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ALLOCATION OF RESOURCES WITH UNLIMITED SUPPLIES OF LABOUR "AN APPLICATION IN THE CASE OF EGYPT"

by

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Allocation of Resources with Unlimited Supplies of Labour

"An application in the Case of Egypt"

This paper is an attempt to examine critically theories of development based on unlimited supplies of labour. Theories as those provided by A.Lewis,R.Nurkse,Ranis & Fei,and others. These models of growth can be examined on two levels:First,on the theoretical level, and:secondly on the practical level. It is not our aim to examine the logical consistency of these models,since on the abstract level,these models do not lack any consistency in their theoritical frame. It is our aim rather to examine their practical applicability,particulary in the context of the Egyptian economy.

These models assume the existence of two sectors in the economy of Underdeveloped Countries. First,there is a large backward agricultural sector where there is surplus labour. Second,a small non-agricultural capitalist sector. This sector is faced with a perfectly elastic supply of labour from the agricultural sector as a result of the existence of surplus labour therein. The process of economic development is seen as an expansion of the non-agricultural sector absorbing the surplus labour from agriculture. The financing of this process of development comes mainly from the "saving potential" embodied in surplus labour. As labour is transfered from agriculture to non-agricultural activities,it is assumed that a certain amount of food will be released from agriculture and made available to the non-agriculture sector. This amount of food represent the previous consumption of the transfered labour on the farm. As labour is transfered from agriculture,productivity will increase in agriculture. This process will continue until surplus

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1) See A.Lewis "Economic Development with Unlimited Supplies of labour" Reprinted in Agrawala and Singh,Economics of Underdevelopment,Oxford University Press,1958. R.Nurkse. "Problems of Capital Formation in Underdeveloped Countries" Oxford,Basil Blackwell,1958. G.Ranis S.T. Fei,"Development of the Labour Surplus Economies" Economic growth centre,Yale University Press,1964.

labour is depleted from agriculture. Thus it is the expansion of the non-agricultural sector which is the dynamic element in the process. However, it should be noted, that as the non-agricultural sector expands another source of investment is created which is the retained profits of this sector which speed its process of expansion.

The criticism against these theories can be directed from different points of view. The idea of the existence of surplus labour can be challenged, or one can direct his criticism against the possibility of the utilization of surplus labour and the saving potential implied in it. Again one can direct his criticism against the possibility of the non-agricultural sector to absorb the surplus labour.

Our criticism concerning the practical applicability of these models will be focussed on two main points. First: the difficulties involved in utilising the surplus labour through the means of the saving potential. Secondly: it concerns the possibility of absorbing surplus labour outside agriculture for some time to come. If surplus labour cannot be absorbed outside agriculture for sometime to come then there must be a way of utilising it. At the end of this paper we provide an alternative method of utilizing this surplus labour.

However, as far as surplus labour is concerned, we are not in a great difference with the above theories concerning the existence of such phenomenon in agriculture. Yet our study of this phenomenon in Egyptian agriculture showed certain results concerning surplus labour which needs to be mentioned in brief here.

I. Facts About Surplus Labour In Egyptian Agriculture:

An investigation has been carried out by the writer concerning the nature and type of surplus labour in Egyptian agriculture.[1] A detailed account of our findings is impossible here, we shall only refer to it in brief.

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1) A. Mohie-Eldin "Agricultural Investment and Employment in Egypt since 1935" London 1966. pp. 33-129

The Egyptian agricultural sector is divided into two main subsectors; the family farm sector, and the capitalist farm sector. The family farm sector contains those farms which are below 5 feddans. They constitute 84% of the number of farms and 38% of the farming area and contains within their confines 73% of the permanent agricultural labour force[1]. In this sector there is considerable surplus labour or permanent under-employment, while despite the existence of surplus labour in certain localities, only seasonal under-employment among women and children prevails generally[2]. In this sector the labour members of the family are dominant, they represent 96% of the agricultural labour force in this sector. Surplus labour in this sector is found to exist due to two main factors. Physical factors, which are mainly, the absence of complementary resources and the existence of a time lag between different farm operations which necessitates the existence of a stand by labour force. Moreover, this sector constitute a multitude of family farms over which the labour force is inequally distributed, and which work independently of each other i.e. they do not have a planned schedule for work. The other factor is a social factor, that is the prevelance of the family as the unit of production and consumption in agriculture.

As for the capitalist agricultural sector it can also be divided in two main group of farms. Those farms between five and less than 20 feddans, and farms above twenty feddan. In the first group there is considerable seasonal under-employment among men while among women and children there is both seasonal under-employment and an acute shortage of labour at the peak season.[3] On large farms, i.e. the second group, shortage among men is all the year round but only during the peak season for women and children.[4]

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(1) Ibid P. 80

(2) Ibid P. 55

(3) A. Mohie Eldin op cit P 98-99.

(4) A. Mohie Eldin op cit P 101 - 102.

Thus both considerable surplus, and acute shortage exist side by side in Egyptian agriculture. However, there is no cross subsidisation between the two sectors. That is to say that surplus labour in family farms sector do not subsidize the shortage in the capitalist sector. This is due to the immobility of labour to move from one farm to another which is in turn due to physical as well as to social factors. Large capitalist farms usually depend to fill the gap on what is known as casual labour. Let us now see the possibility of utilising surplus labour according to the models refered to above.

II - The Utilization of Surplus Labour And The "Saving Potential"

According to the above models, the existence of this surplus labour implies a 'Saving Potential' represented by the consumption of those member of the family who are redundant. They propose to use this saving potential finance the employment of surplus labour outside agriculture. Surplus labour could be removed from its present occupations by minor organisational changes without affecting the level of output. The removal of surplus labour would be accompanied by an appropriate marketed surplus of food to be made available in the new sectors of employment, provided the retained and transferred labour maintains the same level of consumptions as before(1). The rigidities that impede the flow of either labour or food are assigned only a minor role in these models.

Actually, the mobilisation of surplus labour, contrary to the usual presumption, involves at least two formidable problems. One, is the release of surplus labour, and the other is, its re-absorption outside the rural sector. The first has to do with organisation of production, while the second has to do with consumption.

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(1) Nurkse op cit P 37 - 39.

In actual fact both industrial income and investment lagged behind their targets. Investment realized in industry represented 85 % of the planned target, while the achieved increase in income represented about 50% of the planned increase under the plan 1960-65.(1) The lag of the rate of growth of industrial income behind the target is no doubt partly due to its decline between 1963/64 and 1964/65. While the rate of growth in the first four years of the plan amounted to 9.6% per annum, it declined to 4.4% between the fourth and fifth year of the plan. This decline was due to the foreign exchange crisis in this period which resulted in a shortage of raw materials and spare parts.

We extended the actual figures for industrial income at the end of 1965 to the year 1980 under alternative assumptions. The first assumption was that the rate of growth between 1965 and 1980 would be 6% the second that the annual rate of growth of industrial income would be 8 % between 1965 and 1980. This actually equals the rate of growth realized between 1960 and 1965, and the rate of growth assumed by the plan for the years from 1965 to 1970. This third assumption is that the rate of growth between 1965 and 1980 would reach 10% per annum, which is higher than the rate actually achieved under the plan 1960-65, and higher than the planned rate for 1965-1970. Whether an 8% or 10% rate of growth can be achieved in the next decade and a half depends on many conditions. The projected series of income are presented in Table 4.

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(1) It should be noted here that there is a discrepancy between the figures for planned investment, income, and employment in industry as they are presented in the plan frame and the planned figures in "Statistical Indicators" General Agency for Mobilisation and Statistics, Cairo 1966. Thus while the planned income investment, and employment figures in the plan were L.E.M. 255, L.E.M., and 213 (000) workers respectively the same figures in the other sources were E.M. 260, L.E.M. 445, and 205 (000) workers. This is due to the difference in base year figures 1959/60 in the two sources.

