LABOR MARKETS IN SUDAN: THEIR STRUCTURE AND IMPLICATIONS FOR MACROECONOMIC ADJUSTMENT

by

Peter R. Fallon

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ABSTRACT

The Sudanese labor market is characterized by considerable regional mobility with little intervention in the workings of the private labor market. Thus, a general hypothesis explored in this paper is that there is a competitive private sector labor market existing side by side with extensive government intervention and growing surplus of specific categories of workers. We first analyze agricultural labor markets and the existence of significant seasonal migration. Our main conclusion is that the consensus that there are widespread labor shortages requires some qualification, particularly with regard to the role of wages in clearing submarkets during the season. We then discuss the importance of international labor migration in the Sudan, whose main impact is seen in shortage of skilled manual labor within the country. In the following section we study urban labor markets, that are characterized by enormous importance of public sector employment and by the fact that dualistic approaches are not currently applicable to interpret observed overall employment trends. With regard to wages, our main conclusions refer to a widening wage differential between public and private sectors and to a secular compression of skill differentials within the public sector. Finally, we analyze the most outstanding institutional aspects surrounding the performance of the Sudanese labor market. In the last section, we point out the policy implications of main labor market trends in terms of a process of structural adjustment carried out through a major macroeconomic strategy.
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1.1 The Sudanese Economy.

The Sudan is amongst the poorest countries in the world with a GDP per capita in 1983 of US$400. It is also the largest country in Africa in terms of land area although much of its territory is desert. The economy is based heavily upon agriculture both in terms of its direct contribution to GDP and as a source of intermediate inputs into industrial production. Virtually all of Sudan's visible exports are agricultural with cotton as by far the most important single item, although remittances from Sudanese working abroad are now the most important single source of foreign exchange. Unless very large new exploitable resources are discovered, agriculture will continue to play the most important role in the economy for the foreseeable future. In 1981: the most recent year for which there is survey based current price national accounts, agriculture accounted for 39% of GDP with 'trade and finance' as the second biggest sector at 23%. Industry only accounted for 13.5% overall with manufacturing contributing 6.4%. Sudan is thus an economy which exports labor and cash crops in exchange for raw materials, capital goods and food. Public sector enterprises dominate the modern sector although private ownership is important in medium to small scale industrial establishments.

The performance of the economy over time has not been impressive. Real GDP actually fell slightly over the 1960's although it grew quite rapidly during the 1970's at 6.6% per annum, largely as a result of a strong recovery in agriculture. However, GDP at constant prices fell by approximately 12%
between 1981 and 1985 as the rain fed parts of the agricultural sector were
struck by severe drought. Fortunately there has been a significant recovery
in the current year (1986). Living standards have almost certainly declined
at a faster rate than GDP per capita as the country has also had to pay the
escalating costs of a civil war in the South and has faced adverse movements
in its terms of trade over recent years.

There is little doubt that the country's problems have been
significantly exacerbated by government policies. The need to financially
bail out a large number of inefficient, loss making parastatals has led to a
systematic and continuous expansion of the domestic money supply with a
consequently high rate of inflation. As the government has insufficiently
adjusted the foreign exchange rate, this has contributed to a very serious
balance of payments crisis and, when combined with the large number of price
controls currently in existence in the Sudan, has considerably distorted the
domestic price structure. Apart from the static misallocation of resources
that this creates, the ability of the government to finance its expenditure
out of government revenue becomes less as resources move from the official to
the unofficial economy with a consequent reduction in the tax base. The
problem has thus become self-amplifying, but has so far only been met with
further attempts to intensify price controls rather than with the exchange
rate and macro-deflation package that is so clearly required. Foreign
exchange restrictions and import licensing may be responsible for the
currently very low capacity utilisation rates in manufacturing insofar as they
have led to shortages of imported intermediate inputs and spare parts. In
some sectors such as textiles, exchange rate overvaluation is the direct cause
as domestic industry, often cannot compete with smuggled goods. The long term
growth prospects of the economy have also been adversely affected as investment incentives are very poor.

There seems little doubt therefore that the immediate policy priorities are to devalue the official exchange rate and to simultaneously bring the public expenditure deficit under control. In terms of domestic factor use this implies a movement of resources from non-tradeables to tradeables production and in particular a stepping up of agricultural exports. The labor market implications of this will be explored in a later section.

1.2 The Labor Force and Its Deployment.

Sudan is a country which has experienced rather high population growth in recent years. As Table 1 shows, this was not always the case as population only increased at a fairly modest 1.8% per year between 1955 and 1973. A major reason for this jump in the population growth rate to its present 3.8%, is the sharp fall in the mortality rate over the same period as reflected for example in a rise in average life expectancy from 39 years in 1960 to over 46 years in 1981. Another reason is that in recent years the famine in wide geographical areas of northern and eastern Africa has led to substantial numbers of refugees entering Sudan. In 1983 these numbered around 650,000 which is substantially greater than the corresponding figure reported for Sudanese working abroad of 334,000\(^1\) at about the same time. Refugee inflow has continued since 1983 and the total number of refugees had risen to 1,134,000 by March 1986\(^2\). The crude birth rate has, if anything, risen slightly over the same period as health facilities have improved with almost no adoption of contraceptive techniques.
One can also see from Table 1 that urban population growth was much higher than that of total population in the 1955/73 period. The much lower figure for the population growth rate in rural areas would indicate that rural-urban migration must have been very substantial although the much more similar urban and rural population growth rates for 1973/83 would suggest that this has slowed down in recent years. Unfortunately the relevant information has not as yet been processed from the 1983 census. The other very significant fact that one can draw from Table 1, is that over 10% of the total population of Sudan are nomads. Many of these are pastoralists who move from one grazing area to another, although some will at times supply their labor to the irrigated agricultural schemes. It would seem that the proportion of nomads is in decline, although not too much should be inferred from the 1983 census figure in this respect as 1983 was a severe drought year in which poorer pastoralists would have found it difficult to live off their few cattle and have been induced to seek work elsewhere.

Turning now from population to labor force, we can see from Table 2 that the overall participation rate has changed very little between 1955 and 1983. The participation rate among males has declined but this can be explained by the growth of secondary education over the period. Similarly, the disparity between male participation rates in rural and urban areas is due to differential access to secondary schooling. This cannot provide a full explanation, however, for the very striking difference between the urban and rural female participation rates: 0.11 in the towns as opposed to 0.25 in the countryside. Although Sudan is an Islamic country, the female participation rate is not particularly low by less developed country standards — in Saudi Arabia, for example, the figure is around 5%. One explanation that does then
arise is that insofar as Islamic tradition presents obstacles to female participation, these are much more likely to apply to employment activities outside the household. One apparent exception to this is the use of migrant household (including female) labor on commercial farms and the large irrigated schemes, although one could argue that this is not really participation outside the household, as wives etc. are working alongside other family members. The hypothesis is therefore, that the female participation rate in each sector will be higher the more likely are households to engage in conventionally defined production activities within their own premises or family unit, and will also tend to rise over time as social obstacles to non-household female employment are removed. Rural-urban migration would then have had the effect of lowering the overall female participation rate as intra-household production is less widespread in urban areas, but this effect may have been offset by (say) increased employment opportunities for women in government employment.

It is not possible given the existing data base to provide an accurate breakdown of labor force deployment in Sudan. In urban areas, wage employment is overwhelmingly dominated by the public sector. In 1983/4 central and regional government respectively accounted for 108,000 and 227,000 posts, the great majority of which would have been urban. Public corporations and companies provided around 200,000 jobs thus putting total public sector employment at around 535,000. We further estimate that there are 100,000 employees in private sector establishments employing ten or more workers thus giving us an estimate of total modern sector employment in Sudan of 635,000. Of these we estimate that no more than 530,000 are in urban areas.
If urban labor force is 1.28 million, and we assume that the modern sector is entirely located in towns, then this implies that the informal sector and the unemployed account for some 750,000 urban workers. Contrary to earlier studies\(^5\) it now seems that open unemployment is quite sizeable in urban areas at least. As Table 3 shows, the most recent survey gives an overall urban open unemployment rate of 10.6\% for 1979/80. Applying this proportion to our figure of 1.28 million we therefore get 136,000 as our estimate for the number of openly unemployed in urban areas. The remaining major employer of urban workers is the informal sector. Very little research has been done on this very important part of the Sudanese economy although the ILO employment mission\(^6\) estimated that the informal sector accounted for about 25\% of total employment in Khartoum in 1974. If applied to urban Sudan as a whole this would give 320,000 informal sector workers in 1983. We are still left with a discrepancy of some 300,000 urban workers. In part this is made up of miscellaneous groups missing from any of the above categories such as house servants, but the most likely explanation is that the size of the informal sector is underestimated both because the relative size of the informal sector is likely to be greater in urban areas other than in large cities such as Khartoum and Port Sudan and also because casual observation seems to suggest that informal activities have grown quite rapidly since the mid-1970's. The above evidence thus makes it likely that as much as 50\% of the urban labor force is engaged in the informal sector. This high proportion is an important factor in the analysis of labor mobility.

