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INDUSTRIALIZATION AND UNEMPLOYMENT IN DEVELOPING NATIONS

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INDUSTRIALIZATION AND UNEMPLOYMENT IN DEVELOPING NATIONS

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In his much publicized speech, Robert McNamara, President of the World Bank, recently called attention to the alarming growth of urban unemployment in developing nations. He noted that "the cities are filling up and urban unemployment steadily grows" and that the magnitude of the problem is such that "the 'marginal' men, the wretched strugglers for survival on the fringes of farm and city, may already number more than half a billion." (McNamara, 1970) Until recently, however, economists and development planners have tended to regard unemployment in the poor countries merely as symptomatic of underdevelopment. Rising urban unemployment, even when it was alluded to, was dismissed as a transitory phenomenon, a natural intermediate stage in the process of transforming and modernizing a subsistence economy. An indication of this lack of attention to the unemployment problem can be gleaned from the fact that a widely used textbook appropriately titled Leading Issues in Development Economics hardly even touches upon the urban unemployment problem. (Meier, 1970) Moreover, when it has been discussed in the literature, unemployment has typically been associated with over-populated, labor-surplus nations, although as we shall see below, the problem is prevalent throughout almost all developing countries.

As we move into the 1970's, it is becoming increasingly apparent that many countries will experience rates of urban unemployment on a scale comparable to levels in the worst years of the great depression

in Western nations. But this is where the analogy ends, for, unlike the experience of the thirties, traditional economic indicators of development such as the level of national and per capita income will show steadily rising trends concomitant with increasing unemployment and a widening of the gap between the few rich and the very many poor. There are numerous institutional as well as economic factors contributing to this unexpected and somewhat paradoxical phenomenon of growing urban unemployment accompanying industrial urban growth. It is the intention of this paper to explore and analyze these factors and to suggest ways in which this undesirable relationship might be ameliorated.

The Unemployment Crisis

Before delving into the analytics of urban unemployment and underemployment, let us put the global unemployment problem in a proper perspective by briefly outlining its quantitative nature in contemporary third world nations. Although much has been written about the difficulties of defining and statistically estimating unemployment in economies where traditional definitions such as involuntary unemployment have limited applicability, several recent studies have revealed that, whatever the definition, urban unemployment and underemployment are chronic and growing problems in almost all less developed countries.

Table 1 shows that unemployment rates in African urban areas as revealed by both census and survey data consistently range between 15 and 30 percent of the urban labor force. In Central and South America the rates are somewhat lower but in many cases well over 10 percent. Moreover, as Thorbecke has pointed out in his study of

TABLE 1

Urban Unemployment Rates in Third World Nations

<u>Country (Urban Centers)</u>	<u>Unemployment Rates</u>	<u>Country (Urban Centers)</u>	<u>Unemployment Rates</u>
AFRICA			
Algeria (1966)	26.6	Nigeria (cont.)	
Cameroons (1966) ¹		Onitsha	26.3
Douala	13.0	Kaduna	30.8
Yaundi	17.0	Abeokuta	34.6
Ivory Coast (1963) ¹		Congo (1958) ³	
Abidjan	20.0	Leopoldville (Kinshasa)	15.0
Ghana (1960)		Tanzania (1965)	12.6
large towns	11.6	Kenya (1969) ⁴	
Morocco (1960)	20.5	Eight urban areas	17.4
Nigeria (1963) ²			
Lagos	15.5		
Ife	19.7		
CENTRAL AND SOUTH AMERICA			
Argentina (1968)		Guyana (1965)	
Greater Buenos Aires	5.4	Georgetown	20.5
Cordoba	7.4	Honduras (1961)	
Tucuman	11.0	Tegucigalpa	7.8
Bolivia (1966)		Jamaica (1960)	
La Paz	10.5	Kingston	19.0
Sucre	18.1	Mexico (1963)	
Cochabamba	17.8	Monterrey	7.9
Chile (1969)		Netherlands Antilles (1966)	
Greater Santiago	7.1	Curacao	19.1
Concepcion-Talcahuano	11.0	Aruba	16.5
Lota-Coronel	15.2	Bonaire	9.5
Colombia (1967)		Nicaragua (1963)	
Bogota	16.0	Managua	5.5
Barranquilla	18.4	Panama (1966)	
Cali	14.9	Panama City	8.4
Medellin	14.5	Peru (1967)	
Costa Rica (1966/67)		Lima-Callao	4.2
San Jose	5.6	Surinam (1964)	10.0
El Salvador (1961)		Trinidad and Tobago (1967)	
San Salvador	6.6	Port-of-Spain	18.0
Equador (1962)		Uruguay (1963)	
Quito	5.7	Montevideo	13.1
Guatemala (1964)		Venezuela (1969)	7.9
Guatemala City	5.4		
ASIA			
Ceylon (1968)	14.8	Malaysia (West) (1967)	11.6
Taiwan (1968)	3.5	Philippines (1967)	13.1
Hong Kong (1960)	4.1 ⁵	Singapore (1966)	9.1
India (1965)	6.0	South Korea (1966)	12.6
Indonesia (1961)	8.5	Thailand (1966)	2.8

TABLE 1 (Continued)

Urban Unemployment Rates in Third World Nations

Source (except where noted otherwise): D. Turnham, The Employment Problem in Less Developed Countries: A Review of Evidence, OECD Development Centre, June, 1970, pp. 193-195.

