanged, while yields are jeopardized from continuous cropping on the tilled soil and grass is grazed for an uneconomic period.

None of the above should be understood as implying that the work pattern within the agrarian structure approximates a "full employment" situation. On the contrary, considerable slack is bottled up within these systems, particularly on a seasonal basis. Mobilizing these underutilized resources for productive purposes, however, calls for a more sophisticated understanding of the specific properties of these systems -- and the possibilities for changing them -- than we now possess.

It is at least possible that these properties of peasant agriculture explain much of the shortfall in hired labour inputs for tasks on which a more intensive utilization of labour would appear to be profitable. Part of the bottleneck may arise on the supply side of the wage labour market, despite the apparent need for supplementary sources of income by families with small plots or landless but still in the possession of animals. At the particular times in the year when their services are most in demand, the opportunity costs of absenteeism from the few productive assets they possess may exceed the gains offered nearby. Similarly, there may be bottlenecks on the demand side of the wage labour market -- particularly (as is likely to be the case) the potential employer's  
/cash resources

cash resources are strained at the time outside labour is most needed. With substantial cash outlays already committed to such items as sprays, fertilizers, or loan repayments, his effective demand for labour may be curtailed.\* If these hypotheses should prove to be valid, they would suggest that further attention to the possibilities for greater specialization on commercial farm activities for which labour requirements are more evenly spaced throughout the year (tea and dairying appear at the moment to be most obvious candidates) would be appropriate and that the budget items used in the screening of loan applications might be reviewed.

Though we need to know a lot more about the operational mechanics of agrarian systems, our limited present knowledge is sufficient to justify caution in the transfer of concepts appropriate in industrial environments to the circumstances of these quite different societies. This consideration may apply with special force to the conceptual kit we commonly use in thinking about the economics of the labour force.

#### IV

The importance of this point may be clearer if we consider the manner in which the concepts used in aggregative employment and unemployment analysis are formulated. They proceed from a prior definition of the labour force (which is treated as that proportion of the non-institutionalized population either working or seeking work at prevailing wage rates). The transfer of this /approach to

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\* This relationship may provide a clue to one of the puzzling findings of the Farm Economics Survey Unit's study of labour inputs on cash crops in Nyeri. The distribution of total labour input between family and hired varies quite erratically from year to year for similar tasks. This finding, however, may be influenced by the design of the sample.

approach to peasant societies immediately encounters formidable obstacles. It is by no means clear what members of an agrarian population should be included in the labour force. At some point in the year, virtually every member of the family unit -- save the very young and the very old -- is likely to make some contribution to the family's productive achievement. The work inputs of some in this group may neither <sup>be</sup> sustain nor very efficient, yet they are still participant. Certain changes in the countryside <sup>may</sup> bring the agrarian labour force somewhat closer to the pattern typical of industrial countries. The enclosure of pastures, for example, may make redundant at least part of the former herding activity of "mtotos". In addition, the widening of educational opportunities may mean that the participation of children in the family productive pattern will be further curtailed. Even so, it is unlikely to be eliminated entirely. At the moment in Central Province, many coffee factories expect to work late on Saturday during the berry picking season to process the school-holiday take.

To some extent, recent theoretical writing has taken account of the limited transferability of macro-employment concepts to agrarian societies by characterizing their situation as one of massive under-employment (of which there are many versions) rather than of open unemployment per se. At first glance, this modification would appear to be promising. On a closer inspection, it also contains ambiguities. One of the more important concerns the "under" qualifier to "employment". This usage necessarily presupposes some norm as a benchmark of judgment. The answer to question "under what standard?" is not always supplied and, even <sup>when</sup> provided, often presupposes grossly unrealistic norms (such as a 300-day work year of 8 hour days). One can interpret the term "under-employment" in an industrialized /country if

country if, for example, a factory labour force in times of slack demand is put on a three-day week when it is accustomed to working five. In these circumstances, it is safe to assume that the labour force is both willing and able to resume the normal level of labour input and that all of the complementary factors are available. But it is not so easy to establish the appropriate norm in a peasant society when so much depends on the specifics of the situation. e.g., the physical limits to sustained work input on the part of the available labour resources, the seasonal rhythm of operations, the potentialities of both the output and input mix.\*

If the standard conceptual apparatus for employment analysis is not very helpful for the analysis of peasant economies-- and may indeed be the source of serious misconceptions --, where then are we left? Criticism for its own sake is not a satisfying activity, though sometimes necessary as a deck-clearing operation. Let us attempt to sketch the outlines of an alternative approach.