Wage employment in rural areas occurs in two main sectors: in the large state owned and managed irrigation schemes towards the north of the country and in the large mechanised farms in the rain-fed eastern regions.
Labor is supplied to these sectors from several different sources: local small scale farmers who supplement their incomes from agriculture by seasonal wage employment, local landless laborers who may work both in agricultural and non-agricultural activities, temporary migrants who may be drawn from both of these categories, and nomads as described above. The most striking feature of the rural labor market in Sudan is the sheer scale of seasonal labor migration. In a given year as many as one million workers may travel large distances from the western regions of the country and return again at the end of the season. In a bad agricultural year, seasonal migration may also occur into urban areas. The predominant form of labor deployment is, however, self-employment in agriculture. The Rural Labour Study in Northern Sudan (7) found that 75% of resident workers were employed either on the family farm or as family herdsmen, while non-agricultural self employment activities accounted for the bulk of the remainder. Thus assuming one million migrant workers in a given year, of whom roughly one half (ILO (1984)) formed their own land part of the year, then this would suggest that over 3.75 million members of the rural labor force are in differing degrees self-employed traditional farmers. However, traditional rain-fed agriculture only provides work for this group for at most 4 months in the year. During the rest of their time, they are either idle or find seasonal employment such as in the irrigation schemes or, in gum arabic collection. The remainder of the rural labor force is made up of residents working solely for others, both within and outside agriculture; migrants who do not farm for themselves, nomadic pasturalists and unemployed. Rural underemployment thus constitute a major labor reserve.
1.3 Some Stylized Facts and Hypotheses.

The central position to be argued in this paper is that the Sudanese labor market is one characterised by considerable mobility with little intervention in the workings of the private labor market. There are in particular two main examples of this mobility, the extraordinary size of annual unskilled labor movements both within rural areas and rural to urban, and the movement of skilled Sudanese workers to jobs abroad. Our four main stylised facts regarding Sudanese labor markets are:

(a) A high degree of mobility amongst unskilled labor between rural and urban areas. This leads to the hypothesis that unskilled wage rates in the urban private sector are determined by the supply price of rural migrants.

(b) A high degree of mobility amongst skilled Sudanese workers to jobs abroad. One explanation of the apparent shortages of these workers is that domestic supply prices are determined with reference to wages overseas and that domestic wages have failed to rise accordingly.

(c) That public sector wages have fallen substantially behind those of comparable workers in the private sector.

(d) There is a growing surplus among university graduates with general academic as opposed to vocationally based qualifications. This reflects stagnating civil service employment, the currently depressed state of the economy and a lack of demand abroad for graduates of this type.

Our general view is one of a competitive private sector labor market existing side by side with a distorted system of public sector wages and a growing surplus of university graduates. This picture is not necessarily at odds with the unemployment figures presented in Table 3 provided that one restricts the discussion to males only. Here one can plausibly argue that the male unemployment rate could be accounted for by the surplus of graduates and
clerically oriented secondary school leavers and by the existence of frictional unemployment among unskilled and manually skilled workers. The only existing breakdown of these figures is by age and this shows unemployment to be heavily concentrated among the late teens to early twenties age groups, which is certainly consistent with the above arguments if mobility is concentrated amongst younger workers. The open unemployment rates among females are much higher and would suggest that the modern sector job market is very restricted for women, and that unlike in many other less developed countries, there are serious obstacles to females working in the informal sector. It should also be noted that the 31% unemployment rate observed among urban female workers is derived from a rather small sample and is therefore subject to a substantial sampling error.


2.1 The Traditional Farming Sector.

As stated earlier, this is the sector in which the bulk of rural workers are to be found. It also accounts for over one half of agricultural acreage - in 1982/3 it was estimated that 7.82 million (8) feddans (9) were cultivated in the traditional sector. The typical size of the individual holding is quite small; varying between 2 and 20 feddans. The principal crop is sorghum or dura as it is locally known and this takes up about a third of the land utilized. Other crops of importance are millet, sesame and ground-nuts. This sector is to be distinguished from the other sectors discussed below by the absence of both mechanization and irrigation.

As noted above, families working on smallholdings sometimes also
supply labor to non-agricultural activities. The RLS found that 30% of all resident rural workers had other supporting jobs besides their principal occupation, while a further 6% were seeking additional work. Nevertheless, it is also the case that even smallholders may hire in some outside labor during the peak season for weeding, harvesting and threshing. Even amongst households with holdings of less than ten feddans, 11% of them hired in labor for harvesting.\(^{(10)}\) The proportions of household with hired labor rise rapidly with farm size as does hired labor per feddan. The limited evidence that we have on traditional sector farming is then consistent with the existence of a rationally functioning labor market unlike the contrary evidence for some other African countries as surveyed by Collier (1985).

Available quantitative evidence on labor in traditional agriculture seems to be restricted to Northern Sudan. However, it is known that substantial migration from the Southern provinces to Central and Western Sudan used to take place during the peak crop season. This flow has now been interrupted by the ongoing hostilities in the South.

2.2 The Mechanized Rain-fed Sector.

Mechanization was introduced in the mid 1940's so as to increase sorghum production. The existing mechanized farm sector is concentrated in the Eastern provinces with some farms in Southern Kordofan. Each scheme is between 1,000 and 1,500 feddans per year and farmers cultivate about 3 schemes each on average although some holdings are as large as 35,000 feddans. Originally schemes were distributed by the state from demarcated land but many farmers also now cultivate undemarcated land and the latter is now estimated to be around 70% of the total\(^{(11)}\). Mechanized farms currently account for
over one third of the total area under cultivation in Sudan, with sorghum as their principal crop, although sesame cultivation is under expansion.

The main labor input to mechanized farms takes the form of unskilled labor used for weeding and harvesting during the two corresponding periods of peak demand. Estimates of the labor requirements of mechanized farms seem to vary widely. The RLS estimated that 13 mandays were required annually per mechanized feddan of sorghum in 1981 while the ILO mission estimated that it was only 11 mandays in 1973/4 and projected a figure of 8 mandays for 1980. One reason for this discrepancy is that the ILO figure excludes drivers, service workers and watchmen which they estimated as coming to around 1,000 additional mandays per annum for a 1,500 feddan farm. In 1982/3 mechanized farms accounted for a cultivated area of 5.5 million feddans which would therefore require, using the RLS estimate, some 72 million unskilled mandays or 720,000 temporary workers at 100 days each and a further 11,000 drivers and service workers. It has been estimated that over 8 million feddans were planted in 1985/6 as a result of the high price of sorghum prevailing in the previous year. If true then there must be tremendous demand for labor in the mechanized farm sector during the current year.

The labor supply comes from both temporary seasonal workers and the local villages. The former include not only seasonal migrant workers but also refugees from, in particular, Eritrea and other parts of Ethiopia. The great bulk of the migrants came from other rural areas of the country and in particular from the Western provinces of Kordofan and Darfur. The ILO survey in 1982(13) found that just over one half of their respondents came from the West while 19% were Ethiopian refugees. Virtually all of the migrants are male and the RLS has shown that their average educational level is below that
of the local resident population. They are recruited either by contractors at
their place of origin or at the offices of large commercial farmers in towns
such as Gedaref situated near to the farms themselves. The recent ILO study
reported that laborers sometimes faced difficulties in obtaining payment for
work completed, but this was not verified by informed officials at the
Mechanized Farming Corporation in Sudan. It was also pointed out that it
would be very risky for farmers to withhold payment as this could induce
laborers to damage the crops.