- (1) Remi Clignet, "Preliminary Notes of a Study of Unemployment in Modern African Urban Centers," Mannpower and Unemployment Research in Africa, Vol. 2, No. 1 (April 1969).
- (2) P. Gutkind, "The Energy of Despair: Social Organization of the Unemployed in Two African Cities: Lagos and Nairobi," Civilizations, Vol. 17, Nos. 3 and 4 (1967), pp. 186-211 (No. 3), pp. 380-402 (No. 4).
- (3) P. Raymachers, Etude par Sondage de la Main-d'oeuvre a Leopoldville, Ministère du Plan et de la Coopération Economique, République Democratique du Congo, 1958.
- (4) H. Rempel and M. P. Todaro, "Rural-Urban Labour Migration in Kenya: Some Preliminary Findings of a Large Scale Survey," Population Growth and Economic Development ed. S. Ominde (forthcoming).
- (5) Harry T. Oshima, Growth and Unemployment in Postwar Asia, Chapter 7, p. 222.

unemployment in Latin America, when the broader definition of an "unemployment equivalent" is utilized, i.e., the ratio of the number of available but unused labor hours to the total labor hours available to members of the economically active population, rates of 25 percent and above are not uncommon. (Thorbecke, 1969) Using a similar approach, Oshima finds unemployment equivalent rates in most Asian countries to be above 10 percent with a 20 percent rate in Pakistan in 1964. (Oshima, 1969) (See Table 2.) Since most of these surveys were conducted in the early 1960's there is every reason to believe that corresponding figures for 1970 would be considerably higher, both in absolute and relative terms.

Translating these figures into human terms - in Latin America in 1960, for example, the extent of labor underutilization was equivalent to some 17 to 18 million workers being completely unemployed with almost half of these concentrated in urban areas. While the figures for Asia and Africa are not as readily available, there can be little doubt that in absolute terms urban unemployment affects many tens of millions of people.

Industrial Growth and the Employment Lag

With the benefit of hindsight, we can now recognize quite clearly the extent to which the postwar approach to the economic development of poor nations was influenced by the remarkable successes of the Marshall Plan in Western Europe. The rapid economic recovery of Western Europe was facilitated by massive transfers of capital utilized to replace the plant, equipment, and inventories destroyed during the war. Consequently, during the 1950's and early 1960's it

TABLE 2

Full-Time Equivalent Unemployment as Percent
of Total Labor Force in Asia and Latin America

<u>Country (or Country Groups)</u>	<u>Full-Time Equivalent Unemployment</u>
LATIN AMERICA (1960)	
Argentina	
Brazil	22.0 %
Mexico	
Chile	
Colombia	
Peru	30.4 %
Uruguay	
Venezuela	
Bolivia	
Central America	
Dominican Republic	
Ecuador	42.4 %
Haiti	
Panama	
Paraguay	
ASIA	
India (1965)	9 %
Ceylon (1960)	16 %
Pakistan (1964/65)	20 %
Singapore (1966)	10 %
Malaya (1962)	9 %
Philippines (1957-65)	12 %
Thailand (1963)	8 %
South Korea (1967)	9 %
Taiwan (1963-66)	5 %

Sources: For Latin America - Erik Thorbecke, "Unemployment and Underemployment in Latin America," Paper prepared for the Interamerican Development Bank, 1969, Table 3.

For Asia - H. T. Oshima, Growth and Unemployment in Postwar Asia, p. 222.

Note: These data refer to the entire economy and not exclusively to urban areas.

almost became a dogma of the development literature that successful economic development could be achieved most readily through the twin forces of capital accumulation and industrial growth. The primary vehicle for accelerated industrialization was to be through policies of import substitution. By concentrating their efforts on the creation of a modern industrial sector to serve the domestic market and to facilitate the absorption of "redundant" or "surplus" rural workers into the urban economy, less developed countries, it was argued, could proceed most rapidly toward the achievement of economic self-sufficiency. But, on the whole, this strategy has had few, if any, successful results.¹ The failure of the Marshall Plan approach to the development of poorer societies arose because, unlike the war-torn countries of Western Europe, these nations did not already possess the social, economic, and institutional mechanisms as well as the necessary "human" capital to effectively utilize the capital transfers. An added but largely unforeseen consequence of this premature industrialization process has been the extraordinary growth of urban centers resulting from an accelerated influx of unskilled rural workers in the expectation of finding high-paying employment opportunities.