Table 3

Industrial Income, Investment, and Employment Achieved Under The Plan 1960-65

	1959/60 Base year	1960/61 1st year	1961/62 2nd year	1962/63 3rd year	1963/64 4th year	1964/65 5th year
Gross Domestic Product From Industry (Mille £)	256	285	310	329	370	385
Gross Investment (Mille £)	49	67	48	77	98	90
Employment in Industry	602	626	679	726	790	825

Source: Figures for gross domestic product in industry are at fixed 1959/60 prices. They were obtained from, General Agency for Mobilisation and Statistics, "Statistical Indicators" Cairo July 1966 p. 41. Employment figures were obtained from the same source, p. 25. Investment figures as presented in the above table are at fixed 1959/60 prices. However, the original figures were at current prices and were obtained from the above source, p. 37. The current investment figures were deflated by our index which is a weighted index of both the U.K. index of export prices of industrial machinery and transport equipment, and the official Egyptian Index of wholesale prices of building materials. The weights given to both indices are: 25% for the building material index and 75% for the index of export prices of machinery. The U.K. machinery and transport equipment index was obtained from U.K. General Statistic Office "Monthly Digest of Statistics" No. 248, H.M.S.O. August 1966, p. 137. The wholesale price index of building material was obtained from "National Bank of Egypt Economic Bulletin" Vol.XVII No. 3, 1965, p. 330, and General Bank of Egypt "Economic Bulletin Vol. V No. 3, 1965, p. 397. The deflator was for the years 1960, 61, 62, 64 and 1965 as follows: 100, 101, 10[illegible] 105, 107, 111.

In the nature of a forecast the five year plan 1960/65 made a projection of the increase in employment for the period 1965-70. Employment in industry is assumed to increase by 198 (000), which is equal to 10% of the increase in employment while agriculture and services contribute to 34% and 52% of the increase in employment between 1965 and 1970. An attempt will be made here to estimate the possibilities of future labour absorption by the industrial sector. In order to arrive at such an estimate, industrial income and the incremental capital-output and capital labour ratios likely to prevail in the period in question were required.

The five year plan assumed that the annual rate of growth of industrial income would be 14.6% between 1960-65 and 8.3% between 1965 and 1970.(1) However, the annual rate of growth realized between 1960 and 1965 was 8.4% as shown in the table below.

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(1) These rates were calculated from the "Framework of the Plan". Ibid p. 14 & 53. Industry here excludes electricity since separate figures were not given for electricity and industry for 1970, it was assumed that the ratio of electricity to industry will be the same in 1970 as 1965.

Between 1937 & 1947 capital intensity declined by 24% while output increased by 54%[1]. In the following period, 1947 to 1960, while industrial output increased by 1181, and capital in industry increased by 1181, employment increased by only 271. Moreover, wages as a proportion of value added declined by 20% between 1952 and 1960. Furthermore, all evidence points to a tendency for the scale of production to increase.[2] The above indicates that capitalists in their attempt to increase output employed capital rather than labour[3].

The tendency to use more capital instead of labour was by no means modified when the first plan was formulated. As the plan sees it "modern industries depend by their very nature more on capital equipment than on human factors. This makes an expansion in employment due to large scale industrialization relatively small."[4] The planners did show a bias towards more capital intensive techniques. However, it seems that the alternatives available for choice were not numerous, since the industries chosen were mostly, by their very nature, capital intensive industries. Thus the increase in employment in industry of the period 1960-1965 projected by the plan was 213 (000) or less than 20% of the increase in employment between 1960-65 and 14% of the increase in the total labour force in the above period. Consequently employment under the plan lagged considerably behind the increase in the labour force.

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(1) The decline in capital-intensity in 1947 compared to 1937 was probably due to the increased utilization of capacity and the establishment of small-scale labour intensive shops supplying the allied forces See Hansen & Marzouk, op. cit., p. 131.

(2) P.K.O. 'Brien "Industrial Development and the Employment Problem in Egypt", 1945-1965. Middle East Economic Papers, 1962, P. 100.

(3) Not only did employment increase slowly compared to capital and output but employment in certain industries declined even absolutely. Thus between 1950 and 1960 employment in industrial establishments emplying 10 workers and more in the pressing and ginning industry declined by 60%, employment in transport equipment industry by 33%, while employment in tobacco manufacturing and manufacturing of non-metallic minera by 18% and 15% respectively. See "Hand Book of Statistic" Department of Statistics, 1962, Cairo, 1963, pp. 90 - 94.

(4) National Planning Commission "Framework of the Five Year Plan for Social and Economic Development" Cairo, 1960, P. 13.

1. Demand For Labour In Industry

The contribution of the industrial sector to employment has been rather meagre in the past, and is likely to remain so in the foreseable future. This is not due in any way to the slow expansion of the industry, as both output and capital showed an impressive increase between 1937 and 1960, but rahter to the nature of the technological choices made in Egyptian industry, which have exhibited since early days and especially since 1947 a marked inclination towards more capital-intensive techniques. Employment in manufacturing increased by 59% between 1937 and 1947 against an increase of 27% between 1947 and 1960. Only 25% of the increase in labour force between 1947 and 1960 was able to find employment in manufacturing.(1) The contrast between the increase of capital, output and employment during the two periods is striking.

Table 2

Production, Employment, and Capital in Manufacturing Industry in Egypt 1937 - 1960

Years	Index of Total Production	Number of persons employed (000)	Index	capital (000)	(no. of H.P.) Installed Index
1937	100	353	100	762	100
1947	154	561	159	799	105
1960	335	713	202	202	295

Source: Index of total production are from Hansen & Marzouk "Development and Economic Policy in the U.A.R." p. 130. Figures for employment are from "Census of Population 1960" Vol. II general, tables, Cairo, Government Press 1963. p. 33, the figures for 1937 and 1947 are not the original figures for those two years as indicated by the Census of 1937 and 1947, but are adjusted figures to make them comparable to the 1960 definition. Horsepower installed are from Hansen & Marzouk above reference.

(1) The total labour force for 1937, 1947, and 1960 respectively were 5, 810, 6, 994, 7, 725 thousand, see Population Census 1960, Vol.II p. 333.

"Saving Potential" may be a symptom of the economies of scale in consumption. The indivisibilities of consumption prevailing in such circumstances relate not merely to rent, fuel, utensils and other durable goods, but also to food. The proportion of expenditure which is relatively insensitive to variation in the size of the family is even larger if allowance is made for goods and services such as cooking oil, condiments, and laundry charges, in respect of which marginal changes in consumption within the household have little effect on the total used. For example, with a frying pan of a given size, the amount of oil used in frying eggs varies only slightly with the number of eggs being fried.

A locational shift, necessarily accompanied by these consumption effects, will seriously limit the number that can be absorbed in productive employment since, given the wage rate, the employable number depends on the absolute size of the subsistence fund.

Having examined the pressures likely to be brought to bear on the marketed surplus consequent upon the process of transfer, the attention will now be focussed on the opportunities for the employment of labour transferred from the family farm sector. We shall try to examine in the Egyptian context, the number that it might be possible to transfer to other employment in the future. The volume of this potential transfer will be arrived at by assessing the future demand for labour outside the family farm sector where surplus labour prevails.

III - Demand for Labour outside The Family Farm Sector

The sources of this demand are, the industrial sector, the service sector and the capitalist sector in agriculture. Each of these sectors will be examined separately.

For while they indicate the level of remuneration in the two activities they do not per so indicate food requirements in town versus village. A change in the pattern of consumption might occur as people move away from the village. However, what is certain is that food requirements are greater in continuous full time industrial jobs[1].

The third type of pressure is the cost of the locational shift. This includes two kinds of costs; the cost of urbanisation, involved in any shift of labour from village to town, which comprises the cost of housing, urban amenities, and other social overhead facilities and involves the use of resources that could have been channelled in other directions to increase production. Secondly, there is an additional cost of the splitting up of households, thus multiplying the spending units. The increased cost results from the diseconomies due to the reduced size of the spending unit.[2] Where the family is the unit of consumption, the economies of living under the same roof are considerable.[3] In fact, an important part of the apparent

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(1) Koestner N. "Some Reflections on Professor Nurkes's Capital Accumulation in Underdeveloped Countries" L'Egypte Contemporaine, XLIV, April 1953.

(2) At a given level of income per person, if there are economies of scale in consumption of a particular commodity, larger households will tend to have a smaller expenditure per person on that commodity due to these economies" See Paris S.J. & Haouthaker H.S. "Economies of Consumption" The Analysis of Family Budgets, Cambridge University Press, Cambridge 1955, P. 150.