2.3 The Irrigated Farm Sector.

The total size of the irrigated schemes varies from year to year and
by 1982/3 had fallen from a peak of 2.7 million feddans cultivated in 1975/76
to 1.9 million. The schemes are of strategic importance to the Sudanese
economy as they produce the country's principal export crop, cotton. They are
also of great relevance to the rural labor market as they employ a large
proportion of seasonal migrant labor.

Most of the large scale irrigated area in Sudan is to be found within
the Gezira scheme which like the other schemes is located near to the Nile
river. For this reason, and because Gezira has been used as a model for other
schemes, most research has focused upon the Gezira scheme.

The Gezira is split into a large number of individual tenancies
(102,000 in 1980) of which 80% lie in the 15 to 20 feddan range while the
remainder vary between 30 and 40 feddans. The Gezira Board provides a range
of services some of which are paid for by the tenants including land
preparation for cotton and the irrigations themselves. Since 1981, the scheme
has been operated on an individual account basis and in principle a loss
making tenant may be evicted, although in practice such evictions are rare. The essence of the scheme is therefore that the tenant is expected to manage and farm his holding along with his family (although the Board does dictate a crop rotation system) and with additional hired labor to help with weeding and harvesting. Prior to each season, the Allocation Committee meets to determine key policies such as crop rotation and the size of cash advances to tenants. The latter represent an important means by which tenants finance wage costs and it has been argued that as tenants normally take up the maximum available advance, the possible inadequacy of such advances may act as a brake on labor demand. Against this may be set the fact that tenants are allowed to roll over accumulated losses on an annual basis subject to the probability of eventual eviction.

The Gezira scheme draws upon four sources of labor:

(i) Tenants and their families.
(ii) Workers from local villages
(iii) The labor camps or settlements. These house workers who have migrated permanently from Northern Nigeria, Chad and Western Sudan.
(iv) Seasonal migrant workers from outside the area.

The importance of migrant labor is clearly illustrated by the Gezira statistics on cotton pickers. In 1983/4, 470,420 cotton pickers were used of which tenants and their families supplied 141,940, local non family labor supplied 90,850 while the rest were imported into the scheme. In addition to this the Gezira Board itself directly employs around 115,000 workers of whom about 84,000 are laborers. Migrants are recruited by both a central committee and by representatives of groups of individual tenants. In 1983/4
these two recruitment modes attracted 52,000 and 179,000 workers respectively while 'floaters', i.e., migrants who simply show up, numbered nearly 6,000. Transport to the Gezira is paid by the recruiter, while the work itself is paid on a piece rate basis.

2.4 The Operation of the Rural Labor Market.

The key feature of Sudanese labor markets is the striking geographical mobility of Sudanese labor. When applied to rural labor markets this means that the main focus of the analysis must be on seasonal migration.

Leaving to one side, the normal seasonal movements of nomadic pastoralists, the main geographical labor flows are both to and from the irrigated areas in the North and the mechanized rain-fed farms in the East. Long distance migrants principally originate in the West of the country. Here a lack of water for irrigation in the dry season - December to June, generates a natural pressure to seek work in other regions. The irrigated areas are particularly attractive in this respect as the peak demand for labor in cotton cultivation occurs during January through March. However, large numbers of seasonal laborers are also employed in the rainfed mechanized sector during the peak labor demand months towards the end of the year. The Eastern regions are also in themselves a significant source of seasonal labor to the irrigated sector. Migrants from the West are not necessarily restricted to a single target area -- a common pattern would be to work in the mechanized farms during November/December and then to move on to the irrigated areas in, for example, the Gezira during the first three months of the following year, and to pick up work in the Central provinces in the middle of
the year. Such semi-permanent migrants may continue in this manner for several years before finally returning home or settling elsewhere. Other migrants are of the annual West to East and back again variety, who after have the same employers from year to year.

The complexity of migration flows within the Sudan, means that no single model is likely to adequately describe the detailed functioning of rural labor markets. However, the main exogenous factors that one would expect to determine equilibrium labor allocation across regions are: (i) Relative prices of agricultural products to others; (ii) climatic conditions; (iii) quantity and quality of fixed non-labor inputs; (iv) initial population densities by regions; (v) the lengths and coincidence or non-coincidence of peak seasons and (vi) direct and psychic costs incurred by migrants. Variation in these factors should influence both observed migration flows and income differences between regions. The more responsive are migration flows to wage levels in recipient areas, then the more readily should the system adapt to changing circumstances.

It is generally believed that seasonal migration has fallen sharply since the mid 1970's.\(^{16}\) This trend is not, however, reflected in the Gezira data regarding imported cotton pickers which show that 230,000 pickers were imported in the 1984/5 season which is similar to the numbers imported during the 1970's. In any case migration must have risen recently due to the displacement effects of the drought. However, supposing that it is true that seasonal migration has fallen in the country as a whole, can the rather simple model set out above give us any clues as to the likely causes?

Naturally enough, an examination of how these factors have changed over time, tends to give conflicting conclusions as to how one would have
expected migration flows to have behaved. Certainly, reduction in the price of agricultural goods relative to non-tradables would have had a dampening effect upon intra-agricultural migration, as migrants would tend to move into other sections of the economy. In contrast, the improvement in the producers' cotton price in the early 1980's should have had a stimulating effect upon labor demand in the Gezira. The Gezira figures on seasonal laborers do indeed show a decline during the late 1970's with some recovery in the early 1980's.

Environmental factors will also have an important effect upon seasonal migration. Low rainfall across the country will push labor out of drought areas and into, for example, the irrigated areas. The ILO employment mission noted that migration from Southern Darfur to the Gezira showed a sharp drop in 1974 when rainfall was good in West Sudan. Another environmental variable is the progressive desertification in North Darfur and North Kordofan and the effects of over-grazing and wood cutting in White Nile Province. This will, however, affect permanent migration flows within Sudan as well as seasonal movements.

Labor endowments will also change over time. In rain-fed districts the effects of population growth can at least be partially counteracted by an expansion in the area under cultivation, while in the irrigated areas, the cultivated area is less flexible. Increased resident population in the Gezira area would thus have, other things being equal, reduced the inflow of migrants over time. Similar effects will have been induced by the inflow of refugees into the East. Other exogenous factors include the spread of mechanization in Eastern areas, the effects of which are labor displacing unless counteracted with sufficient output expansion arising from better producer incentives; the possible extension of the growing season through the expansion of sesame
production, which should stimulate migration flows; and increased direct costs of migration relative to agricultural wages and prices. One can also mention here that the widespread incidence of Gilharzia in the irrigated regions is a deterrent to migration which hopefully will be removed.

The efficiency with which the rural labor market functions, cannot, however, be judged by the size of migration flows, as there are various changing and conflicting influences on the latter over time. The main criterion is whether persistent surpluses and shortages occur in different areas. The literature on rural Sudanese labor markets has often focused upon whether or not these are chronic labor shortages.

The consensus that there are widespread labor shortages requires some qualification. The methodology for calculating manpower imbalances is essentially one of comparing demand, as calculated from labor productivity ratios as applied to areas of crops planted, with some measure of resident and non-resident labor supply. Obviously surpluses and deficits are likely to appear from such computations and the questions that then arise are whether such imbalances are ironed out by labor mobility, or whether given limits to such mobility, there is sufficient wage flexibility to clear the market. The RLS did conclude, however, on the basis of a detailed application of this method that although there was a wide variation in the extent of surpluses and deficits both over months of the year and over provinces, there was nevertheless no evidence to support the existence of an overall labor shortage in agricultural operations as a whole. The agricultural labor force in Sudan is in fact under-employed for much of the year. The Western provinces of South Kordofan, North Darfur and White Nile had a calculated surplus all year round while the most severe seasonal shortages appeared to be in Kassala and
the Blue Nile. The most surprising conclusion arrived at in the RLS was the persistence of projected labor surpluses in Gezira during every month of the year. Essentially, as the report carefully points out, this result arises from the methodology used, in which national rural agricultural participation rates are applied to each province. The explanation of the Gezira surplus' thus lies in the fact, that given currently low rewards in Gezira, the participation rate among residents in agriculture should be much lower than the national average. The essential problem with calculations of this kind is that they measure **ex ante** surpluses or shortages on the basis of necessarily crude assumptions, rather that any surpluses or shortages that actually occur. A different conclusion arose from independent calculations made by the Economic and Social Research Unit at Barakat which has consistently shown shortages of cotton pickers, which in recent years have been in the order of 4 to 5% of required labor.

