THE THEORY OF URBAN UNDEREMPLOYMENT IN LESS DEVELOPED COUNTRIES

The paper investigates the working of a model of an urban labor market in LDC's which has two sectors - one sector (the U-sector) being characterized by ease of entry, variable hours of work and flexible earnings, the other (the O-sector), by rigid wages maintained at a relatively high level. Migrants from the rural areas respond to the expected earnings in both sectors, and can search for O-sector jobs while participating in the U-sector. Labor supply determined by such a migration function, together with the relative rates of growth of income in the two urban sub-sectors (on plausible assumptions) lead to the possibility that average earnings in the U-sector decline over time relative not only to O-sector wage, but also to the alternative income in the rural sector. In the last section a distinction made between two types of job seekers found in the U-sector - those with and those without an interest in the O-sector - gives the result that average earnings in the U-sector may sometimes be independent of conditions in the O-sector. It is also seen that, under certain conditions, even with ease of entry and variable hours of work, the U-sector may not serve as a channel for migrants seeking to enter the O-sector. The analysis provides a classification of labor market types which may be of help in organizing empirical information from different parts of the world.

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The Theory of Urban Underemployment in Less Developed Countries*

Models of urban labour market in less developed countries, popularized by Todaro [1969] and Harris and Todaro [1970], have emphasized the point that urban unemployment emerges because of the maintenance of a rural-urban wage gap which induces migrants to suffer a period of unemployment in the expectation of higher earnings if they manage to get an urban job. The object of this paper is to incorporate in this analysis of the urban market two separate groups of facts specific to the economic scene of LDC's. These are (a) the existence in the urban labour market of two different types of job opportunities - the organized (formal) and the unorganized (informal) sectors - which enable the migrant wishing to enter the urban organized sector to get some income in the unorganized sector during his period of waiting; and (b) the presence in the unorganized sector of two types of workers - those using the sector primarily as an aid to their search for a formal sector job, and those who participate in the sector as an end in itself for short or long periods. In Section I we present a static model of the urban market with two sectors fed by migrants from the rural areas, making the assumption that they are all interested in breaking into the formal

* The author wishes to acknowledge the help of Mr. W. J. Corlett in the early stages of the development of this paper. Successive drafts have greatly benefited from the comments of Harry Johnson, Arnold Harberger, Al Klevorick, Morris Perlman and Amartya Sen.
sector. Section II explores some significant trends in the development of such a labour market over time on the basis of simple (but hopefully relevant) assumptions about wage behaviour and linkages between the two sub-sectors. In Section III the analysis takes account of two different types of workers coming into the urban unorganized sector.

A specific view of the urban unorganized sector is emphasized in the paper. The economically significant characteristic of this sector emphasized is the ease of entry of new workers. Entry is easy (i) because many of the jobs available in this sector are in the nature of casual employment based on day-to-day contracts; (ii) many of the self-employed can presumably set themselves up with small amounts of capital; and (iii) there is a high turnover of labour which facilitates ease of entry. The lack of contractual employment and easy entry ensure variable hours of work in the sector, and the amount of work secured by a typical worker over a period of time is less than full-time. A general characteristic of the unorganized sector then is some degree of underemployment of the labour force.

Contrasted with the nature of employment in this sector, the organized sector is characterized by the full-time contractual employment, low turnover of labour and difficulty of entry for a fresh job seeker.

1/ Although the importance of an unorganized sector with these particular characteristics may vary from market to market, it is sufficiently widespread in LDC's to merit special attention.
There is no doubt that the almost exclusive nature of employment in the organized sector of urban labour markets in many LDC's has been encouraged in recent years by trade unions and government labour policies [James, 1959]. But there is considerable evidence to the effect that even in the period when trade unions were weak, and state intervention in labour matters was minimal, employers of labour in the organized sector were interested in the development of a stable labour force, firmly attached to the employing unit. [e.g. Mazumdar, 1973].