(3) Economies of scale might arise in purchasing, storage and preparation of food. There may be straight forward discounts for purchasing large quantities or it may be that a commodity is only sold in multiple of a certain minimum quantities; such as a tin or a packet. Economies of scale might arise because of more economical methods of cooking and the utilization of portions of foodstuffs that otherwise would be discarded, e.g. small quantities being wasted in sticking to the pan and the like. In a family budget sample recently carried out in England, it has been found for example, that at equal level of income per person larger households spend approximately 19% less per person on farinacious foods. See Prais op cit P. 151.

deprives him of his share of the family's income, but fails to offer him a wage which exceeds that reserve price will not be acceptable to him. The need for a committed and a stable labour force may also lead to higher wages in towns, to prevent an increase in labour turnover. This is an important consideration, for the change in attitude to work resulting from a stable labour force is an important factor in augmenting productivity in the long run[1]. Higher wages for town migrants might be due to the fact that the earner-dependant ratio is usually higher in towns, because women who are part of the labour force in agriculture are in some countries (including Egypt) rarely employed in industry.

The difference between wages in agriculture and industry can be seen in the Table below. Not only is the gap between them very wide, but it seems to widen over time. However, one has to be very cautious in interpreting such wage differentials.

Daily Money Wages in Agriculture & Industry

(P.T.)

Year	Agricultural wage	Industrial wage
1945	9.3	19.8
1950	9.7	28.3
1956	12.5	39.7
1960	12.5	39.3

Source:
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For agricultural wages see B. Hansen "Marginal Productivity Wage Theory and Subsistence Wage Theory in Egyptian Agriculture" U.A.R. Institute of National Planning, Memo No. 547, March 1965. For Industrial wages see B. Hansen & G. Marzouk "Development and Economic Policy In The U.A.R." North Holland Publishing Company, Amesterdam, 1965, P. 19 The Wage rate in agriculture is the daily wage rate for men only. In industry the original figures were weekly wages and were divided by 6 to arrive at the daily wage.

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(1) D. Mazumdar: "Unemployment in Agriculture and the Industrial Wage rate". Economica, Mar, 1959, p. 332.

presupposes, since collectively a larger number of hours or days will now be worked for the same real wages is by no means easy to attain. This result is a carralary of the definition of disguised unemployment of surplus labour, since those who are left behind "would be able to produce the same output working larger and harder"(1). Even if one assumes that they work the same number of hours or days as before, their consumption is bound to increase. This is due to the drastically low levels of income prevailing and the high marginal propensity to consume. Moreover, it is also true that where the income of the household is low, the output previously consumed by the redundant members could be regarded as forced savings imposed on these families by the codes and convention of the type of social organisation prevailing, rather than true savings which would continue to be available for the maintenance of the transfered labour(2).

The second of these pressures is due to a rise in consumption by the migrants. This is illustrated by the differential between urban and rural wage rates, a differential which is higher than is usually assumed. This may be due to the higher consumption requirements of full time workers, to the higher standard of urban subsistence, or to the disinclination of rural population to move to urban areas. There is no incentive for the worker to move unless there is a net gain to him and to the family as a result of the movement. Far, where the family is the unit of production and consumption, each member shares the family income irrespective of what he contributes to output. This right of the unemployed man to share in the family's income secures for him an income "the value of which in effect established a reserve price for his labour"(3). Thus any employment which

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(1) A.K. Sen "The choice of techniques" Oxford Basil Blackwell, 1960, P. 15; See also A. Lewis, op cit P, 402.

(2) Raj. K.N. "Employment Aspects of Planning in Underdeveloped Countries", National Bank of Egypt, Cairo, 1957, P. 23.

(3) P.T. Bauer and B.S. Yamey: "The Economics of Underdeveloped Countries" The Cambridge Economic Handbook, Cambridge 1957, P. 87.

The release of surplus labour presents certain difficulties. We mentioned before that one of the reasons responsible for this phenomenon is the existence of a multitude of family farms operating independently of each other. Moreover, while labour is available for extra-employment on the farm it is not immediately available for extra employment outside it. Thus the mere existence of the demand for labour outside the family farm sector is not a sufficient condition for the removal of surplus labour. To remove surplus labour necessitates a change in the organisation of production in a way that implies the abolition of the family as an operational unit. One way of achieving this is through technical organisation of the farming system involves an enlargement of the managerial unit in agriculture. Such reorganization is sometimes difficult to achieve since it may tend to undermine the existing system of property relationship, which is difficult without the use of a certain degree of compulsion.

Apart from the difficulty connected with the release of surplus labour, further pressures are imposed on the subsistence fund or the saving potential as a result of the process of transfer. Such pressures can occur in three ways; first, an increase in consumption per head of those remaining behind; second, an increase in consumption per head by the migrants; thirdly, an increase in consumption per head contingent on the splitting up of households entailed by the locational shift of agricultural labour. These are specific to physical transfer. A fourth drag on the subsistence fund is caused by the claims of those already in the industrial sector.

First, the condition for a release of savings from the sector from which the newly employed are recruited is that those who remain behind maintain their previous per head consumption; which however, is dictated by their obligation to share earnings with the unproductive members of the family[1]. The cut in over-all real wage rate which the above theory

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(1) Nurkse, op cit P 38.

seems to be supported by the way in which investment has been allocated among different industries under the plan and the types of techniques favoured. The inclination towards directing more and more investment towards basic industries seems to be obvious also from the allocation of investment projected for 1965-1970. However, the assumption of constant ratios seems to be the safest since it is difficult to determine the rate at which such ratio will increase.

The results in Table (4) show that, in all three cases, the industrial sector will not be able to absorb more than one third of the increase in the labour force up to 1980. However, the only exeception to this rule is the case when the rate of growth of industrial income is assumed to be 10% per annum, and where we apply the L.E. 1704 capital invested per person achieved in the plan. In this case, in the period between 1975 and 1980, industrial employment will be able to achieve over 50% of the increase in the labour force. However, this case seems unlikely, not because 10% is an unattainable rate of growth, but because the attainment of such a rate with a capital-output ratio as high as 2.5 -which is the ratio actually realized under the plan-requires that investment in industry to represent around 40% of the industrial income, which might not be easy to achieve. This means that annual gross investment has to be more than doubled between 1970 and 1975, and nearly quadrupled in the period 1975 - 1980. Even if one assumes that such a rate of growth and such a volume of investment are attainable, the achievement of this volume of employment seems unlikely. This is because the capital invested per employed person applied here i.e. the L.E. 1704 per employed person, does not represent the true capital-labour ratio.

Table (4)

Projected Increase in Output, Investment and Employment of the Industrial Sector Under Alternative Assumptions.

Case No. (1) 6% Rate of Growth of Industrial Output Between 1965 & 1980

Year	Estimate No.1			Estimate No.2			Estimate No.3	
	Income (£. Mill) 1959/60 prices	Investment Required (£.Mill)	Employment Expected (000)	Investment Required £.Mill	Employment Expected (1) (000)	Employment Expected (2) (000)	Investment Required £.Mill	Employemnt Expected (000)
1960	256							
1965	385	380	223	380	223	223	380	223
1970	515	221	107	325	191	115	299	106
1975	689	296	144	435	255	154	400	142
1980	922	396	192	583	342	206	536	191
	Case No. (2) 8% Rate of Growth Between 1965 & 1980							
1960	256							
1965	385	380	223	380	223	223	380	223
1970	566	308	149	453	266	160	416	148
1975	832	452	219	665	390	235	612	218
1980	1222	663	322	975	572	344	897	319
	Case No. (3) 10% Rate of Growth Between 1965 and 1980							
1960	256							
1965	385	380	223	380	223	223	380	223
1970	620	400	194	588	345	208	541	196
1975	999	644	312	948	556	335	872	310
1980	1609	1037	503	1525	895	535	1403	499

Continued

	The Male Labour force (000)	Increase in the Male Labour force Every 5 years (000)
1960	7197	
1965	8694	1497
1970	9601	907
1975	10682	1081
1980	12194	1512

Notes: (1) All estimates of income, investment, and employment in the three cases represent income, investment and employment actualy achieved under the 5 year plan 1960/65.

(2) Estimate No. (1) in each case represents the application of the capital output and capital labour ratio as assumed by the first five year plan. Estimate No. (2) in each case represents the application of the capital-output and capital-labour ratios as actually achieved under the plan period 1960-65. However, in estimating the employment expected in estimate (2), two estimates were made, the first, by applying the capital invested per person (L.E. 1704) as achieved in the five years of the plan and No. (2) is by applying the capital invested per person (L.E. 2833) as achieved in the first year of the plan 1960-65. Estimate No. (3) in each case represents the application of the capital output and capital-labour ratios as estimated by the Ministry of Industry.