The overall under-utilization of agricultural labor stems from two sources. One is the simple fact that given a seasonal fluctuation in rewards per unit of effort, it is perfectly rational for an individual to substitute income for leisure during slack periods, and to concentrate his or her efforts in periods of peak rewards. More trivially, but yet more importantly, however, underutilization reflects the poverty of much of the countryside in terms of a general lack of income generating possibilities. The chief remedy then lies in the provision of socially beneficial rural investment. The existence of widespread underutilization cannot be taken as evidence of labor market failure.

Assuming that the reported shortages correspond to the accepted economic meaning that farmers wish to hire more labor at going wages then the
obvious candidate is that peak season wages fail to rise sufficiently. Although rural wage data are scarce, it does seem to be the case that real wages change according to annual climatic conditions while it is certainly true that wages vary systematically over the season. It is not true therefore, that the market mechanism has failed to function in the Gezira. The apparently low supply elasticity of the non-tenant resident population to the irrigated schemes, means, of course, that the tenants rely heavily upon imported labor. However, the natural year to year unpredictability that one would normally find in numbers of migrants is deliberately to some extent offset by the Gezira's own recruitment processes. Officials at the Gezira Board are unimpressed by the seriousness of such shortages and regard the existence of shortages, as being confined to a very narrow period in the season. What seems to be happening is that given higher wages than expected at a point in time, production is concentrated upon higher yielding areas, and thus actual yields are in total, less than expected. On poorer tenancies, true shortages occur as the maximum viable wages that can be paid are less than necessary to attract outside labor.

3. **International Migration**

3.1 **Sudanese Working Abroad**

A major feature of the Sudanese economy is the large number of its citizens who are working abroad at any moment in time. Estimates of the exact size of this overseas labor force vary: Choucri (1985) estimated that there were 334,000 Sudanese working abroad (SWA) in 1983 while official governmental sources in Khartoum estimated the number to be 457,000.(17) At first glance
these figures may not seem to be especially large - between 5 and 8% of the total labor force, however, the essential point is that SWA are drawn very disproportionately from the mere skilled sections of the urban population. Choucri's results indicated that only 12% of SWA were employed in agriculture prior to migration which contrasts sharply with our earlier observation that the majority of the domestic labor force are to be found in agriculture. This clearly illustrates the urban bias in the origins of SWA. Even more striking is the relatively high proportion of Sudanese skilled workers who work abroad. It was estimated in the Six Year Plan that there would be 47,800(18) skilled workers in Sudan in 1983 while Choucri also estimated that there was at least 68,000 skilled SWA in the same year. This suggests then that 60% or above of the total national stock of skilled workers are abroad. A weaker case can be made for other skill groups: 40% of professionals, 30% of technicians and 31% of clerks were also abroad at the same time.

The central effect then of job opportunities abroad is that they open up the labor market to trade in skilled labor. The shortages of skilled manual labor reported by private sector employees are undoubtedly due mainly to this effect. There are in addition a substantial number of unskilled SWA but they are proportionately small relative to the total stock of unskilled Sudanese.

By far the largest recipient of SWA is Saudi Arabia which accounts for 80% of the total. The other three recipients are in declining order of importance: United Arab Emirates, Kuwait and Yemen. Although the surveys reported by Choucri found little evidence of occupational shifts associated with migration, it did seem that migrants were more likely to enter private sector employment abroad as compared with Sudan, while they were also more
likely to be employed in the services sector abroad. The proportion of SWA accounted for by services is nevertheless very similar to that in domestic formal sector employment as a whole, i.e. 34% and 31% respectively.

The critical issue is whether or not the Sudan economy gains from this substantial overseas migration. If one adopts a nationalistic approach in which one considers the welfare of Sudanese nationals as a whole then the answer is almost certainly in the affirmative, as one would include the whole of the very substantial income increase enjoyed by migrants themselves abroad as a benefit. If, on the other hand, one only includes the costs and benefits to the domestic economy, thus excluding the benefits to migrants during their period of absence, then a slightly different picture emerges.

If one assumes that workers are paid according to their marginal social products in Sudan, then the costs of migration are the loss in domestic output accruing to the remaining domestic factors of production. For a marginal change such as the migration of a single worker, this is negligible; but for non-marginal changes such as the displacement abroad of over one half of the domestic stock of skilled workers this effect may be quite substantial, particularly if the elasticity of substitution of skilled workers is low with respect to other factors of production. Against this must be set the benefit of remittances and any future improved productivity of returning migrants arising from their stay abroad.

It appears that the Sudanese do remit a large part of their overseas earnings back to Sudan. Choucri found, for example, that skilled workers abroad in 1983 earned an average of $19,300 per year of which $11,307 was on average remitted back to Sudan. This may be compared with the ILO estimate in 1982 that skilled workers in Sudan earned an average of 1448 Sudanese pounds
in the public sector and 1848 in the private sector which using a shadow exchange rate of 2$s per SL gives $2896 and $3696 respectively. Thus, even if on average the net production loss per migrant worker was equal to that worker's marginal product in the absence of any migration abroad, then the benefit/cost ratio would be of the order of 3:1 or even greater. It might be argued that our estimate of the domestic wage is an underestimate as migrants are amongst the more experienced workers with an average of 12 years experience prior to migration. However, it is also true that the ILO survey included a few respondents who were already working abroad and thus biased upwards their estimate of the domestic wage.

The remaining benefit is more difficult to assess. It seems that Sudanese do not, in general, return to their original occupations upon their return to Sudan. Choucri's study showed that only 35% of those employed abroad expected no shift in sector of employment. There was a strong preference in favor of the agricultural sector and a general impression that migrants intended to invest their earnings in housing, land and private business purchase on their return to Sudan. This does not mean, however, that there is a loss in migrants' productivity as a result of their overseas experience. On the contrary, this could equally mean that valuable entrepreneurial skills have been acquired.

It is very likely therefore that a rigorous cost-benefit analysis would not suggest that overseas migration be curbed. It is in any case extremely doubtful whether the Sudanese authorities would be able to enforce such a policy as the majority of emigrants are unofficial and can always enter Saudi Arabia under the pretense of being Moslem pilgrims.

One important feature of overseas remittances into Sudan is that only
around 10% of the total ever find its way into the official records. Choucri estimated that total remittances (including those in kind) were of the order of $3.06 billion in 1983 which would suggest a corresponding estimate of around $4 billion for 1985/6. The implications of this are that Sudan could, for the time being at least, effectively solve its very serious financial problems if only migrants could be induced to remit through official channels. Lack of confidence in the future stability of the general economic and political situation is one very important factor explaining the avoidance of official channels, but the situation would certainly be helped by a successful counter-inflationary policy and a more flexible exchange rate.

3.2 Refugees

The number of refugees in Sudan has grown rapidly in recent years. Current estimates (February 1986) vary between 1.16 million and 1.5 million\(^{(21)}\) while an earlier estimate for 1983 put their number at 690,000.\(^{(22)}\) There have been successive waves of refugees into Sudan since 1965, originating from both political conflicts such as the conflicts in Eritrea and Uganda, and from the widespread drought over neighboring regions. Most of them are Eritreans who, according to the UNHCR figures, constitute the majority of the 786,000 refugees from Ethiopia while the other three donor countries: Chad, Uganda and Zaire account for 123,000, 250,000 and 5,000 respectively. Nearly all of the refugees are currently in Eastern and Central Sudan.

Government policy has been to try and accommodate this population influx in organized settlements. The latter are of two types: wage earning settlements in which the inhabitants are located near to urban labor markets
or irrigated schemes, and land settlements in which refugees of rural origin are given 5 to 10 feddans per family in the semi-arid rainfed areas. In spite of these efforts, the great majority of refugees have chosen to settle directly in the urban areas where some have taken up casual employment mostly in services and the informal sector. The evidence as presented in the joint volume as produced by the ILO and UNHCR indicates that the agricultural schemes have so far been unsuccessful in that the wage settlements are characterized by severe seasonal underemployment, while output is too low on the land settlements to permit self sufficiency. Urban immigrants have on average a higher income per capita than those in rural areas, but their integration into the domestic labor market is understandably limited.

