CAPITAL FORMATION, WAGE RATES AND ECONOMIC DEVELOPMENT IN UNDERDEVELOPED COUNTRIES

Prof. Dr. Kenan BULUTOĞLU
Istanbul University, Faculty of Economics

I. Characteristics of a Labor-Surplus Underdeveloped Economy

The analysis of the level and changes over time of wages in underdeveloped countries should refer to a precisely defined economic structure that characterizes the stage of underdevelopment. Unless we have a clear definition of underdevelopment, it is impossible to inquire into the level and behavior over time of the remuneration of dependent labor i.e., wages, in these economies.

In terms of definition, the concept of underdevelopment is by no means "underdeveloped". To begin with the layman's understanding, the underdeveloped are the poor countries. For anyone who is interested in the degree of poverty of these countries, the statistical answer is the low level of their *per capita* income. If the question is raised, e.g., "what makes them so poor?" the answer is no longer so concise. A more or less general answer is that these countries are poor because of insufficient natural resources, low capital endowment and formation, lack of skilled manpower, and entrepreneurship, bad health conditions, poor government, etc.; all these poor indexes, except natural resources, being, in their turn, due to the low level of *per capita* income. Thus the vicious circle is closed : poverty generates poverty.

This rather descriptive concept of underdevelopment is not adequate for a thorough analysis of the level of wages in the stage of underdevelopment, and its evolution during the process of development. As the most important characteristic of underdevelopment I shall take up the low productivity of total manpower. The low productivity of labor is due to the low level of accumulated capital in the industrial sector, and to the low capital and natural resource endowment in the agricultural sector. In nearly all of the underdeveloped countries, the low level of capital and natural resource endowment does not permit the whole man-

power to engage productively in the production process. A fraction of total manpower remains in a situation of disguised or open unemployment, that is, it makes no addition to total production. The presence of a large surplus manpower diminishes the average productivity of *total* manpower below the already low productivity of productively employed manpower.

In the underdeveloped countries, disguised unemployment, or labor surplus, is mostly accumulated in the agricultural sector. An important amount of manpower can be transferred from agriculture to other sectors without any decrease (technology and capital endowment being constant) in total agricultural production.

However, the presence or absence of such a labor surplus in the agricultural sector of the underdeveloped countries is somewhat a controversial subject. The majority of theoretical growth models proposed for these countries in the early fifties were based on the existence of such a surplus labor[1]. As a matter of fact, some empirical research conducted before these growth models, confirmed the exisence of an important labor surplus in the agriculture of the less developed countries. But some other empirical studies conducted later, raised a serious doubt about the existence of such a labor surplus, or greatly minimized its importance[2].

A great deal of the conflicting views are due to the lack of agreement in the definition of the concept of "disguised unemployment". If

1) The leading article in this approach is the following: A. Lewis, Development with Unlimited Supplies of Labour. **The Manchester School,** May, 1954. See also: R. Nurkse, **Problems of Capital Formation in Underdeveloped Areas,** New York: Oxford University Press, 1953; Rosenstein-Rodan, Problems of Industrialization of Eastern and South-Eastern Europe, **Economic Journal,** June - September, 1943. A very recent and stimulating study based on the same approach: John C. H. Fei and Gustav Ranis, **Development of the Labor-Surplus Economy,** Homewood, Illinois: R. C. Irwin, 1964.

2) For a survey of this controversy see: Charles H. C. Kao, Kurt R. Anschel and Carl K. Eicher, Disguised Unemployment in Agriculture: A Survey in **Agriculture in Economic Development,** Carl Eicher and Lawrence Witt (eds.), New York: McGraw-Hill, 1964, pp. 129-44. See also these articles: Morton Paglin, Surplus Agricultural Labor and Development: Facts and Theories, **American Economic Review,** vol. 55, no. 4, pp. 815-33; Dale W. Jorgenson, Underemployment and Development in Dual Economies: Testing Alternative Theories, in **Economic Development in Subsistance and Peasant Agriculture,** Clifton Wharton (ed.), 1966. We quote the last article from **Development Digest,** (AID, Washington), vol. 4, no. 2, pp. 83-91.

only the labor force with a zero marginal product is identified as "disguised unemployment", there is no doubt that only a small portion of agricultural manpower can be considered as surplus. In most of the agricultural countries, only a small portion of total manpower can be considered as redundant in the peakload seasons. But the portion of manpower with a yearly wage exceeding its year round contribution to production (manpower with submarginal productivity) is likely to be very high.

In the First Development Plan of Turkey, the proportion of total unemployment was estimated to be 7,85% for 1962. The same document estimates the rural unemployment to be around 8,2% of total agricultural manpower in the peak-load season, and 85% in the lowest activity season. In the second plan, the total unemployment is estimated to be 9,2% of total manpower, and agricultural unemployment for the peak-load to be 9,9%[3]. If these estimates are correct we can say that in Turkey total unemployment (surplus manpower with zero marginal productivity) attains a large fraction of total manpower, and what is more serious, it exhibits an increasing trend. Therefore, we think that the Turkish economy fits perfectly into the model of a labor-surplus economy.

However, redundant manpower in agriculture is not proportionally distributed among farmers. It can change according to regions, and more important, according to the size of agricultural farm units. A recent research based on the agricultural census of 1963 gives the following results as regards to the productivity of manpower according to the size of farms.