Unfortunately, optimistic predictions regarding the ability of the modern industrial sector to absorb those migrants have not been fulfilled. In fact, it now is becoming increasingly clear that the capacity of the industrial complex to accommodate this pool of migrant labor has been very limited in the great majority of developing nations. And yet, in spite of the rising levels of visible unemployment and under-employment, the flow of rural laborers into urban centers continues to

accelerate. As a result, contemporary developing countries are presently facing a plethora of social, psychological, and political as well as economic problems arising out of the unfettered growth of their cities where widespread and chronic unemployment is reaching crisis proportions.²

Numerous factors have contributed to the disappointing growth of employment opportunities in the modern, urban, industrial sector. A combination of rapidly rising wage rates and artificial incentives to promote capital-intensive industries has, for example, contributed to the observed close association between output and labor productivity growth and, consequently, to the failures of labor absorption. In Latin America, a moderate rate of growth of industrial output amounting to almost 6 percent per annum over the period 1955-1965 and a high rate of productivity growth of 3.6 per annum resulted in a rate of industrial employment growth of only 2.3 percent over the same period. In East and Southeast Asia the corresponding figures for the same period were 8.5 percent for output and 4.8 percent for employment. (See Table 3.) It should be pointed out, however, that if one were to eliminate the figures for South Korea, Taiwan, and Singapore from the Asian data, the results for the remaining countries would reflect an experience very similar to that of the Latin American nations. In African countries, the failure of the non-agricultural sector to generate increased job opportunities has been particularly acute. Many countries have experienced stagnating and, in some cases, even declining employment in the face of output increases. Table 4 gives some indication of this phenomenon in ten African nations.

TABLE 3

Rates of Growth of Output and Employment in Industry: 1955-65

Industry Group	All less developed countries		Latin America		East and South East Asia	
	Output	Employment	Output	Employment	Output	Employment
20-22 Food, drink, tobacco	5.1	3.3	4.5	4.1	6.1	2.9
23 Textiles	4.0	2.1	2.4	-1.0	4.4	2.3
23 Clothing, footwear	..	6.4	..	2.4	..	10.2
25-26 Wood products, furniture	7.4
27 Paper and products	9.7	5.0	7.7	2.6	11.0	7.4
31-32 Chemicals, petroleum products	8.0	5.2	7.3	3.4	8.6	6.2
33 Non-metallic minerals	7.6	4.6	5.6	2.6	10.1	6.1
34 Basic metals	10.0	7.3	8.0	5.1	11.2	9.3
35-38 Metal products	10.9	6.8	9.6	..	12.8	8.4
Light manufactures (20-26, 21-30, 39)	5.4	3.8	4.0	2.0	6.7	4.2
Heavy manufactures (27, 31-38)	9.3	6.1	7.9	3.6	10.9	7.7
All manufacturing	7.1	4.4	5.8	2.5	8.1	5.0
Industry as a whole (including mining, gas and electricity)	7.4	4.0	5.9	2.3	8.5	4.8

Source: The Growth of World Industry, United Nations, Department of Economic and Social Affairs, 1967.

TABLE 4

Non-agricultural Employment Indices in Selected African Countries
(1958=100)

<u>Year</u>	<u>Cameroons</u>	<u>Ghana</u>	<u>Kenya</u>	<u>Malawi</u>	<u>Nigeria</u>
1955	102	82	107	88	n.a.
1956	104	91	105	95	95
1957	100	95	105	98	100
1958	100	100	100	100	100
1959	95	106	100	99	99
1960	91	111	102	96	106
1961	94	122	98	93	89
1962	72	128	97	87	113
1963	91	132	91	87	94
1964	92	n.a.	111	n.a.	n.a.
Rate of Growth (percent)	-1.0	6.3	-0.5	-0.7	0.1

<u>Year</u>	<u>Southern Rhodesia</u>	<u>Sierra Leone</u>	<u>Tanzania</u>	<u>Uganda</u>	<u>Zambia</u>
1955	86	87	97	94	92
1956	92	87	104	93	100
1957	98	92	101	99	100
1958	100	100	100	100	100
1959	100	98	96	99	95
1960	101	101	98	99	93
1961	98	108	104	98	90
1962	95	112	101	93	88
1963	91	119	91	89	86
1964	90	125	95	89	91
Rate of Growth (percent)	0.2	3.0	-0.4	-0.1	-0.9

Source: Charles R. Frank, Jr., "Urban Unemployment and Economic Growth in Africa," Economic Growth Center Paper No. 120, New Haven, Connecticut, 1968, p. 254.