To what extent do refugees constitute a potentially useful additional source of domestic labor supply? The age distribution as obtained from the ILO/UNHCR survey showed that only 8% of all refugees were aged 45 years or more while 51% were in the prime working age group of 15 to 44 years. As 54% of the total sample were males it follows that one could expect an overall participation rate of 30% or higher. Of those who were economically active prior to migration, 7% possessed skills of a manual or clerical nature and around 60% of these had found employment in a similar occupation at the time of the survey. As the ILO report points out, there are obvious language difficulties acting as a barrier to domestic participation while many manually skilled refugees complained of a lack of the necessary tools. The barriers to labor market entry are highlighted by the fact that significant unemployment existed among groups that are known to be in a situation of relative scarcity in the domestic labor market. This reflected among other things, restrictions on geographic mobility imposed upon refugees by the authorities.
4. Urban Labor Market

4.1 Employment

The most striking feature of formal sector employment in the Sudan is that it is very heavily dominated by the public sector. As we have noted earlier, employment in local and central government stood at 335,000 in 1983/4. In 1985/6, total central and regional government employment stood at 285,000 but it is unlikely that this represents a decline as this latter figure excludes the Southern region of the country. There is also an additional 14,400 uniformed grade employees, e.g. the police and fireman, who are not included in these figures. The employment data regarding the rest of the public sector are much more shaky, as the last survey was conducted back in 1976/7, and failed to take account of temporary or casual workers. The Report of the Technical Committee for the Reform of the Public Service and the Promotion of its Performance (January 1986) gives 168,872 as total employment in public corporations and higher education institutes. Comparable figures for thirteen public corporations in 1983/4 and 1985/6 showed employment to be roughly stable at 91,000 and 89,588 respectively. Allowing further for the remaining omissions in the public sector such as financial institutions and other public companies suggests that total non-civil service public sector employment in Sudan probably now lies in the 175,000 to 200,000 range. The survey of private sector establishments of 1979/80 found 75,000 private sector employees in establishments employing ten or more workers of which 56,000 were employed in manufacturing. The UNIDO survey found 79,000 private sector manufacturing employees in 1981/2 in establishments with twenty five or more workers and a further 39,000 in manufacturing establishments with less than
twenty five workers. Obviously this last statistic includes many informal sector employees but as it is known that there were a number of factory starts at the turn of the 1980's, it would seem safe to assume that our estimate of private sector employment in establishments employing more than ten workers could be raised into the 100,000 to 110,000 range. This then gives an estimate for total modern sector employment of 620,000 to 650,000 of which the private sector accounts for between 15.6 to 17.8%. The 1976/7 survey found that 16% of all public sector staff worked in agriculture. Adjusting for this and further assuming that 40,000 out of 57,000 school teachers are rural based gives an estimate of 530,000 urban formal sector workers as an upper limit.

The obvious difference between the public and private sectors in terms of the distribution of employment by production activity is that public sector employment is heavily concentrated in services and transport, while private sector employment is largely concentrated in manufacturing. The distributions from various Ministry of Labour surveys are shown in Table 4. Public sector employment in the modern sector is absolutely greater than that of the private sector in all major activities except manufacturing and possibly trade.

Little is known about the quantitative dimensions of the urban informal sector in Sudan other than the fact that it appears to be quite large. The only serious attempt to measure the size of informal sector employment was made by the ILO mission in 1974. This study was restricted to the Khartoum area and concluded that the informal sector accounted for about 25% of urban employment at that time. The main impression that emerges from this study is that informal sector employment is actually very heterogeneous in nature ranging from lucrative small scale businesses to highly casual
street selling activities which are usually very temporary in nature.

It is arguable that the critical distinction to be made in Sudan is between public and private sector employment rather than between the formal and informal sectors. The essential point about the public sector is that wage scales are determined directly or indirectly by acts of government policy, although even here there is a grey area regarding public companies set up under the 1925 Act. In the private sector there is no government intervention in the wage setting process although equilibrium wages may not be independent of, for example, public sector employment levels. To all extents and purposes the informal sector can be defined as private sector employment, including self-employment, in establishments with less than ten workers. Normally the rational for a formal/informal distinction in labor market terms is that the formal sector may set a wage above market clearing levels either because of institutional pressures such as those imposed by government or trade unions, or because efficiency wage considerations dominate in the sense that firms have an incentive to maintain high wages so as to reduce turnover amongst experienced staff or to maintain a sufficiently high quality level among job applicants. Under this view of the world, one would observe workers queuing for formal job openings with little movement from the formal to informal sectors. In Sudan this model does not seem to stand up to casual observation. Private large scale employers complain about high turnover rates, not only to jobs abroad but also to small scale activities and even blame the government for encouraging the latter. In the public sector where wage rates are generally believed to be lower than in the large scale private sector, turnover rates among unskilled workers are also high and part-time work in informal sector activities is believed to be common.
The dualistic labor market model does not then seem to be currently applicable in Sudan. The ILO (1976) study argued that the informal sector broke into three categories: (i) a high level virtually indistinguishable from the formal sector except in terms of establishment size, (ii) a middle level in which participants earned incomes comparable to the formal sector and, (iii) a low level consisting of hawkers and petty traders in which search for formal sector work seemed common. It is only this last category that appears to fit the traditional formal sector image, but the ILO team found it to account for only 15% of total informal sector employment. This group may also move into other parts of the informal sector. Excluding this last category, the informal sector consists of a wide range of activities in which individual incomes differ according to their skills and capital assets. There is no evidence that labor incomes in the higher and middle strata of the informal sector are any lower than those of comparable workers in other sectors. The lowest part of the informal sector was very small in 1974, and might at that time have been essentially a reflection of a purely frictional process in the urban labor market. Since then the influx of migrants from the rural areas and elsewhere have probably led to an expansion in casual street activities. The test of the dualistic formal/informal model is whether this has caused formal sector wages to fall.

4.2 Wages

The data collected by the ILO team from the Sudanese Workers Trade Union Federation are reproduced in Table 5 after deflating by the consumer price index. In every firm the real wage of unskilled workers has fallen by at least 30% between 1975 and 1982, although the timing and extent of the
decline is uneven across the sample. The 200% decline observed in cotton cord and wax may well be a mirage given the abnormally high wage reported for 1975.

It is interesting here to compare the behavior of private wage rates with those of the civil service. Although in 1975 and to a lesser extent in 1980, the civil service unskilled wage rate was similar to those in the private sector, it had fallen well behind most of the rest by 1982. As from July 1986, the wage range for an unskilled worker in the civil service including allowance will be 60 to 75 Sudanese pounds per month. This would be 10.5 to 13 SLs per month in 1980 prices. Two firms visited in the Khartoum area early in March 1986, one a shoe manufacturer and the other the same textiles manufacturer as quoted in Table 5, quoted SL100 a month and between SL100 and SL160 in allowances respectively, as the earnings of an unskilled worker. Taking SL100 to SL120 as representative figures would give us an unskilled earning differential of around 70% between the civil service and private sector at the present time.

The other major movement in wages over time is reflected in a secular compression of skill or seniority differentials within the public sector. Lindauer and Meesook (1985) investigated this very thoroughly and their figures show that the ratio to the earnings of an unskilled worker, a deputy undersecretary, a university graduate and a secondary school graduate declined from 13.1, 3.87:1 and 2.15:1 respectively, in June 1972, to 9.26:1, 2.60:1 and 1.61:1 respectively by November 1983. The compression has partly continued since then, as the same ratios as calculated from the salary scales of July 1986 are 8:73:1, 2.53:1 and 1.67:1. The real value of highly skilled or senior civil servants has thus declined sharply over the past ten years. For example, in July 1986, a deputy undersecretary's salary will be worth about 8%
of its real value in June 1975.