Table 1 shows clearly that manpower by hectare of land decreases as the size of farm increases. At the same time, the crop per hectare increases as the size of farm decreases. Thus, the smaller the size of farm the more intensive the labor applied per hectare, but the less the average productivity of manpower. Consequently, we can assert that the low productivity, even zero productivity of manpower is not enough a powerful force to chase entirely the submarginal manpower from the land. This is due to the very low, even zero, opportunity cost of redundant (or submarginal) manpower in small farms. Accordingly, we conclude

3) State Planning Organization, **First Five Year Development Plan**, p. 400; **Kalkınma Plânı, İkinci Beş Yıl.** Devlet Plânlama Teşkilâtı, Bölüm VI, 3, Tables 64, 66.

that the redundant (and submarginal) manpower is rather concentrated
in small farms[4]

TABLE 1

Size of farms (decare) (1)	Income per hectare (index) (2)	Productivity of land (index) (3)	Labor per hectare (index) (4)	Product per unit of labor (soil and animal) (index) (5)
Landless	—	—	—	0,58
1— 15	4,49	2,05	6,08	0,46
6— 10	2,07	1,48	3,57	0,51
11— 20	1,49	1,41	2,37	0,64
21— 30	1,38	1,28	1,28	1,02
31— 40	1,20	1,14	1,14	1,03
41— 50	1,07	1,13	0,93	1,17
51— 100	0,87	0,96	0,86	1,11
101— 200	0,68	0,75	0,56	1,33
201— 500	0,57	0,69	0,44	1,43
501— 999	0,61	0,84	0,51	1,43
1000—2500	0,52	0,73	0,44	1,43
2501—4999	1,08	1,78	0,89	1,43
5000 and +	0,75	1,06	0,55	1,42
State farms	2,84	3,13	1,56	1,43
Average for Turkey	1,00.			

Source : Y. Ö. Hamurdan, **Türkiye'de Tarım Sektöründe İşletme Büyük-
leri ile Verimlilik Arasındaki Bağıntı,** State Planning Organization, January,
1966, p. 11.

The same conclusion is confirmed by the results of a completely dif-
ferent investigation. In Turkey a poll tax (yol vergisi) had been in force
during the first three decades of the Republic. This tax could be acquit-
ted either in kind, i.e., by working on road projects, or in cash, by paying
the equivalent of six days work in minimum wages. The proportion of
the taxpayers who preferred to work on road construction rather than
to pay cash can be a good indication of submarginal (below minimum

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4)   M. Parglin attaches the existence of manpower with submarginal
productivity in the Indian agriculture to the same reason. According to this
economist the marginal productivity of manpower is virtually never zero.
This is also due to the fact that abundant manpower in small farms is a
capital in kind itself and thus creates additional capital endowment for
additional use of labor.

wages) productivity of manpower, at least during a six-day period in the construction season.

Table 2 shows the ratios of those who preferred to work to those who preferred to pay in cash in two groups of provinces. The first group conatins the provinces with the highest concentration of large farms per unit of rural population, and the second with lowest concentration of large farms. In the first group, the ratio of those who preferred to work to those who preferred to pay is much lower. This indicates that manpower with productivity below minimum wages i smore concentrated in the small farm provinces[5].

TABLE 2

LARGE FARM PROVINCES				SMALL FARM PROVINCES			
	(1)	(2)	(3)		(1)	(2)	(3)
1. Urfa	(444)	15	0.12	1. Tunceli	(5)	0.42	1.59
2. Diyarbakır	(387)	13	0.24	2. Erzincan	(7)	0.37	1.13
3. Adana	(438)	10	0.30	3. Kırşehir	(4)	0.28	0.90
4. Eskişehir	(163)	8	0.35	4. Gümüşhane	(6)	0.27	0.33
5. Tekirdağ	(133)	7	0.20	5. Niğde	(7)	0.27	1.11
6. Gaziantep	(117)	4	0.07	6. Afyon	(7)	0.20	0.30
7. İçel	(97)	3	0.80	7. Çorum	(7)	0.19	1.88
8. Konya	(180)	2	0.59	8. Bingöl	(1)	0.08	1.17
9. Antalya	(72)	2	0.36	9. Tokat	(2)	0.06	0.41
10. Aydın	(71)	2	0.16	10. Yozgat	(2)	0.06	2.69
				Average for Turkey			0.42

Title of the columns :

(1) Number of farms exceeding 1,000 dönüm.
(2) Number of large farms per 10,000 of rural population in 1960.
(3) The ratio of taxpayers who worked to those who paid (in 1935)
Sources : İstatistik Genel Müdürlüğü : İl Özel İdareleri İstatistikleri;
Devlet İstatistik Bülteni, 1961, no. 91, s. 139.
Rural population; from the 1960 census.

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5) There are also two other important factors that affect the ratio of those preferring to pay in cash: 1. The proportion, in a given province, of the urban population; 2. The relative fertiliy of the land in each province. Since we picked up a large number of cities with more or less the same degrees of urbanization, the first point would not affect the result. The same argument, though to a lesser degree, is valid also for the second factor.
We also assumed that the relative importance of large and small farms did not much change from 1935 to 1960.

It is an important but much neglected fact that the surplus man-
power is not accumulated only in the agricultural sector in the deve-
loping countries. An important part of the manpower in services (espe-
cially in small trade and government offices) has zero marginal produc-
tivity, i.e., the services can be performed qualitatively and quantitati-
vely at the same level without the redundant part of manpower in ser-
vices. Under the political pressures, the government often tends to ex-
pand the organization, increase the number of employees without any
corresponding increase in the quality and quantity of services. For that
part of manpower the salaries paid are sheer income transfer.

In the retail trade also, disguised unemployment attains important
proportions. The pressure of population explosion in rural areas gives
way to an important stream of manpower out of agriculture without a
corresponding increase in the job opportunities in the urban areas.
Therefore, many of the migrating villagers will go to seasonal jobs, and
some of them will come to accumulate in the overloaded small trade.
It is not exaggerated to advance that an important part of manpower
can be siphoned out of the trade sector without any decrease in the
quality and quantity of services[6].