(3) The projected supply of Male Labour is estimated by the Ministry of Planning see Dr. M. Disouki "Estimate of the Labour Force In the Future", Ministry of Planning, Population and Labour Force Unit, Memo. No. 673, July 1963 p. 11.

(2) Demand for Labour in the Service Sector

The estimation of the future absorptive capacity of the service sector involves certain difficulties. Between 1937 and 1947, employment in the service sector[1] increased by 53% and accounted for 54% of the increase in employment in that period, and increased by 23% between 1947 and 1960 and accounted for 57% of the increase in employment in that period. However, one cannot be guided by such a performance in estimating future employment possibilities in the field. For, due to the continuous pressure of population on the land and a rising labour-land ratio in agriculture, coupled with a small industrial sector which even with substantial expansion can provide only a small volume of employment, an ever growing number of people were pushed to seek employment in the service sector. In a country where alternative opportunities for employment are relatively restricted, the service sector offers a wide scope for people to scrape a living somehow. This is done either by starting a business on one's own account employing tiny quantities of capital, which means becoming a petty trader or a pedlar in an overcrowded market, or selling one's services directly to the consumer as a domestic servant, porter, waiter, odd job men etc. The possibility of making a living in this way disguises the nature of employment in the service sector, and makes it difficult to determine the extent to which the increase in employment in services represents a real increase in productive employment, and not just a transfer of under-employed people from one sector to another. The difficulty of determining the extent of under-employment in services is enhanced by the absence of any estimation of output in such a sector which might enable one to determine whether or not the increase in employment was necessary for output increase. However, an examination of the structure of employment within the service sector with its main divisions i.e. commerce, transport and communication, and services, might throw some light on the nature of employment in the sector.

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(1) Services include transport and communication, commerce, and services (Personal & government).

In commerce, wholsale trade represents 6% of total employment, banking, financial institutions another 6% while retail trade comprises 88% of total employment.(1) Moreover around 80% of those employed in retail trade are in non-wage employment(2) or are employed in household establishments. When one considers the occupational status of those employed in the retail trade one finds that 57% are owners working in their own establishments, 20% as sellers and sales assistants in shops, while 33% are defined as pedlars (street vendors).(3)

The service division of the service sector which accounted for 70% of the increase in employment in the sector between 1947-1960 can be subdivided into three sub-divisions; social services; government services, and personal services.(4) In examining the occupational status of those employed in social services, it is found that 12% are occupied in funeral services, 10% as domestic servants, and 12% as porters and caretakers. In personal services 26% are employed as domestic servants, 12% as waiters, 21% employed in tailoring, 6% as porters, 6% in laundry services, 6% in the recreation services and 11% as hairdressers.(5) While the above percentages do not necessarily indicate the sector is characterized by excessive employment, the types of employment coupled with the fact that this sector was responsible for the largest part of the expansion of employment between 1937 and 1960 does suggest it.

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(1) Population Census of 1960 vol. 2, general tables. Government Press, Cairo, 1963, Table 30 p. 127

(2) It includes those working for their own account, those working for the family without wage, and working for others without wage. See introduction to volume II of the Population Census 1960.

(3) These are defines as pedlars, sellers in moving markets, and newspaper sellers. See Population Census 1960, ibid, Table 39, p. 247

(4) Government accounted for 34% of employment in 1960, social services for 21% and personal services for 45%. Ibid, p. 128.

(5) Ibid, p. 198.

There are two ways of projecting the increase in employment in the service sector, each of which has its own flaws. The first is to examine the movements of employment in services in the growth of advanced countries and assume a similar pattern in the country in question; the second is to use the method of projecting employment in industry, the application of the capital-output and capital-labour ratios believed to take place in the future to a projected increase in income from services.

In applying the first method, one would try to establish the ratio of employment in manufacturing to employment in services, and having seen how it behaved over time, apply it to the developing country in question. Such a ratio might also furnish a criterion for measuring under-employment in services in developing countries, on the assumption that such a ratio really represents the optimum relation between employment in manufacturing and that of services. However, this approach for projecting employment in services is likely to be misleading. While it is true that the economic growth of advanced countrries was accompanied by an increasing share of employment in manufacturing and services,(1) there are several reasons why this should not necessarily be the case with developing countries; 1- expansion in employment in services in advanced countries was not uniform, but followed different patterns in different countries.(2) Yet, one thing is certain expansion in employment in services followed or equalled expansion in manufacturing. In developing countries on the other hand, employment in services seems to increase considerably while employment in manufacturing is constant or increases very slowly. This suggests that the expansion of employment in services in developing countries does not represent an expansion to complement the increase in employment manufacturing

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(1) See kuznets S. "Six Lectures on Economic Growth", The Free Press of Glencoe, New York, 1959, pp. 43-67. See also Colin Clark "The Conditions of Economic Progress" London 1940 p. 182.

(2) According to the information compiled by Kuznets, employment in services outstripped employment in manufacturing in certain countries while in others the increase was the same in both sectors, still in others employment in services lagged behind that of industry.

but rather absorbs those who did not find employment elswhere.(1) 2- one of the arguments put forward for the increase in employment in services in advanced countries is the fact that, as per capita income increases, demand tends to shift towards services. While this might be true, in certain developing countries a considerable expansion took place in employment in services while per capita income was stagnant an even declining(2) 3- the nature of employment in services is different in the two types of countries. It is dominated by such categories as domestic servants, peddlars etc. in developing countries, while in advanced countries concentration is towards more sophisticated types of services. 4- The increase of employment in the service sector in advanced countries might have been excessive, in the sense that there is still under-employment in certain parts of the service sector in these countries; 5- The services sector in under-developed countries comprises many varieties of miscellaneous activities. Because of the heterogenity of this sector, it is difficult to predict how its share of employment will behave as economic growth takes place. For, while employment in certain services might increase, such as banking, financial institutions, professional services, in others like domestic servants and other services, the performance of which might be taken over by members of the household it will tend to decrease. Moreover, the behaviour of employment in sectors like retail trade depends on institutional arrangements.(3) Thus while employment in certain parts of the service sector might increase, others represent a source of supply of labour if alternative productive employment becomes available.

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(1) Kuznets, Ibid, p. 63.

(2) In Egypt for example, between 1937 and 1945 real per capita income declined while there was a considerable expansion in employment in services.

(3) For example in Egypt the nationalization of large wholesale firms permits the government to control the supplies and prices of great many retail shopes. Moreover, the establishment of what are now known in Egypt as "Consumer Cooperatives", which are growing in number, through which the governments sell price-controlled and other commodities, might force some of the retailers out of business through competition, and reduce the need for peddlars.

Similar difficulties arise when trying to apply the same method employed in projecting employment in manufacturing.

Traditional national income accounting evaluates output in terms of input, with real product assumed to change in proportion to employment while labour productivity remains unchanged. This means that there are no independent estimates of output and in view of the nature of the increase in employment in services, it is doubtful whether the increase in income attributed to the service sector represents an increase in real terms.

Under the five year plan 1960-65, actual investment in services up to the end of the fourth year of the plan represented 80% of the planned target for the five years, while income from services achieved at the end of the fourth year 1963/64 represented 106% of the planned target for the whole period of the plan. In the division of the service sector which includes government, social and personal services, investment realized at the end of the fourth year was 76% of the planned target while income achieved represented 114% of the planned target for the whole period of the plan.(1) However, by the end of the plan the income realized represented 124% of the target. Obviously, this increase in income is not real but illusory. It is a reflection of the excessive employment that is prevelant in the service sector. In the first year of the plan, realized employment in services was 106% of the target set for the first year. Moreover, after 1961, the government has issued a decree giving all university graduates the right to be employed in government services if they wished to. The resort to the service sector to solve the problem of employment raises doubts about the value of income figures for this sector. In the second five year

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(1) The income target far the service sector as a whole for the fifth year was Mill L.E. 692, while income realized in the fourth year was L.E. Mill 733 (both at 1959/60 prices). In the case of government, social and personal services, the target for the fifth year was L.E. 313, while in the fourth year the income realized was L.E. M. 354. See General Agency for Mobilization and Statistics, "Statistical Indicators" Cairo, July 1966, p. 41.

plan 1965/70, the service sector was looked at as a means of solving the employment problem regardless of the nature and extent of employment already existent in it. Consequently the service sector would account for 50% of the increase in employment and for 48%[1] of the increase in income in the second plan, which, in our view, is a costly way of solving the employment problem. There is no doubt that the over-fulfilment of the income and employment targets in the service sector accompanied by a lag of the commodity sectors behind their investment and income targets, is no doubt a factor responsible for the inflation of prices taking place in the Egyptian economy. Due to such high correlation between the increased employment and in income in the service sector, and due to the nature of the service sector as an absorber of excessive employment, the application of capital-output and capital-labour ratios-calculated from the past behaviour of that sector-to project potential employment possibilities, will be fraught with many dangers, since the two ratios thus calculated, far from representing the real employment capacity of this sector in absorbing labour, will tend to inflate employment figures out of all proportion.