The salary scales in public corporation although subject to
government control are not the same as in the civil service. Public
corporations which fall under the 1976 Public Corporations Act have a common
set of salary scales that are determined by the government. Public
corporations not covered by the act such as Sudan Railways and the National
Electricity Corporation determine their individual scales in consultation with
the government. In practice salary scales in these Corporations seem to
closely follow those elsewhere in the public sector. Public companies as
covered by the 1925 Act have more freedom in setting salary scales and can be
presumably treated as private sector for this purpose. Although constrained
by government scales the public corporations do seem to pay about 5% more for
comparable grades. The main exception to this is the pay of university
graduates who earn 80% more on entry but only 16% more by the time they have
reached the top of the Senior Executive Officer scale or its equivalent.
Fringe benefits are also substantially greater in the public corporations
although generally less than in the private sector.

As public sector pay has fallen substantially below that of the
private sector, there have been two associated effects. The first is that the
morale and work effort have declined, while the second is that voluntary
turnover among public sector employees has increased. Morale and work effort
are obviously difficult to observe, although there are many casual reports of
increased moonlighting among public sector employees. There are unfortunately
no time series data on voluntary turnover from which to estimate recent
increases in the quit rate. Among the classified grades, i.e. employees
other than semi-skilled and unskilled workers, there were 5,612 vacant posts
in Central government and 5,580 in local government (excluding the Southern Regions) as of September 1985. (23) This implies a vacancy to total classified parts ratio of 8.6% which, assuming that it takes three months on average to fill a vacancy, and that there is no growth anywhere in the system, would give an annual turnover rate of over 34% among classified government employees as a whole. This figure is likely to be on the high side as expansion did occur among schoolteachers and health workers, while it is possible that some vacancies were unfilled as a matter of deliberate policy. Nevertheless this calculation would suggest that turnover is substantial out of government employment. The only other available estimates indicates that between 1976/7 and 1977/8, 11.5% of the total central government professional and administrative staff and 8.1% of total permanent staff left without notice. (24) Slightly lower estimates were obtained for the period 1979/80 to 1980/81. These figures are clearly lower limits of actual voluntary turnover and an overall voluntary turnover rate of around 20% per year is probably closer to the truth.

The policy implication here is clearly that recent trends in real public sector pay need to be reversed so as to re-establish parity with the private sector. As there is known to be widespread overstaffing in the civil service the budgetary implications of this could be minimized by simultaneously allowing employment levels to drop by a process of natural wastage.
4.3 Institutional Aspects

4.3.1 Minimum Wages

Sudan is not a country in which the government exercises a great deal of direct influence over private sector labor markets. A minimum wage law applying only to permanent workers in the organized sector was introduced in 1974. This has never, however, been set at an effective level and is currently equal to the minimum public sector wage i.e., SL60 per month. A more significant development is the recent endorsement by the Ministry of Labour of a national collective agreement which not only reaffirms the level of the minimum wage, but also grants a wide range of stipulated increases to private sector employees earning more than the minimum wage. For example, a worker earning SL90 per month in January 1986 would enjoy an increase of 37% to SL123. Whether increases of this kind constitute a serious attempt to prop up real wages above market clearing levels must be doubtful: partly because of the very high inflation rates currently experienced in Sudan, and partly because pay increases granted since January 1985 can be interpreted as being included in the increases stipulated under this new agreement. It remains to be seen, however, whether a precedent has been set for regular and more serious interventions of this kind.

4.3.2 Labor Legislation

The only controversial area regarding non-wage labor legislation in Sudan concerns the Individual Labor Relations Act of 1981. Essentially Para VI of the Act that deals with the termination of employees sets down a rather time consuming procedure. To dismiss a non-probationary worker an employer
must establish that the worker has committed one or other of a number of pre-defined offences e.g. gross negligence, commercial espionage, assault, etc. and win approval from the Commissioner of Labour. If his application is not approved then he must either reinstate the worker or pay him a month's notice plus a further six months compensation. The central problem with the Act is that unsatisfactory job performance is not given as a valid cause for dismissal. This legislation will have the effects of: (i) increasing expected employment costs and reducing employment, and, possibly, (ii) reducing worker incentives.

Another sub-section rules that even if a worker is dismissed with the approval of the Commissioner, the employer has to provide him with a certificate giving period of service, wage, etc., but specifically not mentioning the reasons for dismissal. This would presumably reinforce worker abuse of the regulation.

The counter-argument used to defend the Act is that unfair dismissal was the most common cause of industrial dispute in the 1970s. The problem is thus one of finding a formula which satisfies the unions on the one hand and reduces the undesirable effects of the Act on the other. At present the Act specifies a maximum probationary period of three months. If this period were extended, then it should be possible for firms to rid themselves of the most undesirable employees before the termination clauses begin to apply.

4.3.3 Trade Unions.

Prior to the early 1970s the trade union movement in Sudan consisted mainly of small weak unions with the one exception of the Railway Workers Union. Although there was substantial growth in membership during the 1970s
virtually all of the 600 registered unions in existence by the end of the decade were too small to exercise any real influence. The turning point was the introduction of a deliberate restructuring of the entire union movement into 41 blue collar and 48 white collar unions under the 1971 Trade Union Act later amended by the Employees Trade Union Act of 1977. These two pieces of legislation along with a Ministerial directive in 1973 jointly designate the sector and occupations within which unions may be formed and the internal structure in terms of national and regional federation of the unions themselves. There are two national federations: the (blue collar) Sudan Workers Trade Unions Federation with around 600,000 members and the (white collar) Employees and Professionals Trade Unions Federation with about 150,000 members. (25) The blue collar unions are organized on a largely sectoral basis and include a significant proportion of rural workers in, for example, the Gezira and Managil Project Workers' Trade Union (20,000) and the Sudanese Irrigation Workers' Trade Union (40,000). White collar unions are found in a mixture of sectors and occupations of which the General Trade Union of Teachers is by far the largest.

The unions themselves claim that membership is virtually 100% in establishments where unions are present. Although there is no provision for the closed shop under Sudanese law, this claim may be justified as some collective bargains have conferred certain benefits only upon union members while the 1977 Act prohibits an employer to negotiate with any group of employees wherever a lawful trade union already exists. Membership is therefore very large in the public sector and large scale private sector although little is known about smaller enterprises. The Sudanese Workers' Trade Union Federation claim recent success in unionizing small scale
handicrafts and are currently trying to organize seasonal workers in large agricultural schemes. At present it is nonetheless true that union strength is highly concentrated in larger establishments.

Bargaining is very much on a sectoral as opposed to a shop floor basis. The relative bargaining strength of the unions is a subject of some controversy in that although their membership is considerable, they are faced with government pay regulation in the public sector and a low profitability organized private sector that is restricted by foreign exchange regulations and import licenses. Certainly the unions have been unable to prevent a widening disparity from developing between public and private sector pay levels. Legally their right to use the strike is rather limited. Civil servants are not allowed to strike while the Labour Relations Act of 1976 lays down a full procedure regarding disputes which should be followed before strikes can begin. In practice, however, strikes do occur and are believed to have been growing recently, although the recorded number of industrial disputes remained roughly constant between 1982/3 and 1983/4. The conclusion must be therefore that unions are becoming more powerful but that so far they are unlikely to have been a major force in creating intersectoral wage differentials. The possibility remains, however, that since industrial unions bargain for a fixed percentages pay rise for all workers, they may present a serious obstacle to changing skill differentials among manual workers.

4.3.4 Market Imbalances

There appear to be two major examples of labor market imbalance in the Sudan at present. The first is that there is a growing surplus of
academically educated higher education graduates, and one suspects a surplus of secondary school graduates as well. To a large extent this is simply an ongoing problem that was disguised by past policies. In the past Sudan followed the same practice as in Egypt of guaranteeing public sector employment to all university graduates. This policy was dropped with reference to Arts graduates in 1974, Science graduates in 1978, Agriculture graduates in 1980 and then discontinued altogether in 1981. Just as this policy led in the past to growing overstaffing in the civil service, its abolition has been reflected in a growth in open unemployment among graduates. The determinants of the volume of graduate unemployment are then the level and composition of output from the universities, the number of public sector jobs available and the length of time it takes graduates to reduce their reservation wages until they are prepared to accept jobs normally associated with lower educational qualifications. What has happened is that the universities have continued to produce mostly non-vocational graduates for whom there are few job opportunities outside the public sector while public sector employment has stagnated in recent years. An increasing proportion of graduates thus go through the public sector recruitment process without success and it is estimated by the Public Service Recruitment Board that 50% of university graduates eventually end up in higher secondary qualification public sector jobs.