Sequentially ,in underdeveloped economies the labor surplus pool
makes its appearance first in the agricultural sector. Population growth
causes an increase in the manpower / natural resources ratio. Then a frac-
tion of the rural population is "pushed" out of agriculture into urban
areas. If there is no adequate development in the industrial secondary
sector, this migration comes to accumulate in the tertiary sector; namely,
in the government sector, if there is a parallel political pressure on the
government for job opportunities, and in the trade sector, in which the
same total sales are thus shared by smaller and smaller retail traders. It is
not uncommon, however, to see additional manpower to be squeezed out
of rural areas and get employed in the industrial sector even though its
marginal productivity is below the wage level or zero. This outcome
is very likely when the government-owned enterprises constitute a large
part of the industrial sector and political pressure and motivation is
high for the creation of new job opportunities. As a by - product of the
accumulation of surplus manpower, in government services, there is gene-

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6) The figures given above on the relative importance of disguised
and open unemployment do not include the "disguised unemployment" in
the tertiary sector.

rally a tendency among low-paid employees to resort to bribary, first because of their below minimum salaries, then because of lack of sunctions.

In the light of the preceding analyses, we shall assume the existence of the following basic characteristics in the underdeveloped countries :

1. A large portion of manpower is actively engaged in agriculture, usually this proportion ranges from 60 to 90%.

2. Agriculture is dominated by the subsistance production : the share of marketed product (cash crop) is low in total production.

3. Population pressure on natural resources is very high; consequently, an important part of manpower actively or idly engaged in agriculture has a submarginal or zero productivity.

4. The redundant manpower in agriculture is more heavily concentrated in the small land holding families and in share-cropping. landless families.

5. In the tertiary sector, namely in the government and small trade, there is also substantial and often increasing "disguised unemployment".

In the following analyses, I shall first attempt to investigate the factors that determine the wage level in various sectors of the economy in a stationary setting, that is. in a situation where each sector of the economy grows at the same rate as the population, without any change in relative factor endowment in each sector. Then I shall investigate the starting and sustaining of economic growth, that is, the development of the industrial sector faster than the rest of the economy, thus increasing continuously the share of manufacturing in total manpower. In this context, I shall analyze the determination of wage level and its impact on the process of industrialization.

II. Wages and Capital Formation In a Stationary Underdeveloped Economy

We shall first investigate the wage level and capital formation in a stationary underdeveloped country. The adjective stationary here means that the growth of manpower in each of the three sectors of the economy

remains equal to the rate of population growth. Therefore, the respective percentages of manpower in each of the three sectors (agriculture, manufacturing, services) do not change through time. Furthermore, the capital manpower ratios do not change in these sectors, i.e., the capital stock in each sector increases at the same rate as the total population. Consequently, the only factor that can lead to an increase in *per capita* income in any one sector is a technological progress that can bring about an increase in the (marginal) productivity of labor.

A stationary change (or an equiproportional change) in the economy is not very likely to perpetuate itself for a long period. In general in growth models, non-proportional change is the rule. We point out this rather exceptional case, but for our conclusion concerning the formation of factor prices, e.g., wages in agriculture and other sectors in a static setting, will also be valid in a stationary change, unless the rate of technological progress varies from sector to sector.

In a labor surplus economy, although a large fraction of total manpower in agriculture does not make any addition to total production, all of the workers get a more or less *institutionally determined minimum wage* for their labor. Since there is a large redundant labor in agriculture, the prevailing wage rate will be pushed down toward a minimum. The wage level will not be equal to the marginal productivity of labor in agriculture, for this productivity is near or sometimes equal to zero. But under the pressure of redundant labor, wages in agriculture will be very close to a physiological minimum.

It is necessary to note here another important feature of the supply of labor in underdeveloped countries. In peasant families, especially in small land holding families, additional manpower is engaged in productive work although its marginal productivity is below the wage level. This is due to the fact that in underdeveloped countries, the alternative cost of the additional labor is either zero or much below what it can produce on land. And also since the members of a peasant family try to maximize their *total* income, not their individual income, it is possible to see submarginal labor to be engaged in production.

Generally, it is not wrong to say that average wage level in agriculture is very close to the average productivity of total manpower engaged (productively or unproductively) in agriculture. Therefore, any reduction in redundant manpower will increase the total surplus appropriated by the landowners, leaving unchanged the wage level.

In this context, it is necessary to clarify an important point. The redundant labor, of which the marginal productivity is below the institutional minimum wage, is not likely to be hired by the large farms. A farmer will not pay any worker who does not produce as much as at least his wage. But those peasant families who work ' on their own small patches of land do not have enough land tend to engage productively all the manpower available in their family units. A fraction of total manpower in these small land-owning families remains redundant. We already concluded, with statistical evidence in support, that redundant labor in Turkey concentrates more heavily in small land holdings.

However, some large land owners rent a part of their land on a crop-sharing basis. In these exploitations, it is possible that the families who rent the land have an excess manpower either from the beginning of the contract, or, more probably, after some time, when the adult members of the family augment while the land remains constant.

As a result, the existence of a partly employed manpower in the small land holding families and in the crop-sharing families even in the peak-load period means that a fraction of total manpower engaged in agriculture is redundand the year round. This redundant manpower gets the same average wage as productive manpower, that is, institutionally determined minimum wage. If this surplus manpower is taken out of the agriculture, the total agricultural production will not decrease by *definition* and the resulting increase in surplus product will be shared among land owners who no longer pay for this unproductive manpower, and the crop-sharing families who get rid of their surplus manpower.