What we are really interested<sup>in</sup> -- and the problem: that adaptations of the standard theoretical framework strive vainly to get at -- is an understanding of the relationships between labour input and output. By any measure, average levels of output per worker in agrarian societies are low and a great deal of

/potentially

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\* For the sake of brevity, a detailed discussion of the inadequacies of a fashionable version of the under-employment doctrine -- i.e., the one asserting that the marginal product of labour in peasant agriculture is zero or negative -- will not be presented. Two points about its limitations are, however, appropriate: (1) the implication of this doctrine that productive work opportunities in agriculture are exhausted with available techniques and resources is factually incorrect in African circumstances; outputs can certainly be increased with heavier labour inputs and without claims on resources from outside agriculture. (2) it is fortunate that this doctrine is not in accord with the empirical reality as one of the tasks of agriculture in the decades immediately ahead must be to absorb heavier labour input while simultaneously raising productivity and making minimal claims on capital resources sorely needed for expansion elsewhere in the economy.

potentially productive labour is underutilized. But, in the circumstances of a peasant system, it is not merely the number of work participants that matters. No less fundamental is the duration of their work inputs and the efficiency of their performance when working. For the purpose of emphasizing these distinctions, it is convenient to express the relationship between output per head and the three components of labour utilization as follows:

$$\frac{\text{Output}}{\text{Head}} = P \times D \times E$$

where P = participation coefficient (workers/population)

D = duration coefficient (hours/workers)

E = efficiency coefficient (output/hours)

When cast in this light, the contrasts between the problems of labour force analysis in industrialized and in peasant economies stand out vividly. Essentially, standard employment theory directs attention to only one of these coefficients -- that of participation.--Similarly, macro-economic policy in industrialized economies sets as one of its principal objectives the minimization of the gap between the number seeking work and number of actual participants. Little is said directly about the other two components of labour utilization -- duration and efficiency. This neglect is not difficult to justify. In the institutional environments of industrial societies, it can for the most part be assumed that the values of these coefficients are regulated at high values. If one has a job, he submits to the specified standards of timing and efficiency or risks losing it. The self-employed, of course, are not so forcefully subject to such checks. In the main, however, they aspire to attain income standards comparable to those available from a wage employment option and discipline themselves to comparable levels of work input and efficiency. In a peasant community, on the other hand, the situation is fundamentally different.

/participation

Participation ratios are far higher than in industrialized societies, while the values of the other two variables are much lower. In the main, the duration and efficiency of work inputs are situationally regulated at low values. One of the paramount objectives of policy must be to seek ways to raise the values of the latter two co-efficients.

This alternative framework gives a different emphasis to the definition of the basic problem, though it offers no direct guidance on the measures required to solve it. Even if only a first step along a longer and more complex road, the use of this procedure has several recommendations. In the first place, it is more likely than the alternative to encourage a hard look at the mechanisms making a peasant economy tick. No less important, it provides some insurance against the risk that the task of "employment" policy may be construed as solely one of providing a berth for everyone. Such a strategy would be self-defeating (apart from distributional advantages) if it resulted in reductions in work duration or efficiency. Further, this way of looking at the matter is better calculated to alert those estimating the wage employment multiplier flowing from a particular innovation (such as the introduction of export crops) to the possibilities that heavier labour requirements may be met through increases in the duration and intensity of work on the part of family labour as well as from enlarged participation of paid labour.

By the same token, the use of this framework may draw attention to the possible dangers of a strategy designed to maximize the utilization of the abundant productive factor (labour, at least in quantitative terms) without regard for another precept: to economize on the utilization of the scarce productive factor (capital). This error appears to have been made at one stage in

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Indian planning of "small-scale" enterprises. A recent study of the results of this "employment-maximizing" device indicates that capital output ratios turned out to be higher than would have been the case had the same output been produced with less labour-intensive techniques.<sup>1</sup>

Perhaps the greatest single advantage of the approach to labour utilization outlined above is that it supplies a useful framework for raising questions about the inter-relationships between labour inputs and outputs in a manner that encourages study of the specific properties of peasant economies. Predominantly aggregative approaches to these problems must be suspended, at least for the time being, if sustained economic expansion is to be engineered. This warning may be unnecessary in Kenya (though it may be needed in Tanzania where part of the appeal of Central Bank appears to rest on hopes for salvation through deficit financing). Moreover, just as the substitution of "labour utilization" for "employment" may open fresh space for the systematic study of the special properties of agrarian systems, so also may it be hoped that it will stimulate the search for useful (but unconventional) policy instruments to foster economic expansion.

In industrialized economies, Keynesian and neo-Keynesian analyses have more than proved their worth. But policies shaped by other analytical categories are needed before the institutional structure of underdeveloped economies reaches a stage that will bring them into their own.

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<sup>1</sup>P. N. Dhar and H. F. Lydall, The Role of Small Enterprises in Indian Economic Development, Asia Publishing House, Bombay 1961.