It is interesting to note that the similarity of experience of many less developed countries with regard to employment generation has been in marked contrast to the historical pattern of economic growth in Western nations. The latter's experience has often been used as a model for the development of contemporary third world nations. The reasons for this difference arise largely from the nature of modern technology and the pattern of world trading relationships. Today there seems to be increasing evidence of an inherent structural imbalance between the manpower requirements of a highly mechanized, internationally mobile industrial technology and the manpower endowments of individual less developed nations. In nineteenth century England and Germany for example, a large proportion of the unskilled laborers released from rural areas could find full-time productive employment in labor-intensive industries to serve growing domestic and world markets. Today, a combination of limited domestic market size and keenly competitive but often well-protected world markets in which many less developed countries must compete not only against the Western industrial powers with their sophisticated methods of modern production, but also with a large number of equally aspiring poor nations, seems to provide insufficient scope to the anticipated employment-creating powers of many of these same labor-intensive industries. Moreover, with almost all of the technology of production being developed in advanced industrial societies, there is a limited availability of technologies appropriate to the resource endowment and factor prices prevailing in the developing countries. As a result, there is a natural tendency within these nations to adopt the most

modern, capital-intensive production techniques originating in the advanced countries.³

There are additional factors contributing to the slowness of urban employment growth in developing countries. First of all, there is the whole set of distortions and biases affecting relative factor prices. In general, these distortions tend to reduce the price of capital below its equilibrium value while raising the price of labor above its real opportunity cost. For example, overvalued exchange rates and government tariff policies toward machinery and equipment often amount to negative rates of effective protection for capital goods imports. Additionally, liberal capital depreciation allowances and tax rebates further lower the price of capital goods below their real opportunity cost. On the other hand, the expanding political power of trade unions in combination with ill-conceived civil service salary review proposals which, at least in African nations, set the basis for all other industrial wage negotiations, have pushed urban labor's remuneration well above its opportunity cost. With wage levels continuously rising often at rates considerably in excess of productivity improvements, employers begin to build up expectations of further increases. Consequently they may adopt more mechanized production techniques even if it may still be statically more efficient to utilize labor in greater proportions. All of the above factors contribute in one way or another to the encouragement of relatively capital-intensive production techniques in the urban industrial sector.

Urbanization and the Rural-Urban Population Drift

In spite of the relatively slow growth of urban employment

opportunities, the influx of rural workers into urban areas in search of limited but lucrative job openings is proceeding at an accelerated pace. In Africa, urban populations have typically been growing at 6 to 7 percent per annum, more than twice the annual rate of overall population growth. In Latin America, the growth rate of the urban population has been three times higher than the corresponding rural growth rate, i.e., 4.6 percent as against 1.5 percent. Moreover, in Latin America the movement of people from rural to urban areas has proceeded on such a massive scale in the post-war period that recent ECLA estimates put the urban proportion of the total population in 1968 at 54 percent. (ECLA, 1968) Table 5 gives some indication of past urbanization trends with preliminary projections for the next decade.

In addition to the general growth of urban centers, there has been a tendency for the largest cities to grow faster than the smaller ones, due primarily to the greater proportion of migrant workers who are attracted to the main urban centers. Although the statistics are lacking, more than half the population of these cities probably represents people born and raised in rural areas.

The factors contributing to the accelerated pace of rural-urban migration are many and include the non-economic as well as the economic. For the purposes of this paper, however, I would like to analyze and discuss what I believe to be the single most important factor in the migration decision-making process, namely, the urban-rural income differential and its effect on the formation of income expectations on the part of potential migrants.

TABLE 5

Estimates of growth of the labor force
in less developed countries: 1950-1980

	Rates of Growth		Rates of Growth			
	1950-1965		1965-1980		1970-1980	
	Total	Annual	Total	Annual	Total	Annual
Developed countries	17.6	1.1	15.8	1.0	10.0	1.0
Less developed countries	28.1	1.7	39.0	2.2	25.2	2.3
<u>Regions</u>						
Other East Asia	30.7	1.8	56.5	3.0	35.3	3.1
Middle South Asia(1)	23.2	1.4	33.1	1.9	21.6	2.0
South East Asia(2)	32.3	1.9	43.0	2.4	28.0	2.5
South West Asia(3)	31.8	1.9	50.4	2.8	31.3	2.8
West Africa	38.9	2.2	40.2	2.3	25.8	2.3
East Africa	21.1	1.3	30.8	1.8	19.8	1.8
Central Africa	16.0	1.0	19.4	1.2	12.9	1.2
North Africa	17.5	1.1	45.7	2.5	29.0	2.6
Tropical South America	48.3	2.7	55.6	3.0	34.7	3.0
Central America	52.0	2.8	62.7	3.3	39.1	3.4
Temperate South America	25.7	1.5	25.0	1.5	16.0	1.5
Caribbean	31.1	1.8	40.6	2.3	25.8	2.3

Source: D. Turnham, The Employment Problem in Less Developed Countries: A Review of Evidence, OECD Development Centre, June, 1970, p. 34.