Given this division of the urban labour market between the unorganized and organized sectors, for a migrant seeking permanent employment in the urban labour market the likelihood of total unemployment during the period of waiting is small. He is much more likely to suffer from some degree of underemployment and low earnings associated with his work in the unorganized sector. The dichotomy between employment and unemployment is thus as incomplete for the rural labour markets in these economies. The percentage of the totally unemployed is likely to be low for both types of labour markets, compared to the degree of underemployed.

Available data on urban unemployment in India would clearly establish the point made. The National Sample Survey collected information on the unemployed defined as those "who were not employed during the reference week and were looking for full-time work." The proportion of the labour force wholly unemployed in this definition in 1961 was only 3 per cent in towns, compared to 4 per cent in villages. A much larger percentage of the urban labour force, however, worked less than full-time in the reference week. As much as 12 per cent, for instance,
worked less than 28 hours in the week. The Survey, furthermore, tried to find out the proportion of people who worked less than full-time and were willing to work more hours if work was available. This category of the "involuntarily underemployed" amounted to 6.2 per cent of the urban labour force (compared to 10.5 per cent of the rural labour force) [Blaug, et. al., 1969].

The City Surveys in India which made intensive enquiries into the economic conditions of particular cities in the late fifties came out with similar results. The percentage of the wholly unemployed to the total number of people in the working age group for the three Indian metropoles - Bombay, Madras, and Calcutta - were 3.8, 5.8 and 7.6 respectively [Bulsara, 1964, p. 55]. "A very large proportion of the unemployed were 'freshers,' i.e. looking for their first job." It was also found that "contrary to general belief, the incidence of unemployed was much higher among the educated than among the illiterates, just literates or those with education up to the primary standards." Total unemployment in urban India seemed to be a characteristic of the "superior" labour market in which the educated had to undergo a period of waiting before finding a suitable job.

The urban survey for Madras City was particularly interesting because - apart from Madras being a large labour market - it was unique among the surveys in giving special information on one important section in the unorganized sector, viz., the casual workers. The Survey reported that 9.2 per cent out of the total number employed in the City were
casual workers; and the point made that this was likely to be an underestimate because many workers were not willing to admit their non-regular status [Indian Planning Commission, 1961, p. 169]. The incidence of underemployment among this section of the workers was high. Nearly 61 per cent were unemployed for more than 10 days of the month. Only 4.6 per cent were reasonably fully employed (i.e. for 25 days or more per month). It can be recalled that in contrast to this phenomenon of severe underemployment among a section of the work force, the percentage of the totally unemployed to the population in the working age group was 5.8 per cent - and nearly 60 per cent of the unemployed were "freshers."

The analysis of urban unemployment in LDC's should then focus attention not so much on the rate of unemployment in the labour market as on some concept of the degree of underemployment in the unorganized sector.
I. A Model of Wage Gap Underemployment

In this section we shall build a model of the urban labour market with two sectors. Wages in the organized sector are held at a high level by institutional forces, and a certain proportion of the urban labour force are able to obtain employment in this sector. Those who are not accommodated in this sector are not totally unemployed but become potentially available to the urban unorganized sector, irrespective of source—whether they are old members of the urban labour force, fresh entrants through natural growth of the settled urban population, or new migrants from the rural areas. It is assumed that employment in the unorganized sector is less than full-time, and hence participation in this sector can be carried out simultaneously with the search for a job in the organized sector.

The most important component of the labour force found in the unorganized sector would be the self-employed. With free entry we can make the extreme assumption that the total income generated in the sector gets distributed equally among the workers in this sector. In order to make the mechanism behind this assumption a bit more explicit, and also to ensure that the formulation is applicable additionally to the case of casual daily workers (another important component of the unorganized sector in some markets), we can think of the average income of a self-employed as being the product of two terms: (i) the "net value" produced by him on average from a day's work (call it \( W_u \)), and (ii) the number of days of work secured by him over a period of time (call it \( N_u \)).
We assume that the labour market of the sector behaves like a perfect casual market and all workers are of equal endowment. Every worker then has an equal probability of getting a day's work as every other worker in the sector, so that over a period of time the available number of days of work gets equally shared out among the labour force in this sector. The degree of underemployment in the sector varies with the ratio of jobs available to the number of job-seekers in the market. It is recognized that for the self-employed the "output" from a day's work will vary from day to day, but in this case also if employment is randomly distributed among the job-seekers, good days will be distributed with bad days equally for everybody, and the "net value" produced for a day's work will average out to be the same for everybody if the market works perfectly, and if labour is homogeneous. In the rest of the paper Wu is referred to, for simplicity, as the unorganized sector's daily "wage."