The other type of manpower imbalance that is frequently referred to in Sudan is the apparent shortage of skilled manual workers and technical personnel. The first point that should be made about this is that this only applies to experienced workers. Freshly trained workers are, in general, not in a position to obtain jobs overseas and may even in fact experience initial
difficulty in finding jobs.\(^{(27)}\) The statement about shortages therefore applies for the most part to skilled workers with a substantial amount of demonstrable experience.

The basic pattern is then that after completing the training period, workers accumulate experience within Sudan and then migrate to much higher paid jobs elsewhere. This is reflected in the turnover rates experienced in both the public and private sectors, although in the latter case the very high turnover rates reported by some employers may also reflect temporary interfirm differences in wage rates. The main implication of this process is that as skilled wages abroad are roughly between six and fifteen times these in Sudan, the supply price of a typical skilled experienced worker is going to be several times that of a corresponding inexperienced worker. The market equilibrium that is then observed is one in which employers will, as far as possible, substitute inexperienced for experienced worker so that the latter will constitute only a small or negligible proportion of skilled employees. The term 'shortage' is thus to some extent a misnomer in that one is to a large extent observing a labor market equilibrium in which a scarcity of experienced workers is the rule, and in which relatively few additional experienced workers would be attracted by a significant improvement in wages as the latter would still be considerably below those abroad. Those experienced workers who are employed domestically, may still command sizeable differentials over those with less experience and this may explain why the ILO urban labor market survey of 1982 found a small number of skilled workers earning several times the mean. This explanation does not deny, however, that true shortages in the sense of excess demand at existing wages do also occur. In the public sector, where earnings differentials have tended to be
compressed over recent years, it is very difficult to attract suitably experienced workers, while parts of the private sector may have faced the difficulty in increasing differentials due to the existing trade union policy of bargaining for fixed proportionate increases for all relevant categories of worker.

One problem that employers do seem to experience in Sudan is a difficulty in identifying the quality of prospective applicants even after carrying out tests within the factory. The vocational training centers do offer a trade testing service but the accessibility and reliability of such tests are not widely known. Given uncertainty about applicant quality it is rational for employers to offer no more than a wage appropriate to what they believe to be the average quality level. Employers thus speak of a shortage of skilled labor in the sense that they would be willing to pay a higher wage for an applicant of guaranteed high quality.

There are two main sources of certified skilled manual labor in Sudan: the Vocational Training Centers (VTC's) and the Technical Education System (TE). The difference between these two systems is that whereas the VTC's are clearly designed to confer manual skills upon their intake, TE has much less clear aims and provides a mixture of technical training and general education. At present there are eight VTC's in Sudan and 15 Technical Industrial Secondary schools. Currently the five northern VTC's have an intake of 1290 per year which, after allowing for dropout and failure rates and taking into account the output of the southern VTC's, suggests a total annual output of 1450 per year. The Technical Industrial Secondary Schools graduate about 1,000 a year thus yielding a total national output of around 2,500. The social returns to training and education of this kind are
presumably quite high given the relatively tight state of the domestic labor market in skilled labor and the large foreign exchange remittances that can be expected in later years from jobs overseas. It would seem that current policy aims of expanding and improving the quality of training centers and schools are well justified.

5. Labor Market Implications for a Macro Strategy

This section will examine the labor market prerequisites and implications of a main macro-economic strategy. The main elements of this strategy are:

(i) an exchange rate policy that will make Sudan's commodity producing sector internationally competitive;
(ii) an ongoing policy of domestic credit restraint;
(iii) measures to reduce the size of the public sector deficit and;
(iv) the elimination of price controls so as to ensure amongst other things that the effects of the devaluation are reflected in the behavior of market prices.

The success of this package depends critically upon whether the change in relative prices, as induced by the devaluation, produces a shift in production towards the export and import competing sectors. This in turn will require a movement in resources including labor into these same sectors, and will be accompanied by further resource reallocation within sectors themselves. If labor has limited mobility, then this will severely reduce the effectiveness of the devaluation and accompanying measures.

There are two broad types of labor force reallocation that should arise from the successful implementation of this policy package: (i) a reallo-
cation of labor within individual sectors, and in particular, agriculture; and (ii) a reallocation of labor away from non-tradables production and into tradables production, i.e. agriculture and manufacturing.

5.1 Mobility Within Agriculture

As we have seen earlier, by far the largest part of the tradable sector in Sudan is to be found in agriculture, which employs around 5 million workers out of a total labor force of about 6.5 million. The joint effects of devaluation and decontrolling prices will certainly improve the relative farmgate prices of most agricultural commodities and thereby producer incentives. This will then be translated into a changing pattern of labor demand by both area and activity within the agricultural sector. Traditional farmers are particularly likely to benefit from these policies as they have relatively small import needs and often have to buy their inputs and living essentials at market prices that will not be affected by changes in official exchange rates. If labor were highly immobile both within and into agriculture then the production structure would be relatively insensitive to relative price changes. Fortunately mobility within agriculture is very large. It is important to distinguish between labor movements from traditional farming to the competing mechanized sector, and the supply of rural workers such as cane cutters and cotton pickers who originate from the larger part of Sudan within which rainfed activities are non-viable throughout eight to nine months of the year. The latter represent a large additional source of underemployed labor who will react positively to wage incentives. One can conclude that even if labor mobility into agriculture is very limited, internal mobility within the sector itself will permit considerable
flexibility in the size and composition of its output.

The actual changes in producer incentives that would follow exchange rate action and price liberalization are a fall in the price of cotton net of imports relative to food crops (which have a lower import content), and a rise in the relative price of traditional farming products which have the lowest import content of all. However, since the seasonal migration flows to the cotton growing irrigated schemes are countercyclical to labor needs in rainfed agriculture, the supply of seasonal workers should not act as a constraint upon cotton production. The share of labor cost in mechanized farming is quite small and employment in this sector is unlikely to be affected much by the improvement in production incentives in traditional farming.

5.2 Intersectoral Labor Mobility

Although the presence of high rural underemployment and mobility within agriculture are important sources of the positive supply response that one can expect from improvements in agricultural producer incentives, there will also be a reallocation of both employed and surplus labor into tradables production from other areas of the economy. There are five sources of such labor in Sudan:

(i) Net additions to the labor force.
(ii) The urban unemployed and underemployed.
(iii) Refugees
(iv) Public sector employees
(v) Workers in the non-tradables sector.

Of these (i), (ii) and to a lesser degree (iii) and (iv) may be described as constituting a surplus source of supply, whereas the use of (v) may be
described as a reallocation between sectors. Clearly, utilizing surplus resources is more attractive than drawing labor away from productive activities.

The total labor force in Sudan is currently growing at around 100,000 persons per year, of whom the great majority would be initially located in rural areas. This is a much more promising source of flexible labor supply than the 60,000 or so, openly unemployed males in urban areas who are unlikely to be drawn into agriculture and who include a substantial number of white collar job seekers. There is, however, a huge reservoir of workers in the urban informal sector. Given the rural origin of many of these workers and the low income levels received from the more casual informal activities, there is almost certainly a significant proportion of this group who would be willing to return to agriculture given improved incentives. Refugees are also likely to be a very important source of labor to tradable activities. If, as seems desirable, refugees were given freedom to move from their camps and some initial help in finding employment, this would give a further reservoir of at least 300,000 workers who should be highly mobile between sectors.

As a matter of deliberate policy, there should also be an additional supply of workers to the private sector created by a progressive decline in public sector employment. Although the need to control the public sector deficit can partly be met by increased taxes and reduced subsidies or transfers, there will also be a need to limit increases in government spending on wages and salaries. It is now wholly inadvisable to reduce the real value of public sector and in particular civil service salaries any further, as public sector salaries have fallen well behind those of comparable workers in the private sector. Given the adverse effects upon worker morale that this
creates and the impact on the average quality of public sector personnel, it is now a matter of some urgency that a catching up process be started. As the real wages of unskilled workers have fallen more slowly than those of other public sector employees, this compression of salary scales should also be reversed as part of the recovery process. There is also a generally poor level of performance among personnel with high skills and experience and the remedy should be sought both in better money rewards and in performance evaluation. If real public sector wages are to be increased, then it will be necessary to reduce the numbers of local and central government employees and possibly those of the parastatals as well. The present low public sector salaries should make it possible to achieve staff reductions by voluntary turnover during the catching up period. Obviously one cannot assume that public sector employees are going to move directly into agriculture, although interchangeability with agricultural activities may be present among some unskilled local government employees. It is more plausible, however, that government employees will be able to take jobs in the services sector and, in the case of unskilled workers, in the manufacturing and construction sectors. Also migration abroad has traditionally absorbed large numbers of public sector workers, although often in scarcity occupations.