The process of squeezing the redundant labor, or a part of it, out of agriculture will increase the total surplus in this sector. Let us precise that the agricultural surplus can be measured by subtracting the total wages fund (minimum wages multiplied by the number of manpower in agriculture) from the total agricultural production.

The wage level for unskilled manpower in industry is equal or slightly higher than the institutional minimum wage prevailing in agriculture. Since, on the supply side, there is redundant labor in agriculture, it will exert a downward pressure on industrial wages. However, it is possible that the urban wages be slightly higher than agricultural wages; a difference that would include the costs of transfer in the industrial sector and to induce peasants to change their traditional environment. Under

conditions of free entry into the industrial sector for peasant workers, this difference is not likely to be high.

We affirmed that, in the industrial sector, when the market forces operate freely, the wages in the long run will be equal, or close to the institutional minimum wages in agriculture. Given this level of wages, the firms in the industrial sector will hire workers up to the point where the marginal productivity of labor equals the minimum wage level prevailing in agriculture. Consequently, there is redundant or submarginal manpower in agriculture.

The wages of the skilled manpower are of course higher, but the difference between the skilled and unskilled workers' wages will by no means exceed the cost of the formation of skilled manpower. In other words, the cost of transformation of unskilled manpower into skilled manpower is the only factor that explains the wage differentials in various sectors for various jobs — provided that there is free entry for training in skills.

Entrepreneurs in the industrial sector pay just the intersectoral minimum wage, no matter how productive the inputs of labor are before the marginal output equals the intersectoral wages. If the initial units of labor are highly productive, and after a certain quantity, the marginal productivity of this input falls steeply, then the surplus appropriated by the entrepreneur will be very high. In such a situation, a given decrease in the wage level is not likely to increase considerably the number of workers engaged in industry, that is, the *employment effect* of wage reduction will be weak. On the other hand, a given devrease in the wage level will essentially increase the surplus of the capitalist — a strong surplus effect. Generally, if the marginal productivity of additional workers falls sharply to zero after a certain employment level where the marginal productivity of the level is equal to prevailing wages, it is not possible to increase employment through a reduction in wages. In other words, if the marginal productivity of labor decreases first very slowly, then a(ter reaching the capacity point) very steeply (which is very likely in modern-technology industries), the elasticity of manpower with respect to change in wages is very low. This characteristic is very important; because in an industry characterized with low elasticity of manpower the changes in wages do not much affect the employment level, but essentially the relative shares of capitalists and workers in total product.

III. Appropriation of Total Surplus In a Labor-Surplus Economy

In our presentation above, we mentioned two sorts of surpluses; agricultural surplus, and industrial surplus. Agricultural surplus is the difference between total agricultural product and total institutional minimum wages appropriated by the manpower engaged (disguisedly unemployed or not) in agriculture. This concept of surplus can be assimilated into the concept of rent plus the remuneration of capital engaged in agriculture. Surplus in industry is the difference between total production and the share of labor, which is equal to minimum wages multiplied by the number of workers in industry[7]. This concopt can be assimilated into the profits and interest income of the owners (see also the appended charts).

If we make the convenient assumption that the savings is made only out of the profits of capitalists and of the surplus appropriated by the landlord, it becomes obvious that the rate of capital formation will depend solely on the total amount of surplus for public expenditures by way of taxation, but the remaining funds will be at the disposal of capitalist and landowners either for consumption or investment.

The consumption patterns of capitalists and landowners are by no means like that of the wage owners. A part of the agricultural and industrial surplus will be spent for consumption purposes according to these consumption patterns. The amount of surplus that will be spent that way depends on the consumption habits, thrift of the surplus owners and on the rapidity with which new consumer goods and habits spread over the country among the wealthy class. Conspicuous consumption, competition for disclosure of wealth, propensity for luxury consumer durables (villas, cars, boats, jewelry, etc.) will contribute to the dissipation of a part of the total surplus. In contrast thrift, desire for power and prestige through accumulation of wealth, passion for building up big business are forces that contribute to channellizing the surplus into productive investment.

It is intuitively clear that the profits of capitalists can be invested in productive projects more easily than the surplus appropriated by the land owners. For capitalists are already in the process of industrial pro-

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7) Of course, all workers do not get the same wages! the skilled manpower's retribution is higher. But the skilled manpower can be readily converted into unskilled through some indexes which reflect their wage differentials.

duction, industrial investment means for them an expansion of the same
kind of activities. In contrast, the landowners, in order to invest their in-
creased surplus in industry, need financial channels and/or a good
knowledge of investment opportunities in the industrial sector. In the
underdeveloped countries, these channels are mostly missing and the
knowledge of landlord often does not extend the production possibilities
beyond agriculture. Moreover, an important part of the surplus realized,
thanks to the migration of a part of redundant labor in agriculture, is
likely to be appropriated by small-land holding families in which, we
maintained, surplus manpower is more concentrated. But these small
owners can not direct their increased small surplus into industry; an im-
portant part of this increase in their incomes will be devoted to the
improvement of their condition and the remaining is likely to be in-
vested again in agriculture. The same thing holds *a fortiori* for crop-
haring families. It is also possible that this increased surplus of small
farmers be wholly consumed by the acceleration of population increase
via reduction of death rates - a typical Malthusian trap.

    In fact, landlords and small owners naturally tend to invest the saved
part of their surplus in agriculture. But investments of large landowners
in agriculture are likely to substitute for labor rather than create addi-
tional employment opportunities. If the labor substitution effect domi-
nates the employment effect, the proportion of redundant labor in agri-
culture will increase. When the landlord invests in agriculture and thus
reduces the number of peasants working on his land, this will of course
increase his share of the surplus. But the released manpower will in-
crease the proportion of redundant labor, thus it will exert another down-
ward pressure on the minimum institutional wages. If this pressure furt-
her decreases the minimum wages, the surplus of landowners can in-
crease the industrial sector, if the industrial minimum wage in turn is
adjusted to this new level, the industrial surplus can also increase. Thus
the share of the total wages in national income will diminish.