Note: Excludes Sino-Soviet countries.

(1) Includes Ceylon, India, Iran, and Pakistan.

(2) Includes Burma, Cambodia, Indonesia, Malaysia, the Philippines, and Thailand.

(3) Middle East countries.

A Theory of Rural-Urban Labor Migration⁴

Positive urban-rural income differentials have long been recognized as a primary force stimulating the out-migration of labor from rural areas. (Jorgenson (1961); Lewis (1954); Ranis-Fei (1964)) The growing divergence between urban and rural incomes results both from the "push" factor of stagnating agricultural earnings (partly as a direct outgrowth of the postwar bias toward industrialization at the expense of agricultural improvement and export promotion) and the "pull" factor of rapidly rising urban wage rates for unskilled workers. In most African countries, urban-rural income differentials are not only sizeable but continue to grow at a rapid rate in spite of rising urban unemployment and, in some cases, growing labor shortages in rural areas. In Nigeria, Arthur Lewis notes that "urban wages are much more than twice a farmer's income." (Lewis, 1967, p. 42.) Between 1950 and 1963 prices received by farmers through marketing boards in Southern Nigeria declined by 25 percent while minimum wage scales of the Federal Government increased by 200 percent. In Kenya average earnings of African employees in the non-agricultural sector rose from £97 in 1960 to £180 in 1966, a growth rate of 11 percent per annum. In the small farm sector of Kenya over the same period, estimated family income grew at a rate of only 5 percent per annum, rising from £57 in 1960 to £77 in 1966. Thus urban wages rose more than twice as fast as agricultural incomes so that in 1966 averages wages in the urban sector were 250 percent higher than average farm family income. (Ghai, 1968, p. 20.) Finally, in Uganda between the period 1957 and 1964, agricultural incomes remained essentially the same, due largely to a 43 percent fall in coffee

prices, while statutory minimum urban wages rose by some 300 percent from 1931 to 1990 per annum (Knight, 1967). It should be noted in the latter context that, at least in African nations, the minimum wage is the effective rate which determines the level at which more than 50 percent of urban unskilled workers are paid. It is also the key rate in the overall wage structure since when minimum wages change, the entire wage structure tends to move with it.⁵

Traditional models of economic theory with their emphasis on competitive wage determination would lead one to anticipate a narrowing of the wage differential as labor moves from rural to urban areas. But in many developing countries institutional factors such as statutory minimum wages, trade union power, and government salary scales act as an effective barrier to lower urban wages. And yet, in the face of rising overt urban unemployment and positive marginal products in agriculture, the influx of rural migrants shows no sign of deceleration.

Arguments about the irrationality of rural peasants who migrate to the cities when they are fully aware of their limited chances of obtaining a job are as ill-founded and culture-bound as earlier assertions that peasant subsistence farmers were unresponsive to price incentives. The key, in our opinion, to an understanding of this seemingly paradoxical phenomenon lies in viewing the migration process from an expected or permanent income approach. The missing variable in earlier analyses of the dynamics of labor markets in developing countries is the probability factor as it influences the migration decision.

In order to understand the migration process, we must recognize the fact that the existence of a large pool of unemployed and underemployed

urban workers must certainly affect a prospective migrant's "probability" of finding a job in the modern sector. As a result, when analyzing the determinants of urban labor supplies, one must look not at prevailing real income differentials as such but rather at the rural-urban "expected" income differential - i.e., the income differential adjusted for the probability of finding an urban job. It is our contention that in the long run this probability factor can act as a potential equilibrating force on urban unemployment rates. In the short run, however, it plays as crucial a role as the income differential variable in regulating the flow of rural-urban migration. It also provides the rationale for the possibility of an "unemployment equilibrium" in the urban economy. The magnitude of this unemployment equilibrium will depend largely upon three factors: (1) the urban-rural real income differential; (2) the probability of finding an urban job; and (3) the overall size of the rural labor force.