Assuming that the rural population is sufficiently large so that outmigration does not have a significant effect on rural wages and working conditions, we can set up a function relating the net flow of rural-urban migrants to the expected urban wage.

\[ S_{mt} = f(Ew) \quad \text{..... (1)} \]

---

2/ This setting of the problem covers the case of wage labour hired on a daily basis in the urban casual labour market. Wu then is determined by the disutility price of a day's labour.
The function is general enough to take care of transport and other psychological costs of migration as well as the alternative income foregone.

The expected urban wage, in turn, depends on the probabilities $P_o$ and $P_u$, respectively of getting jobs in the organized sector at wage $W_o$, and in the unorganized sector at wage $W_u$. For simplicity of exposition we consider only a one-period model, i.e. the migrants' decision is based on the time-horizon of one period only.\(^3\)

\[
E_w = P_o W_o + P_u W_u \quad \ldots \ldots (2)
\]

Define $U_t = N_{t,t-1} + S_{mt} + G_t$,

where $N_{t,t-1}$ is total unorganized sector labour supply at the end of period $t-1$ and $G_t$ is the growth of the settled urban labour force through natural growth.

$N_o$ = the number employed in the organized sector

$N_u$ = the number of days of employment available in the unorganized sector.

Then on the assumption that hiring is random, on a daily basis, in the unorganized sector, and for new jobs opening up in the organized sector, we have:

\[
P_o = \frac{\Delta N_o}{U_t} \quad \ldots \ldots (3)
\]

and,

\[
P_u = \frac{N_u,t-1 + \Delta N_u}{U_t} \quad \ldots \ldots (4)
\]

\(^3\) With a multi period time horizon the expected wage will be present values and we should use sequential probabilities for the migrant breaking into the organized sector. The author has worked out a model on these lines, but it is omitted because of consideration of space, particularly since it does not seem to add anything of substance. It could be made available to anyone interested.
The equations (1)-(4) are sufficient to determine the values of the four unknowns, \( S_{mt} \), \( E_w \), \( P_0 \) and \( P_u \). In the particular case in which the supply price of migrants to the urban area is given, i.e. if the migration curve is highly elastic, \( E_w \) is determined. Since \( \Delta N_0 \) and \( \Delta N_u \) are exogenous (although, as we shall see, related to each other) the only variable to equilibrate the system is \( S_{mt} \) generating on both \( P_0 \) and \( P_u \).

The average earnings of workers in the unorganized sector will be given by:

\[
E_u = \frac{P_u W_u}{1-P_0} \quad \ldots \ldots \quad (5)
\]

(Note that \( P_0 \) and \( P_u \) do not add to unity).

The equation (5) helps us to see how the phenomenon of low earnings in the urban unorganized sector arises as a direct consequence of a wage gap between the rural and the urban organized sectors. Putting \( W_0 = LE_w \) we have from equation (2):

\[
E_w = \frac{P_u W_u}{1-P_0 L} \quad \ldots \ldots \quad (2a)
\]

Comparing (2a) and (5) it is seen that the marginal supply price of migrants (\( E_w \)) is equal to the average earnings in the unorganized sector if \( L \) equals unity, i.e. there is no rural-urban wage gap. If \( L > 1 \), the average earnings are lower than the migrant's supply price. Migrants, in other words, are willing to incur a loss in the period of search because of the probability of gaining from the wage differential if they manage to break into the organized sector. This case of low earnings in the urban unorganized sector, associated with a significant rural-urban wage gap has to be distinguished from another case, to be indentified in Section III, in which average earnings in the unorganized sector although lower than the organized sector wage, is not below the supply price of temporary migrants.
II. Dynamic Interpretation of the Model