    If the agricultural surplus is channelized into the new investment
projects in industrial sector, employment opportunities will increase in
this sector. The new jobs thus created will be filled by the redundant
labor in agriculture. The decrease in disguised unemployment will again
increase the agricultural surplus, which is directed to industrial in-
vestment, will cause another drainage of redundant manpower leaving
increased surplus in agriculture. Thus the transfer of manpower from
agriculture into industry will continuously release the necessary resources
(i.e., manpower and increased agricultural surplus) to instigate the

creation of job opportunities. If we think of this process as unfolding simultaneously, labor surplus leaving agriculture will engage in industry to produce capital goods and will get its remuneration from the land-owners' increased income due to their emigration. The important result of this process is that the landowners will have an ever increasing claim on capital goods created by the work of surplus manpower transferred into the industrial sector. If this process works smoothly, the problem of industrialization could be realized almost without any sacrifice; unfortunately, many hardships and hindrances make the automatic operation of this process very exceptional, if not impossible .

IV. Condition Sine Qua Non of Industrialization

In a given underdeveloped country characterized by labor surplus, if the creation of job opportnities in the industrial sector exceeds that of population growth, the process of industrialization will start. And provided that this discrepancy between growth rates on behalf of industry is perpetuated some decades, the country can change its under-developed structure into developed. But if the rate of increase of job opportunities in industry, especially in manufacturing, does not exceed that of the total manpower growth, no development and no industrialization is likely to take place[8].

In order for industry to develop that fast, it is necessary that the fraction of the surplus created in agriculture and in industry be channellized in such a way and to such an extent that the growth rate of capital stock in the industrial sector exceeds the rate of population growth, more precisely total manpower growth. When technology remains constant, and there is no decreasing (or increasing) returns at the amount of capital invested in industry, new investments will create new job opportunities exactly to the same extent as the already existing capital stock. In other words, marginal capital labor ratio will be equal to the average. Consequently, the rate of increase in job opportunities will be equal to the rate of growth in the industrial sector. If the fraction of surplus in industry and in agriculture is turned into material investment to the extent that it makes the rate of increase in capital stock exceed the rate of population growth, i.e., manpower, the share of manpower in industry will start to increase and the necessary condition of economic development will be met[9].

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8) See John C. H. Fei and Gustav Ranis, op. cit. pp. 225-42.

9) If non-proportional returns to scale prevails for capital, two out-comes are possible. If decreasing return to scale prevails, the marginal ca-

However, technologic progress can diminish the amount of minimum investment required for the success of industrialization. As a matter of fact, discovery and dissemination of new technologies increasing the marginal productivity of labor or giving way to labor use, can reduce this minimum. A technological progress, even when it is factor neutral (that is, not biased toward capital or labor use), increases the productivity of labor. If it increases the productivity of labor at the prevailing wage level, more labor will be hired in industry. Furthermore, if the new technology is biased toward the use of labor, the increase of job opportunities will be enhanced, and the critical investment requirement will be reduced.

V. Directing Surplus Funds Into Investment Projects

In the preceding analyses, we pointed out that the labor surplus in agriculture is *per se* a potential saving that can be channeled into the sector producing capital for industry. The problem is to transfer the surplus manpower in agriculture into investment activities in industry, and to finance these activities with the increased surplus thus appropriated by the landowners. Therefore, the funds which were formerly used for feeding the surplus labor will still be used for the same purpose; on the one hand surplus labor will be active in production of capital goods for industry and on the other hand, these investment activities will be financed by the owners of the released surplus, i.e., the landowners will have a claim on the assets of the industrial sector.

The smooth and simultaneous transfer of savings in kind in agriculture, i.e., redundant manpower in agriculture, into the sector of industrial capital goods is very difficult to occur under the stimulus of market forces only. For one thing, without any change in the market demand for industrial goods, the investment will not be undertaken in the industrial sector. Secondly, even if these investments are decided upon, it is very difficult to make the potential owners of savings (land owners, share-cropping families) interested in these investments. Third-

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pital/labor ratios should be greater than the average. New investment will have capital deepening characteristics. If increasing returns to scale prevails, smaller investment effort will create the required increase in job opportunities (marginal capital/labor ratio will be smaller than the average). This outcome is more likely after a certain point of capital accumulation thanks to the external economies. In this less cumbersome outcome, new investments will have capital shallowing characteristics.

ly, provided that they are interested in new investment in industry, it is necessary to open up new financial channels as intermediaries and create additional incentives to make the savings in kind (labor surplus) to go into industry, first, in the form of manpower, and second, in the form of financial funds. Fourthly, and the more important, as long as the surplus manpower is not the result of labor-saving investment in agriculture, it is very likely that its emigration will benefit the small landowners and the small share cropping families. These surplus owners are much in need of additional income, and they will tend to consume and increase their welfare with the surplus they thus appropriate. Moreover, even when the surplus is appropriated by large landowners, it is not warranted that it will be available for investment in industry. Landowners are inclined to dissipate this surplus in conspicuous consumption or invest it into traditional assets, i.e. ,houses, consumer durables, etc. Therefore, there are solid reasons for believing that market forces alone are not sufficient to transform the potential savings of agriculture into, on one hand, manpower in industry, and on the other hand, into savings financing their activity.