If the above two methods are to be avoided, one must consult the figures indicating the past experience of employment in services to discover whether a criterion can be established by the aid of which one can project the potential productive employment. Between 1937 and 1947, the ratio of the increase in employment in industry[2] to that of services was aporoximately 1:3 and 1:2, between 1947 and 1960 while it was 1:1 between 1960 and 1965[3]. The attempt to establish a future ratio between the increase

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(1) Frame of the Plan op. cit., pp. 14-16.

(2) Industry here includes, manufacturing, electricity and construction. However, if one excludes electricity and construction from industry the ratio between the increase in employment in manufacturing and the increase of employment in services was as follows: between 1937 and 1947 the ratio was 1:3, between 1947 and 1960 the ratio was 1:3. See Population Census of 1960 op. cit., p. 333. The ratio was 1:2 in the period 1960 to 1954. See "Statistical Indicators" op. cit., p. 25.

(3) See next page 25.

in employment in industry and the increase in employment in services is found to be arbitrary for several reasons:

(1) While we beleive that there is excessive employment in the service sector, no quantitative estiamte is available to prove such volume of excessive employment which would enable one to establish the proper ratio between employment in industry and productive employment in services.

(2) The potential increase in employment in services depends to a great extent on the future choice of techniques in the service sector, concerning which any assumption we make will be no more than a conjucture.

(3) We have seen above that the service sector consists of various heterogenous sub-sectors, and that, during the process of development, one expects employment to increase in some of these sub-sectors and the decrease in others. The exact behaviour of employment in each of these sub-sectors is difficult to establish quantitatively.

The above discussion shows that it is extremely difficult to establish how the ratio between employment in industry and that of services should behave in the future. However, this should not prevent us from making certain assumptions regarding the behaviour of this ratio. Thus let us assume a future ratio of the increase in employment in industry to that of services as 1:2. While such an assumption might be considered arbitrary, it is not divorced from reality. The ratio 1:2 between the increase in employment in industry to that of services[2] was the ratio actually achieved under the plan 1960-65. Thus our assumption implies that the ratio actually achieved under the plan will continue in the future. This means

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(1) Note of page 24
The decline in the ratio to 1:1 during the period 1960-65 was (due to the fact that while the plan assumed that between 1960 and 1965 employment in construction is going to decline, it more than doubled this period. See "Statistical Indicators" op. cit. p. 25.

(2) This ratio is between the increase inemployment in industry (excluding construction, and electricity) and the increase in employment in services during the plan period. See "Statistical Indicators" General Agency For Mobilization and Statistics, Cairo, July, 1966,p.22

that for every additional man to be employed in industry, two will be employed in services.(1) The estimation of employment in services thus obtained will be added to that of industry and the result will be compared with the expected increase in the labour force (Table 5).

The results in Table (5) show that, up to the year 1980-with the exception of one estimate(2) - the increase in the labour force will be sufficient to meet the demand for labour in industry and services. This does not mean that there will be no transfer of labour from agriculture, only that the transfer of surplus labour from small farms will not be needed since the increase in the labour force can satisfy the demand.

(3) Demand for Labour In Agriculture (Outside the family-farm sector)

In agriculture, the demand for labour outside the family-farm sector may increase as a result of the addition of new cultivated area. There is also the demand for labour from the organized sector in agriculture, i.e. large and medium-size farms.

The addition to the cultivated area expected is 1 million feddan as a result of the High Dam plus the 700 (000) feddan which are to be converted from basin to perennial irrigation. The effect of the conversion into perennial irrigation will be to increase the input of labour on this land and hence to reduce the degree of under-employment of the labour force in the areas. The greatest contribution to employment will come from the one million feddan to be reclaimed.

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(1) The choice of the ratio of 1:2 does not mean in any way that such a ratio represents what the relation between employment in industry and employment in service should be.

(2) This is estimate (2) in case (3) where 10% rate of growth of industrial income was assumed and L.E. 1704 capital invested per person was applied.

TABLE NO (5)

POTENTIAL INCREASES IN EMPLOYMENT IN SERVICES UP TO 1980

Case No.(1)

(000 Employe)

Year	Estimation No.1			Estimation No. 2						Estimation No. 3			Increase in the Male Labour Force Every Five Years
				Assumption A			Assumption B						
	Employ-ment in Industry	Employ ment in Services	Total	Employ ment in Industry	Employ ment in Services	Total	Employ-ment in Industry	Employ-ment in Services	Total	Employ ment in Industry	Employ-ment in Services	Total	
1960													
1965	223	403	626	223	403	626	223	403	626	223	403	626	
1970	107	214	321	191	382	573	115	230	345	106	212	318	
1975	144	288	432	255	510	765	134	308	462	142	284	426	
1980	192	384	576	342	684	1026	206	412	618	191	382	573	
Case No. 2													
1960													
1965	223	403	626	223	403	626	223	403	626	223	403	626	
1970	149	298	447	266	532	798	160	320	480	148	296	444	
1975	219	438	657	390	780	1370	235	470	705	218	436	654	
1980	322	644	966	572	1144	1716	344	688	1032	319	638	957	
Case No. 3													
1960													
1965	223	403	626	223	403	626	223	403	626	223	403	626	1797
1970	194	388	582	345	690	1035	208	416	624	196	392	588	907
1975	312	684	936	556	1112	1668	335	670	1005	310	620	930	1081
1980	503	1006	1509	895	1790	2685	535	1070	1605	499	998	1447	1512

The area planned to be reclaimed under the five year plan 1960-65 is 305 (000) feddan while under the second plan 695 (000) is to be reclaimed.(1) Assuming that this area is going to be reclaimed according to schedule, the question that arises is to what extent will it absorb labour? The contribution to employment will depend on whether the land will be cultivated on a large scale and managed by large organizations, or allocatted to small labour-intensive farms. It is the latter alternative which offers favourable conditions for the absorption of labour. It was found that the density of labour per feddan which secures full employment at the peak season, is the density of labour on farms the size of 4 to 5 feddan, namely 0.6 feddan.(2) In this case, the increase in employment consequent on the reclamation would amount 417 (000) between 1965 and 1970. However, such an increase in employment is conditional, first on the completion of the reclamation within the projected period, and secondly, on the distribution of the reclaimed land in such a way as to secure the required density.

The demand for labour from large farms is only seasonal and connected with certain farm operations. To meet this demand there is no need for a permanent shift of labour from small to large farms. A permanent shift of labour from existing small to large farms would only be required if there were a realocation of land and more small farms created. This process would presuppose a change in the prevailing system of ownership, the admissibility of which depend on circumstances the present study cannot even attempt to contemplate. As for seasonal demand, it was shown above that, for several reasons connected with the prevailing type of agricultural organization, the seasonal shift of labour from small to large farms is difficult to realize.

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(1) See U.A.R. Ministry of land Reform and Land Reclamation "Programme for the lorizontal expansion as a result of the High Dam water",. Cairo, 1960, p. 13 However the 305 (000) feddan to be reclaimed under the first plan is not the only area planned to be reclaimed but only the area to be reclaimed as a result of the High Dam water, in fact under the first plan, around 800 (000) feddan was planned to be reclaimed.

(2) See A. Mohie-Eldin op. cit., p. 92.

(4) Summery of Results:

Having examined the potential demand for labour in industry, services, and agriculture, we now attempt to summarize our results. Information concerning the first five year plan shows that the employment target of the plan has been over-fulfilled. The planned increase in employment was 1009 (000) while the actual increase during 1960-65 amounted to 1327 (000)[1]. The male labour force between 1960 and 1965 was expected to increase by 1497 (000) (Table 4), thus 170 (000) new additions to the labour force were not provided for in this period. These have to be added to the expected increase in the male labour force between 1965-70, estimated at 907 (000), which makes the supply of labour seeking jobs in this period 1077 (000). If one adds the 417 (000) expected increase in employment in agriculture as a result of land reclamation between 1965-70 to the estimate of employment in industry and services between 1965-70, one finds that the expected employment will fall short of the increase in the labour force.[2] The same is true for the period 1970-75 and 1975-80.