Although the supply of unskilled labor to tradables activities should be sufficiently elastic to permit a significant structural reallocation in production away from non-tradables and into tradables, there could be serious constraints on manufacturing production imposed by scarcity of skilled manual labor. Although manufacturing has plenty of spare capacity, its expansion could be hampered by a continuation of the existing scarcity of experienced skilled workers such as mechanics, welders and fitters, largely arising from
emigration to jobs abroad. High priority should be given to training in these occupations. This would show high rates of economic return even after taking into account the increased probability of worker emigration and the associated remittance from salaries earned abroad. The domestic supply price of such skilled workers is unlikely to be much affected by a devaluation, as the bulk of remittances from workers abroad to Sudan are already made at the free market foreign exchange rate. Unless the demand for Sudanese workers abroad is severely curtailed by the recent weakening of the world oil market, any serious expansion of the manufacturing sector will therefore require a rise in the relative wages of skilled workers. This is fully consistent with the decompression in public sector salary scales discussed above but may run into some initial difficulty with the trade unions who currently bargain on the basis of fixed differentials.
Footnotes


2. Figure supplied by United Nations High Commission for Refugees, Khartoum, Sudan.

3. Public corporations are entirely state owned. Public companies are usually defined as those with part state ownership.


5. IBRD (1982) Table 1.


8. IBRD (1985) Table 7.1

9. A feddan is a measure of land area equal to 1.04 acres or 0.42 hectares


14. IBRD (1985) (op cit.)


19. The natural way of approaching a cost benefit analysis would be to calculate the discounted social costs and benefits accruing from a representative migrant. Here we are ignoring initial fixed migration costs and benefit or costs subsequent to migration.

20. For a discussion of the mechanics of the migration process see Galaleldin (1985).

22. ILO/UNHCR (1984 (a)).

23. Figures kindly supplied by the Director of the Civil Service Department, Khartoum.


25. Mohamed El Murtada Mustafa (1985)


29. Roy et al (op. cit) found, however, that new graduates of both the VTC's and TE usually received more in-house training with their first employer.
References


Democratic Republic of the Sudan. Ministry of Labour. Labour Department:


Ghosh J. The Urban Sector. Part III of ILO/UNHCR. Labour Markets in the Sudan (op.cit).


Table 1

Urban/Rural Composition of Population (millions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>0.82</td>
<td>2.61</td>
<td>4.15</td>
<td>6.64</td>
<td>4.77</td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-settled</td>
<td>9.44</td>
<td>9.21</td>
<td>14.22</td>
<td>1.10</td>
<td>4.44</td>
</tr>
<tr>
<td>-nomadic</td>
<td>2.30</td>
<td>2.19</td>
<td></td>
<td></td>
<td>-0.5</td>
</tr>
<tr>
<td>Total</td>
<td>10.26</td>
<td>14.11</td>
<td>20.56</td>
<td>1.79</td>
<td>3.84</td>
</tr>
</tbody>
</table>

Sources: El Tahir and Abu-El Yamen (1984)
<table>
<thead>
<tr>
<th></th>
<th>1955</th>
<th>1983</th>
<th>% Growth Rate</th>
<th>Participation Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor Force (Total)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Male</td>
<td>2.75</td>
<td>5.16</td>
<td>2.27</td>
<td>0.54</td>
</tr>
<tr>
<td>- Female</td>
<td>0.75</td>
<td>1.50</td>
<td>2.51</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Labor Force (Urban)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Male</td>
<td>1.06</td>
<td></td>
<td></td>
<td>0.48</td>
</tr>
<tr>
<td>- Female</td>
<td>0.22</td>
<td></td>
<td></td>
<td>0.11</td>
</tr>
<tr>
<td><strong>Labor Force (Rural)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Male</td>
<td>4.30</td>
<td></td>
<td></td>
<td>0.52</td>
</tr>
<tr>
<td>- Female</td>
<td>1.07</td>
<td></td>
<td></td>
<td>0.25</td>
</tr>
</tbody>
</table>

Notes: Participation rate is labor force as a proportion of population. To obtain labor force as an approximate proportion of those aged 16-64 years then divide by 0.53.

Sources: El Tahir and El Yamen (op. cit) and data supplied by Department of Statistics, Khartoum.
<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>6.1</td>
<td>4.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Females</td>
<td>31.6</td>
<td>11.0</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>10.6</td>
<td>5.7</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Table 4

Modern Sector Employment (%)

<table>
<thead>
<tr>
<th></th>
<th>Public Sector 1976/7</th>
<th>Private Sector 1975/76</th>
<th>Private Sector 1979/80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>16.24</td>
<td>74.72</td>
<td>74.50</td>
</tr>
<tr>
<td>Mining</td>
<td>1.19</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>4.12</td>
<td>74.72</td>
<td>74.50</td>
</tr>
<tr>
<td>Water, Gas &amp; Electricity</td>
<td>7.80</td>
<td>-</td>
<td>0.37</td>
</tr>
<tr>
<td>Construction</td>
<td>7.30</td>
<td>1.92</td>
<td>4.45</td>
</tr>
<tr>
<td>Trade</td>
<td>1.95</td>
<td>9.90</td>
<td>9.92</td>
</tr>
<tr>
<td>Transport</td>
<td>22.69</td>
<td>11.16</td>
<td>8.16</td>
</tr>
<tr>
<td>Financial Services</td>
<td>3.68</td>
<td>0.96</td>
<td>1.54</td>
</tr>
<tr>
<td>Other Services</td>
<td>35.03</td>
<td>1.35</td>
<td>1.05</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>No. Employed</td>
<td>278,669</td>
<td>51,189</td>
<td>75,077</td>
</tr>
</tbody>
</table>

Sources: Democratic Republic of Sudan Labour Department
1. Survey of the labour force in private sector establishments, 1975/76.
2. Labour force, wages and working hours for private sector establishments in 1979/80.
3. Survey of labour force in private sector establishments employing 10 or more persons in 1975/6.
Table 5

Real Unskilled Wages (1975-82) in Sudanese pounds per month at 1980 price

<table>
<thead>
<tr>
<th></th>
<th>1975</th>
<th>1980</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small (&lt; 100 workers)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton cord and wax</td>
<td>65</td>
<td>35</td>
<td>22</td>
</tr>
<tr>
<td>Perfumery</td>
<td>-</td>
<td>40</td>
<td>28</td>
</tr>
<tr>
<td>Cloth factors</td>
<td>-</td>
<td>28</td>
<td>18</td>
</tr>
<tr>
<td>Cosmetics</td>
<td>-</td>
<td>45</td>
<td>28</td>
</tr>
<tr>
<td>Soap factory</td>
<td>39</td>
<td>35</td>
<td>22</td>
</tr>
<tr>
<td><strong>Medium (100 - 300)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packing house</td>
<td>39</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td>Paints works</td>
<td>39</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>Shoe factory</td>
<td>39</td>
<td>35</td>
<td>22</td>
</tr>
<tr>
<td>Oil mill</td>
<td>-</td>
<td>45</td>
<td>38</td>
</tr>
<tr>
<td><strong>Big (300 - 1000)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biscuit Factory</td>
<td>39</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Shoe Factory</td>
<td>39</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td><strong>Large (&gt; 1000)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Textiles</td>
<td>39</td>
<td>28</td>
<td>18</td>
</tr>
<tr>
<td>Civil Service</td>
<td>39</td>
<td>28</td>
<td>18</td>
</tr>
</tbody>
</table>

Source: Ghosh (1984). Page 161. The data or nominal wages are deflated by the CPI as calculated for low income groups.
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