Let us suppose now that a given increase in agricultural production is realized thanks to improved technology or increased investments in agriculture. The total agricultural product will thus increase, which will lead, in a closed economy, to a deterioration of terms of trade of agriculture with industry. In this case, the wage rate in industrial sector will diminish in terms of industrial goods. This, in its turn, will increase the surplus of industry making it possible to realize more investment. It is obvious that a part of the surplus realized in agriculture is thus transferred into industry *via* the deteriorated terms of trade. In such a situation, the success of industrialization is more likely to be secured by the free action of the market forces. But the weak link in this process is the assumption that a prior substantial increase in agricultural production had been realized. It is necessary, for development to go on, that the increase in agricultural productivity be permanent. In the process above, there is no such a factor contributing to the permanent rise of agricultural productivity. Furthermore, it is not likely that the farmers continue their drive to increase their productivity, if the increased production is passed on to the industrial sector (augmenting the surplus of industry) through deteriorated terms of trade. At least a part of the increased income should be benefit to the agricultural factor owners (namely, landowners) in order to give them incentives for higher production.

In order to transform the agricultural labor surplus into effective savings the government's action may prove verp helpful. As a matter of fact, the government can put into effect infrastructural investments to help the directly productive firms in industry (and possibly in agriculture), and can mobilize the surplus labor in agriculture to materialize these investments. At the same time, the government should impose an increased tax on farmers in order to squeeze out their increaed surplus (increased, thanks to the departure of surplus manpower) or at least a part of it and finance with this revenue its investment activities. The indirectly productive investments of the government will thus provide the entrepreneurs with both incentive and resource for their new investment projects. If the incentives supplied through infrastructural investments turn out to be weak for the enterprises to attain he critical investment effort for industrialization, the government can invest directly in the production of industrial goods. If these investments are important enough to create job opportunities in industry at a rate greater than total population increase, the critical minimum investment effort will be met and industrialization will start. This device was successfully implemented in Japan in the second half of 19th century. The government in this country put into effect a number of directly and indirectly productive investments tapping the surplus manpower in agriculture and, at the same time, siphoning the increase in the actual crop level. A tax of the same, kind was proposed by Professor N. Kaldor for Turkey, but his advice went unheeded.

As we pointed out in our earlier analyses, the wage level is affected by the existence of redundant labor in agriculture. The agricultural wages are pressed downward to an institutional minimum. This minimum can be somewhat above the physiological minimum, but the difference from such a minimum depends on the importance of the redundant fraction of manpower in agriculture.

The standard wage level for the unskilled labor in industry and service sector is likely to be very close to that of minimum institutional wage prevailing in agriculture. The wage rate prevailing in urban areas should be, as pointed out earlier, somewhat higher than the average wage in agriculture in order to include the costs of transfer of surplus manpower from its traditional milieu.

The unleashed market forces would bring about an institutional minimum wage in agriculture, and a wage level very close to this in industry. But what would be the outcome if the unions or the government

tries to raise the wage level, and what would be the effects of such a policy if it attains its goal.

To begin with agriculture, it is not likely for the agricultural workers to get solidly organized in order to fight for higher wages. As a matter of fact, the agricultural sector is very large, the fields of work much dispersed, communication among workers very poor or inexistent. Moreover, the existence of surplus labor makes it very difficult to control the down ward pressures upon the minimum wage level which the unions decide to defend. For the small farmers who do not hire manpower outside of their family members, the remuneration of manpower and that of the land capital goes to the same family unit, and therefore, there is no room for struggle to increase the share of labor in total output. Small farmers try to maximize the total income of the family, not the incomes of the family members.

The government can attempt to increase the wages in agriculture. Again, a legal minimum wage for agricultural workers is not likely to be enforced successfully. Here again, like in the case of unions, the existence of redundant manpower in agriculture, and remoteness and dispersion of fields of work will prevent any successful enforcement of a legal minimum wage.

In contrast to he impossibiliy of raising the wage level, the government can and often does successfully increase the total income of agriculture through price support. In that case, the revenue increase passed on to the agricultural sector by price support will mostly benefit the land owners, and increase their total surplus. Since the wages in agriculture is not, by definition, affected by the total amount of production and/ or by the prices obtained by the farmers, the price support will not increase the minimum institutional wages. The only exception is the workers remunerated on a crop-sharing basis. As a matter of fact. share croppers will benefit from an increase in relative prices on behalf of their produce. But this result is valid only in the short run; for in the long run, the contracts of share - cropping will be affected by the new value of the product, and shares of workers will diminish to reflect again the institutionally determined minimum wages. The reserve army of redundant workers in agriculture will exert a downward pressure on the share - cropping contracts.

The attempt of unions to raise wages in the branches of industry where they are solidly organized can be successful. This is not to say

that, industrial wages can be raised as a whole above the level they would attain in free contract conditions, i.e., when the workers are not organized. But in some sectors, the unios can control the entrance of non-unionized workers in the branch of activity, thus they can obtain and perpetuate a wage level higher than the one prevailing generally in industry.

What would be the effects of a wage level higher than the one that would prevail if the market would be free, i.e., if the reserve army of surplus labor would exert a downward pressure on wages till the wage level of the agricultural sector is attained?

An increase in wages realized by union force or by government action can bring about two kinds of effects. First the increase in wages will reduce the share of capitalists in total production. Thus the diminished profits mean a diminution of available funds for investment, which will diminish the growth of the capacity in the long run. We shall call this effect the *surplus effect*.

An incerase in wages will, on the other hand, diminish the number of workers that would otherwise be able to get a job in this branch of activity — with a given capacity. We shall call this second effect the *employment effect*.