However the argument that the expected demand for labour outside the family farm sector can be met without result to the surplus labour an family farms, is strengthened if one indades others sources of supply of labour which we have so far neglected. These sources are: 1- the increase in the female members of the labour force as a resort of population increase. We have only estimated the increase in the male labour force. 2- Those who are under-employed in the service sector and can offer themselves as soon as employment opportunities become available. We have disregarded in our estimate this source of supply. 3- Those who are in a state of open unemployment, since it would be absurd to try to transfer under-employed labour in agriculture while there is open unemployment.

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(1) General Agency for Mobilisation and Statistics. "Statistical Indicators" Cairo, July 1966; p. 25.

(2) Apart from the estimate (2) assumption No. (1) in the second and third cases. See Table (4).

Open unemployment was estimated in 1961 to be 3% in rural areas and 7% in urban areas, while the rate of unemployment in the five major urban governorates amounted to 9.2%[1]. 4- The estimate of the future increase in the labour force given above was based only on the expected increase in population and the future age/sex distribution. The increase in the supply of labour can take place for other reasons than an increase in population, like the change in the attitude to work. As economic growth gothers momentum, and more opportunities for employment are created, one would expect people outside the labour force to try to enter the labour market looking for work and hence increase the supply of labour.

What the above evidence suggests is that for a certain time to come the demand for labour outside the family-farm sector can rely solely on the supply of labour resuiting from the increase in the size of the labour force consequent on the natural increase in population. In such a situation it would be wasteful to attempt to transfer surplus labour from the family farm sector. For, apart from the costs incurred in the transfer of men and food, the mere transfer of men will add to the pool of unemployment so long as the increase in employment falls short of the increase in the labour force. To accept the fact that the transfer of surplus labour should be delayed until such time as the increase in employment is able to absorb more than the increase in the labour force is to pose another questic For if the door is closed against the transfer of men, where is the solutior to the problem of surplus labour on family farms to be sought? Moreover, there is still the need for the transfer of food to feed the growing labour force in other sectors outside agriculture. The solution obviously lies in increasing both employment and productivity within the agricultural sector itself.

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(1) Central Statistical Organization: "Sample Survey of Labour Force and Level of wages by Governorates." April round 1961, Cairo 1962;pp. 1-5.

IV A Proposed Programme:

Two important conclusions can be drawn from the discussion so far. First the process of the transfer of surplus labour outside agriculture and the use of the so-called "saving potential" to finance the employment of surplus labour outside agriculute, is less easy than it appears. The process of transfer leads to certain leakages which eat into the saving potential and hence limit the amount that could be used outside the farm sector. Secondly, for a long time to come, the demand for labour outside the family-farm sector-where surplus labour prevails-can be met from the supply of labour which result from the natural increase in population without transfer of surplus labour to satisfy this demand. Now, if surplus labour, and hence the saving potential embodied in it, is to continue within the family-farm sector, the question is, what is the best method of utilising surplus labour within that sector?

In our discussion of the process of transfer of surplus labour, it was found that the important determinant of the amount of labour that could be absorbed - given the wage rate - is the absolute size of the saving potential or the subsistence fund. There seems to us to be another aspect of the subsistence fund which is as important as its size and that is, its method of utilization. The method of utilization can crucially influence the employment generating capacity of a subsistence fund of a given absolute size.

The way in which the fund is used depends on: 1- the framework of the social organization within which it is expended, and; 2- the extent to which industry is encouraged in rural areas i.e., the extent to which non-agricultural employment exists in the agricultural areas and labour is not therefore drawn away to towns. We shall examine each one of them.

A The organizational framework and the utilization of the saving potential:

Let us now consider the significance of the social framework within which the "saving potential" is to be made use of. The extra consumption resources needed to provide extra employment, while being negligible in a slave economy, or in a household economy, may be considerable in an individualistic economy if market imperfections result in a higher wage rate then would obtain in a world of free competition and free mobility. As was pointed out above, the existence of surplus labour is compatible with a high supply price of labour outside the family farm localities. Moreover, the diversion of labour from the household to wage employment requires, apart from a higher wage rate to remunerate such labour, that a sufficient volume of wage goods sould be made available to meet the consumption requirements of those employed. Labour employed on a wage basis cannot wait to spend its wages till the corresponding output is available. Thus there is a danger of inflationary pressvress unlesswage goods can be made available as soon as the labour is employed. Whereas a member of a household might plant potatoes or dig a garden without special remuneration in the period before the potatoes can be harvested, in addition to his ordinary share at the dinning table. The problem of the need to have a flow of wage goods to meet the additional wage payments resulting from the extra employment on the family farm, does not arise in a household economy. In other words, "a household economy achieves a certain saving of marginal working capital that is not possible for the wage based economy"(1). However, even in the case where extra employment within the household needs extra consumption resources, they are bound to be smaller than otherwise, due to the operation of the one roof economies in consumption.

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(1) A.K. Sen: "Working capital in the Indian Economy: a conceptual framework and some Estimate" in Pricing and Fiscal Policies, a study in method, edited by R. Rodan; London 1964, p. 130.

Put simply, the problem of policy is one of choosing that type of social framework which utilizes non-monetary incentives to employ the maximum of unpaid surplus labour. This does not imply that, when thus employed, labour consumes nothing; it merely means that it does not increase consumption above the level to which it was accustomed. The best scheme of this kind is the community type of organization (community development programme) whose advantages are obvious. Because of the identity and fusion of interest, communal ownership automatically guaranties to every individual the recoverability of the proceeds of this efforts as soon as the communal project matures. Thus peasants who devote their labour to the construction of a dam, in effect pay themselves on its completion by directly appropriating the resulting benefits to their fields, just as property owners might bear the cost of the construction of a railway line, and reap the profits from the appreciation of land values in their district.

While the maintenance of the household as the unit of consumption seems desirable for the above reasons, its predominance as the unit of production has been shown to be a factor responsible for the existence of surplus labour and its immobility. While the family continues as the unit of production the surplus labour situation will remain, at best static. The problem before us now is to find a type of organization which, while keeping the family as the unit of consumption, reduces its predominance as the unit of production and hence make possible the utilization of surplus labour.

Let us examine what can be achieved within the Egyptain context. Not only do family holdings constitute 84% of all holdings and 38% of the cultivated area, but most of these holdings are fragmented into more than one plot. The result of this fragmentation of holdings and the adoption

of different crop rotations by different farmers, is the cultivation of different crops on tiny pieces of land which are adjacent to each other. The more existence of this state of affairs is known to be responsible for a considerable loss of output.(1) Apart from the loss of output which results from the existence of different crops on small pieces of land adjacent to each other, is the prevention of the adoption of better methods of cultivation, such as the use of certain types of technique, for example in the application of insecticides and pesticides, which would lead to increased output. It is also extremely difficult to construct necessary capital improvement schemes, like drainage and irrigation canals, due to the fragmentation of agricultural holdings.

Let us assume the hypothetical situation of a village whose cultivated area is 1.200 feddan, all of which are in small holdings, say between 1 to 3 feddan holdings. Let us further suppose that the farming households working on these holdings decided to consolidate their scattered pieces of land and pooled them under a unified management, applying one crop rotation on their holdings, with the whole village land under one crop rotation. Whether the new organization in which the land is grouped together is cooperative or otherwise is not of vital importance here. What is important is that the scattered and divided holdings of the village are pooled, and both management(2) and crop rotation are unified.

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(1) M.K. Hindy "organisation of Agricultural Rotation and its effection on Increasing output" In Agricultural Economy, Ministry of Agriculture, vol X III No. 9. Sept. 1962 p. 2.

(2) It is important here to specify the functions of the unfied management. It can have the function of determining the crop rotation it can have the function of facilitating the purchase of its members (household families) of cultivation requires such as fertilizers, insceticides, seeds. It should be the link in transmitting any new knowledge concerning farming techniques. It can facilitate the selling of the crops of the members if they so desire. However the functions of the management will be determined ultimately by household families who decided topool their land.