An important aspect of the study of the dual labour market model in LDC's is its usefulness in the dynamic analysis of changes in the distribution of income in the urban economy over time. The latter will be a function of the trends in (a) employment, and (b) the level of earnings in the two sectors of the urban market. The problem can be broken down into three main areas: (i) the relationship between the rates of growth of income in the organized and unorganized sectors; (ii) the determinants of the rates of growth of productivity and wage rates in the two sectors; and (iii) the changes in the degree of underemployment (and the consequent changes in average earnings, given the wage rate) in the informal sector. In what follows the growth rates of income, labour productivity and wages in the O-sector are treated as exogenous. The U-sector adjusts to these rates - first in terms of its own growth rate of income (treated in section II.1), and then in terms of its labour supply, as determined by the migration function embodied in the model. The course of average earnings in the U-sector is then determined. (The possible cases are discussed in section II.2.)

II.1 The rates of growth of income in the two urban subsectors

We start with the observation that in the urban labour market, the unorganized sector sells its output entirely to the population in the urban area - who derive their income from the unorganized (U) as well as the organized (O) sectors. The O-sector, however, sells most of its output to the population outside the labour market. Consequently, U-sector
output is dependent on the income of the O-sector, but O-sector output is autonomously determined.

Let \( Y \) = the income of the U-sector at a point of time.
\( P \) = the income of the O-sector at a point of time.
\( \alpha \) = the marginal propensity to consume U-goods on the part of the U-sector.
\( \beta \) = the marginal propensity to consume U-goods for the O-sector.

Then we have,
\[
dY = \frac{\beta}{1-\alpha} dP \quad \ldots \quad (6)
\]

From which we get:
\[
\frac{dY}{Y} = \frac{\beta}{1-\alpha} \cdot \frac{P}{Y} \cdot \frac{dP}{P} \quad \ldots \quad (7)
\]

or:
\[
\sigma + z = \frac{\beta}{1-\alpha} \cdot \frac{P}{Y} (\gamma + \nu) \quad \ldots \quad (7a)
\]

where \( \sigma, z \) represents the proportionate rates of growth of employment and labour productivity respectively in the U-sector, and \( \gamma \) and \( \nu \) those in the O-sector. It should be noted that much of the activities in the unorganised sector use highly labour-intensive techniques with minimal application of non-labour factors. In the case of the large service
sub-sector there is hardly any independent notion of "product" apart from the earnings of labour engaged in it. Thus, we can expect the value of $z$ to be negligible.

It would appear from (7a) that $\frac{P}{Y}$ will play an equilibrating role in the relationship between the rates of growth of the income in the two urban sectors. When the rate of growth of 0-sector income is higher, the increase in $\frac{P}{Y}$ will tend to bring ($\gamma$) up (with $\alpha$ and $\beta$ remaining constant) until the rates of growth of income in the two sectors are equalized. On the other hand, if ($\gamma + v$) is less than ($\gamma$), the latter will fall in value and tend to equal ($\gamma + v$). Two points should be noted about the mechanism just described. First, the strength of the equilibrating relationship depends on $\alpha$ and $\beta$ having relatively high values. This in its turn depends on the importance of the traditional sector in the urban economy of the LDC in question. It is, however, unlikely that both $\alpha$ and $\beta$ will have very low values in any LDC. If the modern urban sector in a particular LDC is of the "enclave" type its marginal propensity to consume traditional goods - $\beta$ - will be relatively small. But it is precisely in this type of urban economy that the unorganized sector will tend to be relatively self-sufficient with a high value of $\alpha$.

Secondly, the working of the equilibrating mechanism depends on the values of $\alpha$ and $\beta$ remaining unchanged over time. In fact if $\alpha$ and $\beta$ do change, barring short-run fluctuations, they are likely to have a
downward trend, as the U-sector comes into greater contact with the O-sector, and there is a reduction in the propensity to consume traditional goods due to the "demonstration effect" of the O-sector. If this is the case then the equilibrating mechanism when (a) exceeds (y+v), but will be dampened if the O-sector is growing at a higher rate.