The relative importance of these two effects for a given increase in the wages and with fixed capacity, depends on the marginal productivity of labor; the steeper the decreasing return to labor in the interval of wage increase, the weaker the employment effect. In that case, the wage increase will be supported mostly by the capitalists in the short run. But in the long run, they can equate their profit margin to the one prevailing in other sectors by way of decreasing the growth of the capacity in this activity.

If the marginal productivity of labor diminishes slowly in the interval of wage increase, the employment effect will be higher; the smoother the slope of diminishing returns to labor the higher the reduction in job opportunities.

The slope of diminution of the productivity of labor differs from industry to industry; and even within a given branch of industry, it differs from plant to plant. As a rough generalization, we can suggest that in highly automatized, large-scale industries with a high capital labor ratio, the marginal productivity of labor is likely to remain more or less

steady up to the capacity point, then diminish steeply to zero. In the small-scale industries in which the production process is rather regulated by men than by machines. the diminution of marginal productivity of labor can be much slower. Accordingly, in the highly automatized, technologically advanced industries, any given increase in the wages (imposed by the government or obtained through the action of unions) will not have a strong employment effect, but will reduce the capitalists' surplus. In contrast, in small-scale, man-regulated industries the employment effect will be much stronger.

It is more likely that unions are better organized in the high-technology, capital-intensive, large-scale inndustries. Consequently, the impact of collective bargaining that ends up with an increase in wages, is much more substantial on profits than on the level of employment. The employment effect would be much more pronounced in the small-scale labor-intensive industries if unions succeeded to increase the wage level. But the possibility of disciplined, efficacious union action is less likely when the firms in industry are of small size, and much dispersed throughout the country. Therefore, we can conclude that unions' action for higher wages is more likely to reduce more the capitalists' share in production than total available job opportunities in industry.

VI. Policy Measures For Accelerating Industrialization

Economic policy measures are taken in order to attain given economic goals. In our model of underdeveloped countries, development means a permanent rise in *per capita* income as a result of the transfer of the surplus manpower in agriculture (and services) into industry. Another goal, regarding the state of income distribution may be added to this gol, according to the political preferences of the government: The government may assign itself the goal of diminishing (or increasing) the inequality of incomes rapidly or slowly, sustaining the same degree of inequality in the foreseeable future.

In matters of development, the government's actions can be classified in terms of the following basic approaches: *resource planning*, and *incentive planning* . In resource planing the government tries to make ava-

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10)   The concepts of "planning for resources" and "planning for policy" proposed by A. D. Hirschman are close to our dichotomy, but they are much less precise in their analytical content. See: Fei and Ranis, op. cit. 148

ilable the required resources in terms of savings, manpower, foreign
currency. In incentive planning approach the government tries to induce
the decentralized decision making units to take the decisions which are
vital for the materialization of development. In the latter approach the
main means are the handling of relative prices, overhauling of institutions,
putting into effect legal incentives and hindrances, etc. These two appro-
aches are mutually dependent, that is, a measure put into effect in the
field of resource planning can affect the incentives, and, reciprocally, a
measure affecting the incentives of economic decision-making units can
exert an influence on the available resources. However, we shall use this
distinction, because it largely contributes to making easier our analyses.

In the context of our model of development, the resource approach
ends up with measures affecting the amount of available resources in the
various sectors of the economy. The main agregates in this respect are
the surplus in agriculture and in industry, and the manpower surplus in
agriculture and in the services.

Since the savings are directly linked to the size of surplus in agri-
culture and industry in a private enterprise economy, the government
should therefore take measures to increase this surplus in order to increase
the total savings. The measure that would increase the surplus in both
sectors is mainly the one that aims at keeping the wages at a minimum
level. But the surplus thus appropriated by the capitalists and landowners
may or may not turn into effective savings. In order to prevent the deci-
sion making units, especially the landowners, from consuming a large
part of their surplus, the government can take various measures. It can
appropriate a part of the surplus (a part only, for the appropriation of
total surplus can be drastically harmful on the incentives to produce).
An agricultural land tax is the most common way for the appropriation
of agricultural surplus, but the government can also impose on the far-
mers obligatory deliveries of a part of their crops, or buy them at low
pirces. These measures too can be, if not administered skillfully or with
adequate coercion, much harmful on the incentives of the farmers.

In order to transfer the surplus manpower in agriculture into in-
dustrial or infrastructural investment projects, the government can choose
among various measures implying different degrees of coercion. An outs-
tanding example of this is Turkey's *Road Tax* imposed upon the adult
male population. Since the tax could be acquitted with a week's labor

in local government's road projects, the aim of the tax was to secure the transfer of manpower into productive investments when its marginal product was zero, or below the cash counterpart of the tax — a choice being accorded to taxpayers regarding the time of work.

Another example of the transfer of surplus manpower into productive activities is the engagement of army forces into production process. Although very common in socialist countries, this practice is very rare and attains only a small fraction of army forces in Turkey. Furthermore, since not all of the soldiers are unproductive in their civil life, this practice can only diminish the burden on the economy of the draining by the army of a considerable portion of available manpower.

Let us now turn to the set of measures directed at *incentive planning*. In incentive planning, as contrasted with the resource planning, the availability of resources is *not sufficient* for the realization of development; it is also necessary to *induce* decentralized decision-making units to take the decisions conductive to development. For this purpose, the government can modify the *relative prices* to induce the economic agents to take the desired decisions. The government can affect the relative prices through tax policy (mostly through indirect taxes), through expenditure policy — increasing or decreasing the quality and quantity of government services and thus affecting production functions in various sectors), and through institutional and legal-devices. Although the incentive planning can also affect the total amount of available resources, it focuses mainly on decisions regulating the allocation of existing resources.