What takes place here is the enlargement of the scale of the unit. This would by its very nature lead to an increase in output, as is already shown in areas where similar, schemes have been applied.(1)

Let us carry our argument further. Suppose that peasant families not only pool their land under unified management and unified land utilization, but also pool their labour. Pooling labour resources can be either of two kinds: 1- for the purpose of certain farm operations especially those at the peak season: 2- permenant, i.e. all the year round, which would permit a more advanced division of labour. The pooling of labour resources during the peak season in the form of mutual aid or exchange teams, is not unknown in Egyptian agriculture. It has been done in the past(2) and is still done in locatities which face peak labour shortage.(3) In the above scheme the mutual aid team would be an organized farm of work and a coordinated schedule of work would be established. Thus if two farmers each have a feddan, one cultivated with cotton and the other with wheat, the first farmer has to cooperate with the second in cultivating a part of the second holding for the winter crop in return for the second farmer cultivating an equal area of his land with cotton.

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(1) Since 1962/1963, the government applied such a scheme on a wider scale in the whole of the cultivated areas of two provinces in Egypt, i.e. Kafer-Sheikh in Lower. Egypt and Beni Suef in Middle Egypt. The result of the application of the scheme in the above two provinces was the increase in the productivity of most crops when compared with the productivity before this scheme applied. See general Organization of Land Reform "Project for the Organization of Production I Kafer-El-Sheikh and Beni-Suef." Cairo 1965 p. 45.

(2) Cleland "Population Problem in Egypt". Lancaster, Pensybrania, sciencepress 1936 p. 195.

(3) Gadalla S.A. "Land Reform In Relation to Social Development in Egypt" University of Missouri Press, columbia 1962; p. 79.

The establishment of an organization in which land and labour resources would be pooled might have important consequences for surplus labour which is our main concern here. One of the important characteristics of labour within the family farm is that it represents in a way an individible factor, in the sense that, while it is available for extra employment on the family farm, it is not immediately available, due to social and institutional factors, to meet an outside demand. The pooling of labour resources of different farms and the establishment of a coordinate schedule of work could ease such a situation. Labour will be mobile between farms and surplus labour which was latent will manifest itself. Let us assume that surplus labour in the households who pooled their land and labour resources were directed to work on construction activities, while other members of the family continued to work on the farm, and continued to feed their surplus members as before. Let us further assume that productive employment on capital projects is available in the same locality, so that workers continue to live with their families and eat more or less the same amount untill their labour in capital construction bears fruit in the shape of increased productivity. This does not imply the payment of additional wages, so that there will be no pressure of demand in the interim. The additional wages would be paid as soon as the investment activity come to fruition, say the following year or season There are enormous fields for the employment of surplus labour e.g. on irrigation schemes, canals, drainage, roads etc. which have the effect of increasing productivity. It is a known fact that land in Egypt Lacks both public and field grains, and that the construction of these, apart from requiring enormous labour, can greatly increase the productivity of the sail.(1)

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(1) National Planning Commission. Memo. No. 260 July 1959 p.3 and 5. See also National Planning Commission Memo. No. 236 July 1959.

The pooling of surplus labour resources, would enable the undertaking of projects which the surplus labour of a single family or a small number of families cannot undertake. For example, suppose that there is an area of 5 feddan which needs reclamation, while the village needs also a public drain, the first project requires 6 men working for a whole year, while the second requires for its construction 30 men working for two years. In such a case if on the average every farm household has one surplus member, no single family or small group of families will attempt to employ its surplus members on such projects, since the gestation period would be too long for a single family to afford. But if in our hypothetical village there were 60 families each having one surplus member, and if further these surplus members were grouped together, the gestation period in the case of reclamation would be reduced to one and half months and to one year in the case of the public drain. Thus the project which could not have been attempted before could now be carried out. Moreover, the shortening of the gestation period and the quicker results would reduce the period during which the farming families have to maintain their surplus members. Thus it would be possible to increase capital, employment and output at the same time.

We have now examined the effect of the above organization or the utilization of surplus labour. It is worthwhile to examine its effect on the employment of those who remain on the land and on promoting investment on the farm. Apart from the fact that, with the above organization, it would now become possible to carry out certain capital investments such as drainage, which were impossible to undertake on fragmented land, the consolidation and the control of the crop rotation would also facilitate other investment on the land. The best example is in the application of insecticide and pesticides. By cultiviting crops on a large scale it woul l become possible to apply insecticides more efficiently, and to use certain improved techniques of cultivation, e.g. better quality seeds. With larger organization it would be possible to obtain more credit facilities to buy fertilizers, and hence more fertilizers could be applied. Moreover, it is

far easier and more effective to disseminate information on the right use of better seeds, fertilizers and better methods of cultivation e.g. intensive weeding, planting in evenly spaced rows, to large scale organization than to a multiple number of tiny individual small-holdings. All this, apart from leading to an increase in output, requires a geater input of labour and hence increase the employment of those who are left on the land. It is also possible in a larger organization to achieve a more advanced division of labour. Thus, while some will be concerned with farming operations, others can work on activities such as livestock production, etc. As the surplus labour of a single family cannot undertake the construction of a capital project, also the financial resources of a single family will not be sufficient to start a project of livestock production, while the resources of households taken together can.

Thus output could be increased not only as a result of the capital projects constructed-on which surplus labour is utilized-but also through the increased investment on the land that becomes possible under the new organization. Increased output from the land means better remuneration for those who work on it, and more food being made available for the growing labour force in other sectors. This process of employing labour within the farm family sector, should continue until such time when demand for labour outside such sector starts to outstrip the supply of labour made available by the increase in the labour force.

We now attempt to review the advantages of the above scheme; 1- under such a scheme it would be possible to employ surplus labour within the sector in which it originates and hence increase capital, employment, and output. Moreover, by utilizing the advantages of the family based, non-wage system, the extra employment of labour will become possible without any additional wage payment till output is available; 2- the reorganization of the farming area would not only make possible the release of

surplus labour, but would increase the surplus labour, but would increase the surplus through the work of the mutual aid teams; 3- such a scheme can represent a step towards more advanced division of labour. The shortage of the labour of women and children at peak seasons is due-as was shown-to the traditional division of labour according to sex, in which operations performed by one sex are shunned by the other. If men could be induced to share in women's and children's work at peak periods it would certainly reduce this shortage - and even create a surplus - especially as the peak period of the demand for women and children coincides with a stack period in the demand for men. While the removal of institutional barriers of this kind might be a long term process, are-organization of labour and land could pave the way to the total abolition of the traditional barriers,(1) 4- under the new organization it would become possible to carry out investment in better methods of cultivation which were not possible under the system of multiple scattered holdings.

There is one qualification which makes the above scheme difficult to carry out from the practical point of view. It may be easy to indentify the family farm sector from the employment point of view-as the sector excluding farms of less than 5 feddan and having surplus labour - it is difficult to identify geographically. The farming area, far from consisting of a number of small family farms which it would be easy to consolidate, is covered with units of varying sizes mixed together in a way that makes it impossible to carry consolidation among small farms only including medium and large farms. Thus in our hypothetical village, instead of the whole land (1,200 feddan) consisting of small farms only, it will consist of farms of varying sizes, e.g. 600 feddan of small farms, 200 feddan of medium farms,

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(1) Especially as one of the reasons for the shortage of women's labour is due to the fact that women who take part in operation on family farms rarely offer their labour outside for social reasons.

and 400 feddan of large farms - and the spatial distribution of the farms being of the kind that it would be impossible to carry out the scheme unless the whole land were included. In this case the pooling of land would have to cover the whole village, as would the control of the crop rotation. The area under every crop has to be determined irrespective of whether such area is under small, medium or large holdings. The same principles applied when only small farms occupied the whole land, would still be applicable, but there would be a difference in the labour resource available. Instead of only small farms with surplus, there would be different sized farms with labour situations. Small farms have surplus labour, while large farms are in short of labour. However, the pooling of the labour resources of farms of varying sizes, and the formation of mutual aid teams could be possible. The factors preventing the movement of labour from small to large farms could be absent one a single organization embodying both exists.

The labour situation can be one of the following possibilities; 1- after the pooling of labour resources, the establishment of mutual aid teams and the new organization of work, it may be found that the volume of surplus labour is still there. This means that with the new organization of work, the labour on the large farms and the productive member on small farms would be able to cope with the work required under the new organization. In such a situation, the still surplus labour could be directed to work on capital projects but the small farmers would then be bearing the cost of construction above while the projects would benefit all farms. In this case large farmers would have to carry part of the cost of construction of these projects, i.e. provide part of the resources needed to employ such labour; 2- it may be the case that the shortage of labour on large farms was so acute, That even under the new organization the whole surplus labour on small farms will now be needed for farm operation. In such a case the casual labour previously used on large farms will now be without employment. Such labour could be utilized on capital projects that would

ncrease the productivity of the land. But the employment of this labour ill be on a wage basis which would give rise to an increase in consumption demand in the interim. To avoid this, the cost of employing such abour can be secured through the taxation of the farmers in the organization. Taxing them would now be easier under the new organization, Since t would be possible now to assess their output and revenue.