Since it is the probability variable which plays a central role in our theory, it might be useful at this point to briefly explain some additional reasons for incorporating this element into any realistic model of rural-urban migration. An implicit assumption of the more commonly used labor transfer models is that any migrant who enters the modern sector is "absorbed" into the gainfully employed at the prevailing urban real wage. However, the important question to ask in this context is "how long" does the typical unskilled migrant have to wait before actually securing a job. Even if the prevailing urban wage is significantly higher than expected rural income, the fact that the probability of obtaining urban employment, say within the next

year or two, is very low, must certainly influence the prospective migrant's choice as to whether or not he should leave the farm. In effect, he must balance the probabilities and risks of being unemployed or sporadically employed in the city for a certain period of time against the favorable urban wage differential. A 100 percent urban real wage premium, for example, might be of little consequence to the prospective migrant if his chances of actually securing a job are, say, one in fifty. On the other hand, it may be rational to migrate to urban areas even if there is only a 50 percent or even a 33 percent probability of success because the average urban wage may be two or three times the level of average farm income. Naturally, the decision to migrate will be affected also by factors such as the significance of extended family relationships, the degree of clan contacts, the level of education and numerous non-economic factors.⁶ But, for purposes of simplicity, let us limit our analysis to the income differential and probability variables.

Consider the following simplified model.⁷ Let us define the probability (π) of obtaining a job in the urban sector in any one time period as being directly related to the rate of new employment creation and inversely related to the ratio of unemployed job seekers to the number of job opportunities, that is:

$$(1) \pi = \gamma N / (S - N)$$

where γ is the rate of urban job creation, N is the level of urban employment, and S is the total urban labor force.

If w is the urban wage rate and r represents average rural income, then the "expected" urban-rural income differential, d , is

$$(2) \quad d = w \cdot \pi - r$$

or, substituting (1) into (2)

$$(3) \quad d = w \cdot \frac{\gamma N}{S-N} - r$$

The basic assumption of our model is that the supply of labor to the urban sector is a function of the urban-rural expected income differential, i.e.

$$(4) \quad S = f_S(d)$$

If the rate of urban job creation is a function of the urban wage w and a policy parameter "a", e.g., government direct expenditure resulting from a planned shift toward more rapid industrialization or, as in the case of Kenya, the 1964 and 1970 "Tripartite Agreements" by which employment increases were legislated by government - which operates on labor demand, we have

$$(5) \quad \gamma = f_d(w; a)$$

where it is assumed that $\partial \gamma / \partial a > 0$. If the growth in urban labor demand is increased as a result of the governmental policy shift, the increase in the urban labor supply is

$$(6) \quad \frac{\partial S}{\partial a} = \frac{\partial S}{\partial d} \frac{\partial d}{\partial \gamma} \frac{\partial \gamma}{\partial a}$$

Differentiating (3) and substituting into (6), we obtain

$$(7) \quad \frac{\partial S}{\partial a} = \frac{\partial S}{\partial d} w \frac{N}{S-N} \cdot \frac{\partial \gamma}{\partial a}$$

The absolute number of unemployed will increase if the increase in labor supply exceeds the increase in the number of new jobs created, i.e., if

$$(8) \quad \frac{\partial S}{\partial a} > \frac{\partial(\gamma N)}{\partial a} = \frac{N \partial \gamma}{\partial a}$$

Combining (7) and (8), we get

$$(9) \quad \frac{\partial S}{\partial d} \cdot \frac{N}{S-N} \cdot \frac{\partial \gamma}{\partial a} > \frac{N \partial \gamma}{\partial a}$$

$$(10) \quad \frac{\partial S/S}{\partial d/d} > \frac{d}{w} \cdot \frac{(S-N)}{S}$$

or, finally, substituting for d

$$(11) \quad \frac{\partial S/S}{\partial d/d} > \frac{w \cdot \pi - r}{w} \cdot \frac{(S-N)}{S}$$

Expression (11) reveals that the absolute level of unemployment will increase if, $\frac{\partial S/S}{\partial d/d}$, the elasticity of urban labor supply with respect to the expected urban-rural income differential (what I have called elsewhere the "migration response function") exceeds the urban-rural differential as a proportion of the urban wage times the unemployment rate, $\frac{S-N}{S}$. Alternatively, equation (11) shows that the higher the unemployment rate, the higher the elasticity must be to increase the level of unemployment for any expected income differential. But note that in most developing nations the inequality (11) will be satisfied by a very low elasticity of supply when realistic figures are used. For example, if the urban wage is 50, the rural wage 15, the probability of getting a job .40, and the unemployment rate 30 percent, then the level of unemployment will increase if the elasticity of urban labor supply is greater than .03, i.e., substituting into (11) we get

$$\frac{\partial S/S}{\partial d/d} > \frac{.40 \times 50 - 15}{50} \times .30 = 0.03$$

Certainly, it would be an extremely interesting and valuable exercise to estimate this elasticity in a cross-section of urban centers.