In our analyses, we pointed out two effects of the determination of wage level on the economy: surplus effect and employment effect. While the surplus effect enters the field of available resources, the employment effect is rather related to relative prices. Thus the government in order to make the enterprises hire more people, i.e., to increase the level of employment, should either increase the marginal productivity of labor or decrease the wages. If it imposes a minimum wage level higher than the intersectoral minimum for some sectors, it should take into consideration the employment shrinking effect of such an action — apart from the transfer of some surplus from capitalists to workers, i.e. income effect, or resource effect. If the marginal productivity of labor decreases slowly in the relevant range of wage level, the employment effect of such an increase in wages will be more important; the government should, therefore, decide whether the income distribution effect (desired) outweights the employment shrinking effect (not desired).

In order to increase the number of surplus workers that can be hired for productive jobs in industrry when the capacity is given, the government can try to increase the relative cost of capital equipment. It can increase the taxes on capital goods, especially those which provide job opportunities to a small amount of labor in the production process. In order that such a policy on relative prices be successful, i.e. such a policy substitute substantially labor for capital, it is necessary that the elasticity of substitution of labor for capital be high. This elasticity depends on the state of technology in a given time. Thus, to increase the elasticity of substitution, the government should finance the research projects for the discovery and extension of labor-biased technology in the big branches of industry. Whether or not such policy can bring about important changes in production process, i.e., production functions, depends largely on the branch of economic activity, on the availability of a wide set of old and new technologies with various degrees of labor use, etc.

When the capacity is given, i.e., in the short run, the government can icrease the number of workers in industry through action on the wage level. If the wages diminish (through the government's policy of low prices for agricultural products or by giving up the policy of high wages, etc.) in industry, the employment effect will depend on the slope of marginal productivity of labor in the relevant range of change in wages, the smoother the decrease of marginal productivity the larger the employment effect. In order to make the marginal productivity of labor diminish slowly, the government can support projects to find out techeniques that make it possible to use additional labor without much decrease in marginal product. Any method that makes this outcome possible is biased toward the use of labor in the relevant level of wages, if the marginal productivity of capital does not change or increases less than that of labor.

But new technology can often increase the marginal productivity of both capital and labor. If it increases the productivity of labor more than that of the capital in the relevant wage level, the new technology can be called labor biased; if it increases the productivity of both factors in equal proportion, the discovery will be called factor neutral. The government should support the research and extension activities to generate and spread labor-biased projects in order to accelerate the development of factor-surplus economy. But unfortunately, new technologies are discovered mostly in the industrial countries. These countries carry out research and put new technologies into effect according to their own factor propor-

tions. The older and more labor-using technologies are perhaps available in many sectors, but the machines and equipment working these technologies are no longer produced, and/or up dated in the industrialized countries. The entrepreneurs in the underdeveloped countries make their decision to order machinery and equipment only on grounds of their technical performance. Even when the wages are taken into consideration, the fact that their alternative cost is zero does not enter into the economic project evaluation of the market. Even if we suppose that an underdeveloped economy insists on making its orders in conformity with its factor proportions, it is not likely that this market can be big enough to generate research and production in capital-good industries of the developed countries. Consequently, though not much suitable to their factor proportions, the underdeveloped countries import brand new machinery and equipment that saves too much labor (which is redundant) and uses too much capital (which is scarce).

VII. Conflicting Goals and Compromise

We shall now turn to the conflict between the goals of industrialization and improvement of income distribution. We pointed out that in order to increase the amount of surplus in industry and in agriculture, the wage level should be kept down. But this will result in an increased wealth and income inequality in the country. Furthermore, the very fact that society is divided into a very large group of industrial and agricultural workers having an income barely sufficient for subsistence, and a very small group of landlords and capitalists appropriating the total surplus, will create a demand pattern hardly conducive to the production of mass consumption goods. The poor will devote a very large part of their income to food and other necessities, and the demand of the small group of rich will not be enough for mass production. The demand of the latter will nurture a very large group of workers producing services, luxury goods, etc., the production of which does not necessitate industrial plants. Furthermore, the channeling of the surplus funds appropriated by the capitalists and landlords into productive investments is by no means warranted. Besides the lack of demand, a large fraction of surplus owners e.g., landlords are not oriented substantially to industrial investments and the entrepreneurs in the industrial sector may devote a large part of their surplus to conspicuous consumption.

To solve this dilemma, a wide range of policy measures are available to the government. The government can choose one of them according to

the weight they attach to the equitable distribution of incomes, to the fast realization of industrialization and to the shares of public and private enterprises in the economy. The most extremist laissez-faire solution would favor to unleash the market forces and accept the development speed and income distribution feature it brings about. Moderate solutions can, in principle, accept the free action of market forces, but correct the income inequality that it generates with a suitable tax policy, and in doing so try to manage the private incentives. The solutions requiring more government interference will appropriate a part of the total surplus through taxation, and turn them into indirectly productive investments (infrastructure, education, health protection, etc.) involving both incentive creation and income distribution. More radical solutions will welcome the appropriation of a large part of total surplus through taxes and price policies, and launch government enterprises for the production of industrial goods. In the latter solution, the government is likely to choose first those investments for products of which the demand is not yet there, but in the long run it will be effective due to the very fact that the investments are made (the market will be enlarged due to this big block of investments). These investments will be mostly uncertainty-bearing, large-scale, long-run investments that exceeds the capacity of the private sector on grounds of investible funds and incentives. The *Etatism* in Turkey can be attributed to such an economic rationale. Even more radical and leftist policies can end up with complete (or nearly complete) collectivization of the means of production in industry and in agricultunre. In the latter approache, the realitive importance of tax policy in managing income distrbution and in directing incentives diminshes on behalf of wage policy in the government sector.