(B) Establishing Industry within the Rural Areas:

The amount of employment created with a given surplus depends on whether labour is transferred out of agriculture to industry, or alternatively industry is transferred to the rural sector where labour is available. It has been shown above that the consumption effects accompanying the locational shift of labour will limit the amount of labour absorbed in productive employment that can be "financed" by the saving. Per contra, a policy which seeks to minimize the physical transfer by bringing industry to the rural sector will enable a given marketable surplus to absorb a larger volume of surplus labour. The economic implication of such a policy may be illustrated by the experience of Japan in the ninteenth century. During what has been labled her "labour intensive"(1) phase which lasted until the turn of the century the mobilization of under-employed labour, mostly within the confines of the rural economy itself, provided among other things, a dynamic impulse for a substantial lowering of wage costs. Manpower was recruited for industrial employment, through a symbioses of industry with agriculute.(2) The peasant was attached to the soil and found it easier to contribute a portion of his labour in relatively familiar surroundings. This led to the location of many industries in rural areas.(3) The labour force in these industries continued to live with their families (since it was peasant daughters) and enjoy the "one roof economies". This led to a increase and diversification of the sources of income of these families.

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(1) G.Ranis "Factor Proportions in Japanese Economic Development". Amercian Economic Review, Col. XIVII. No. 5. Sept., 1957, pp. 594-595.

(2) Lockwood W.W. "The Economic Development of Japan; Growth and Structural Change, 1868 - 1938" Princeton 1954. pp. 487 - 489.

(3) G. Ranis, Ibid. p. 594.

The integration of industry into the rural way of life delayed the trend towards urbanisation and enabled the economy to "hold the line", against mounting pressures of domestic demand. The dispersal of industrial labour in small enterprises scattered all over the countryside, had a far reaching influence on the labour market by reducing the overall differentia of rural and urban wage rates to a minimum, so that a large expansion of employment become feasible at wage levels more or less tied to the existing levels of remuneration on the land.(1)

In Egypt, not only is industry tending towards more and more capital intensive techniques as shown before, but also most of these industries were located in large cities. Around 60% of all industrial establishment and 53% of the labour force in these establishment are in Cairo and Alexandria the largest cities.(2) The trend towards urbanization is noticeable in the last two decades. Thus between 1937 and 1947 urban population grow by 44% against an 11% increase of the rural population, and a 19% increase in total population. The some trend is observable between 1947 and 1960: urban population increased by 55% while the increase of rural population was 29% and that of total population was 36(3). The increase in the movement of population from rural to urban areas, has lead to a problem of oper unemployment, due to the inability of industry to absorb enough labour. In 1961 the rate of unemployment in the five major urban governorates(4) was 9.4(5) of their labour force. Unfortunately, the establishment of rural industries as a solution to employment problem has never attracted attentio in Egypt. Under the five yearplan 1960-65 investment in rural industries

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(1) G. Ranis, op. cit. p. 596-599.

(2) Department of Statistics and Census: Census of Industrial Productio 1960, Cairo, 1962, p. 2.

(3) Census of Population 1960, op. cit., p. 2.

(4) These are Cairo, Alexandria, Port Said, Suez, and Ismalia.

(5) Central Statistical Organization, "Employment and Level of Wages by Governorate." April, round 1961, Cairo 1962. p. 5.

as a solution to employment problem has never attracted attention in Egypt. Under the five yearplan 1960-65 investment in rural industries represented 0.5%[1] of investment in industry. More attention to the establishment of rural industries in rural areas could go a long way towards the solution of the employment problem. The field for the establishment of such industries are enormous, especially in activities connected with agriculture.

Conclusion:
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The possibilities of transfer of surplus labour from its present occupations and its absorption outside agriculture are limited. The argument put for the use of the marketed surplus represented by the consumption of the surplus labour on the land to finance their employment outside agriculture is unworkable. The transfer of men and food from agriculture leads to certain lookages which are influtionary in character, which eat into the marketed surplus and hence limit the amount that could be absorbed outside agriculture. Moreover, the examination of the demand for labour outside the family-farm sector showed that such demand would fail to keep up with the supply of labour arising out of the increase in the labour force, for some time to come. In the force of that it would be wasteful to attempt to transfer surplus labour until the supply of labour outside the family farm sector has been siphoned off. Until such time to come the solution of the problem of under-employment has to be found within, the agricultural sector. Hence, a reorganization of the farm area is necessary which would permit the utilization of surplus labour within that sector without incurring any extra cost in terms of consumption resources. This could be done by utilizing, the advantages of the household non-wage system of employment.

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(1) Frame of the Plan, op. cit., p. 33.

As for the incremental capital-income ratio and the incremental capital-labour ratio,[1] there are different estimates from different sources: 1)- the estimate used by the first five-year plan 1960-65, i.e. a 1.7 incremental capital-income ratio and L.E. 2061 capital invested per person.[2] 2)- The actual incremental capital-income ratio realized under the first year plan which was found to be around 3. (Table 3). However, this increase in the ratio as compared to the planned one is no doubt due to the modest achievement in industrial income in 1964/65 which was due to the excess capacity resulting from the shortage of raw materials and spare parts which was due to the foreign exchange crisis in that year. The inclusion of the year 1964/65 in the calculation of the incremental capital-income ration will unduly inflate such ratios. Thus the incrementtal capital income ratio realized under the first four years of the plan will be used. This is equal to 2.5[3] which is still far higher than the planned ratio. As for capital invested per person, the realized capital invested per person under the plan 1960-65 is L.E. 1074, which is lower than the planned figure. The increase in employment under the plan, particularly since 1961/62 is partly due to the reduction in working hours from 48 to 42 introduced since that year. Thus the increase in employment cannot be solely related to the investment undertaken.[4] In the first year of the plan before the introduction of this law, the capital invested per person was L.E. 2833. 3)- The third estimate is that by the Ministry of Industry. It is based on a sample of industrial projects taken during the first industrial plan 1957-1960, and projects inaugurated in the first year of the plan 1960-61. The incremental capital income ratio is a weighted average

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(1) All the ratios presented and used here are gross ratios.

(2) The projected investment under the plan is L.E. 439. M., while the increase in income expected is equal to L.E. 255 M., (1959/60 prices). Moreover employment to be generated in industry excluding electricity is 213 (000) workers. See Plan Frame op. cit. p. 33; 53, 141 and 194.

(3) Table 3

(4) Part of the increase in employment after 1961 was also due to the employment drive urged by the government after realizing the modest employment target of the plan in relation to the increase in the labour force. This probably resulted in unnecessary employment in in industry which led to the decline in the above ratio.

of the ratios of different industries, the weight being the percentage of investment in every industry. The value of the ratio is found to be 2.3.(1) The capital invested per person is a weighted average of the ratios of different industries, the weights being the percentage of the labour force in each industry. The capital invested per person was found to be L.E. 2812.(2)

There seems to be little difference between the realized capital income ratio under the plan and the estimate by the Ministry of Industry. The capital invested per person seems also to be the same in the Ministry of Industry estimate and the one achieved in the first year of the plan.

Three estimates of investment required and employment to be generated up to 1980 were made by applying the above three estimates of the ratios to every series of industrial income projected (Table 2). The results of the industrial employment expected in each case were then contrasted with the expected increase in the labour force (males only) between 1960 and 1980 (Table 4). All estimates of investment required and of employment to be generated were based on the assumption that both capital-output and capital-labour ratios will remain constant. All evidence points to the possibility that both rates would tend to increase. This conclusion

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(1) The information concerning the ICOR was obtained by personal contact with the Ministry of Industry. The ratios are: spinning and weaving 1.3, engineering industries 2.1, food industries 2.4, and chemical industries 2.6. The weights given in calculating the average are, 15, 17, 9, 59, respectively. However, it should be noted that according to the Ministry the above ratios were calculated on the basis of full capacity output and not actual output.

(2) The capital invested per person was as follows: spinning and weaving L.E. 1189, food industries L.E. 2309, engineering industries L.E. 1885, and chemical industries L.E. 6520. The weights applied in calculating the average are, 36, 12, 26, and 26.