Since the elasticity of response will itself be directly related to the probability of finding a job and the size of the urban-rural real income differential, the above model illustrates the paradox of a completely urban solution to the urban unemployment problem. Policies which operate solely on urban labor demand are unlikely to be of much assistance in reducing urban unemployment since in accordance with our expected income hypothesis, the growth of urban employment also increases the rate of rural-urban migration. If the increase in the growth of the urban labor force caused by migration exceeds the increase in the growth of employment, the level of unemployment in absolute numbers will increase and the unemployment rate itself might also increase. This result will be accentuated if, for any increase in job creation, the urban wage is permitted to expand at a greater rate than rural income. A reduction or at least a slow growth in urban wages, therefore, has a dual beneficial effect in that it tends to reduce the rate of rural-urban migration and increase the demand for labor.

A second implication of the above model is that traditional methods of estimating the "shadow" price of rural labor to the urban sector will tend to have a downward bias if the migration response parameter is not taken into account. Typically, this shadow price has been expressed in terms of the marginal product of the rural worker who migrates to the city to secure the additional urban job. However, if for every additional urban job that is created more than one rural worker is induced to migrate, then the opportunity cost will reflect the combined loss of agricultural production of all those induced to migrate,

not just the one who is fortunate enough to secure the urban position. It also follows that to the extent that there are sizeable pools of urban unemployed, traditional estimates of the shadow price of urban labor will reflect an upward bias.

Urban Unemployment and Rural Neglect

While significant reductions in real wages may not be politically feasible in many developing countries, the same result can be effectively achieved if policies to stimulate a relatively higher rate of growth of rural farm incomes are followed. In fact, we would argue that one of the major causes of, and contributing factors to, the urban unemployment problem in less developed countries has been the reliance on industrialization as the unique development strategy and the concomitant relative discrimination against agriculture. This bias against rural development in general and agricultural expansion in particular has arisen largely from a limited understanding of the role of agriculture in economic development. Throughout the literature on economic development and as manifested in the development plans of many nations, there has been an obvious tendency to consider agriculture as a passive factor from which both human and financial resources could be squeezed out to serve the growth of the industrial sector. By ordering their priorities heavily in favor of industrial and urban projects, governments have failed to recognize the importance of establishing a proper balance between urban and rural development. A contributing factor, no doubt, has been the tendency on the part of donor countries to place their support priorities on capital-intensive projects in the industrial sector.

Among a number of agricultural policies which have tended to stimulate further out-migration, the following are perhaps the most significant. First, as Johnston and Cowrie have recently pointed out, government subsidization of large but premature tractor mechanization schemes not only has often contributed to higher effective costs of production, but also has tended to reduce per acre labor requirements (Johnston and Cowrie, 1969). Tractor schemes typically require large amounts of foreign exchange for new equipment and for an extensive supply of spare parts, fuel, etc. The overall effect of these schemes is to enlarge the stock of potential migrants into the cities. Second, by failing to promote and support agricultural export drives concomitant with the import-substituting industrialization programs, governments have made it more difficult for farmers to remain solvent in their rural areas, and have thus tended to contribute to the widening of the urban-rural income disparity. Finally, by overemphasizing direct government production schemes which are heavily capital-intensive including state farms, land settlement and irrigation projects, policy-makers have failed to recognize the tremendous potential absorptive capacity of the agricultural sector for its own rapidly expanding rural work force.⁸

All of the above serves to illustrate the point that, rather than actively encouraging agricultural development, many nations through their biased industrialization policies, have unwittingly contributed to the growing urban unemployment problem. The tragic irony of the whole situation is that the very attainment of those aspirations most sought after by economic planners in developing countries - i.e..

economic growth through industrial modernization - contributes directly to one of the most persistent and perplexing problems facing these nations now and even more so in the future, namely, the problem of the urban unemployed.

Summary, Conclusions and Implications for the Future

The unfettered growth of the urban unemployment problem in less developed countries and the concomitant decay of the urban environment has been a direct consequence of government efforts to promote rapid industrialization at the expense of rural development. By directing the vast majority of investment projects into the creation of urban industrial complexes with insignificant labor-absorbing capacities, by providing a disproportionate share of the nations' social, health, and educative services to urban areas, and by permitting the urban-rural income differential to continually widen in the face of growing, open urban unemployment, governments in less developed nations have fostered a chronic and ever-worsening urbanization crisis.

The growing concentration of semi-educated, unemployed youth in urban and peri-urban slums and squatter settlements has led to an alarming increase in delinquency, crime, mental and physical illness, and general restlessness and frustration. Being unemployed and unproductive, these individuals are unable to contribute financially to the improvement of the urban economy. But the urban economy incurs considerable costs, both direct (investments for housing, transportation, water, sewerage, hospitals, clinics, etc.) and indirect (law enforcement) as a result of the urban population growth. Given extremely limited government financial resources, further investments in the

urban infrastructure represent a considerable opportunity cost in terms of national development. Moreover, there is the added dilemma that any attempts to expand urban social services at a pace consistent with the growth of the urban population can have not only self-defeating, but also counterproductive results. For, given the general urban income and amenity bias, efforts to maintain the disproportionate social attractiveness of urban versus rural areas will act as a stimulant to further rural-urban migration, exacerbating an already vicious circle of urban growth and unemployment.

Although our analysis of the relationship between industrialization and employment generation underlined the rather limited absorptive capacity of the industrial sector as revealed by recent cross-sectional data, this was not meant to deny that more jobs could be created in urban industry if effective measures were undertaken to eliminate the factor-price distortions so prevalent in contemporary developing countries. Moreover, there appear to be excellent possibilities for increased employment creation if developing nations could slowly free themselves from their total dependence on imported technologies by generating their own, more appropriate capital goods industries.⁹ But, as soon as we recall that almost 70 percent of the populations of poor countries live in rural areas with a sizeable proportion of these being potential urban migrants, then we must recognize the inescapable fact that the only realistic answer to the present urban unemployment crisis must be found in the shifting of developmental emphasis toward programs of rural expansion.

The expansion and improvement of small-scale agriculture and related rural activities, therefore, still represents the single most important source of potential labor absorption in less developed countries today. When we earlier spoke of the urban-rural expected income differential being the principal determinant of the migration into cities, we stressed the point that this differential represents not only the "pull" of higher urban wages but also the "push" of stagnating or declining rural incomes. As the population grows and large-scale mechanized farming schemes are indiscriminately promoted, more and more peasants stand to lose their land and be pushed out of any participation in the rural economy. There is thus an urgent need to formulate programs that will be of direct benefit to the small farmer.

An interesting and revealing demonstration of the potentialities for rapid increases in income, output, and employment in small-scale agriculture through minor adjustments in farming practices is currently being undertaken in Puebla, Mexico. The "Puebla Project" is attempting to demonstrate how maize yields can be increased substantially by using the same seed varieties but with more intensive application of proper fertilizers whose availability is made possible through the provision of low-cost loans to peasant farmers.¹⁰ The introduction of better and more effective fertilizers combined with a more rational timing and spacing of plants has already led to a doubling and tripling of yields on farm plots as small as one hectare. Even more importantly, the higher yields from the new approach to maize production have led to a general rise in income levels and have been

achieved without a significant shift to more mechanized production methods. Not only has labor not been displaced, it has in fact been more intensely utilized than before the introduction of the new techniques. Moreover, the general increase in farm incomes in the Puebla valley is stimulating the growth of small-scale trade and service industries and is thus indirectly contributing toward the expansion of non-farm employment opportunities in the rural area.

If the Puebla Project does ultimately prove as successful as initial evaluations indicate, then a major step forward will have been taken in demonstrating that higher agricultural incomes and greater rural employment are not incompatible objectives. The significance of this and similar experiments in small-scale agriculture should not be underestimated. The alternative of permitting the urban unemployment rate to rise to a level at which it will act as an effective inhibiting factor on further rural-urban migration would be an act of political suicide. Thus, the only feasible and realistic program for combatting urban unemployment must be one which attempts to reduce the urban-rural income differential by concentrating on raising farm and non-farm incomes in the rural areas and holding the line on the disproportionate growth of urban wage rates. In the final analysis, therefore, it is our belief that the key to the urban unemployment problem lies in the amelioration of the economic status of the rural peasant. Unless and until his economic welfare can be substantially improved, unemployment in the cities will in all probability become inexorably more chronic in the coming years.

FOOTNOTES

¹The recent study of industrialization and trade by Little, Scitovsky, and Scott (1970) provides an excellent empirical basis for the observation that strategies of import substitution have not only retarded economic growth but have also inhibited the growth of employment opportunities in countries such as India, Pakistan, Brazil, the Philippines, Taiwan, and Mexico.

²For brief but penetrating analyses and descriptions of some of the non-economic problems of urbanization, see the articles by Meister, Haggmüller, and Jacoby in the November-December, 1970 issue of CERES.

³For an extended development of this argument, see Todaro (1970).

⁴For a more detailed and comprehensive presentation of this model, see Todaro (1969) and Harris-Todaro (1970).

⁵See Elliot Berg (1965) for a comprehensive description of the influence of wage policies in African nations.

⁶See Rempel-Todaro (1969) and Rempel (1970) for an empirical model of migration incorporating these additional elements.

⁷This is a condensed version of the original Todaro model as formulated in Frank (1970). For a more complete version, see Todaro (1969).

⁸For an excellent discussion and analysis of the relationship between agricultural development and employment generation in Africa, see Eicher et al. (1970).

⁹See Pack and Todaro (1969) for a further development of this argument.

¹⁰The most up-to-date report on this experiment is provided by the International Maize and Wheat Improvement Center, The Puebla Project, 1967-1969 (Mexico, 1970).

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