This last argument suggests that there is a greater possibility for growth-rate of income in the O-sector exceeding that of the U-sector over a stretch of time than there is for it being the other way around. This conclusion will be seen to be of some importance in the following analysis of the time path of the average earnings in the unorganized sector.

II.2 The working of the model

We are now in a position to see how the model works over time. We make the following assumptions about the behaviour of wages/earnings in the different sectors:

(1) The wage rate in the organized sector increases at the same rate as labour productivity in this sector (v). Institutional factors - trade unions or government legislation - ensure that the share of the labourer's income in this sector remains constant in spite of the conditions of labour supply in the labour market as a whole.

(2) The "wage" in the U-sector - the net value produced by a day's work - remains constant at Wu. We have already argued that the rate of growth of labour productivity in the sector can be expected to be small.
The marginal supply price of migrants from the rural sector (Ew) is unchanged over time. This assumption is made only for the simplification of the analysis which helps us to determine the course of the urban U-sector earnings relative to that of the rural sector.

The first two assumptions can be incorporated in the equation determining the supply of labour to the urban market by rewriting equation 2 as the following, using (3) and (4):

\[ E_w u(t) = \gamma N_0(1) W_0(1)e^{(\gamma+v)t} + W(t)N_u(t)e^t \]  

This equation says that the percentage rate of growth and labour supply in the urban labour market as a whole - call it \( \ell \) - is a weighted average of the proportionate rate of growth of wage bill in the organized sector \( (\gamma+v) \), and of labour demand in the unorganized sector \( \sigma \).

Labour supply to the urban market being given by 2(b) we can study the course of development of the labour market over time by taking the logarithmic differentials of equations (2), (3) and (5). Thus from (3), setting \( \Delta N_0 \) equal to \( \gamma N_0 \), we have:

\[ \frac{dP_o}{P_o} = \frac{dN_0}{N_0} - \frac{dU}{U} = \gamma - \ell \]  

From (2), with \( d(E_w)/E_w \) constrained to zero:

\[ \frac{dW_o}{W_o} = -\frac{dP_o}{dP} - \frac{dP_U}{P_u} \frac{(P_u W_u)}{P_o W_o} \]
or \[ \frac{dF}{Pu} (Pu Wh) = \frac{\%}{Pu Po Wo} - (\gamma + v), \quad \ldots \quad (2*a) \]

using (3*), and remembering that the percentage rate of increase of Wo is equal to that of labour productivity \( v \).

From (5), \[ \frac{dE}{Eu} = \frac{dPu}{Pu} + \frac{dPo}{Po} \frac{Po}{1-Po} \quad \ldots \quad (5*) \]

The three equations (3*), (2*a) and (5*) help us to classify the possible cases of labour market trends depending on the values of \( \sigma, \gamma \) and \( v \). The results of four possible cases are given in Chart I, and in the following paragraphs we comment on the applicability of each case in the light of the relationship between the two urban sectors discussed earlier in Section II.1.

**Chart I  Trends in the values of Po, Pu and Eu.**

<table>
<thead>
<tr>
<th>Case</th>
<th>' Po '</th>
<th>' Pu '</th>
<th>' Eu '</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) ( \sigma = \gamma + v ) = ( \l_)</td>
<td>Decreases</td>
<td>Constant</td>
<td>Declines</td>
</tr>
<tr>
<td>(b) ( \sigma &lt; \gamma + v )</td>
<td>( (i) \l &gt; \gamma )</td>
<td>Decreases</td>
<td>Decreases</td>
</tr>
<tr>
<td>( (ii) \l &lt; \gamma )</td>
<td>Increases</td>
<td>Decreases</td>
<td>Declines</td>
</tr>
<tr>
<td>(c) ( \sigma &gt; \gamma + v )</td>
<td>Decreases</td>
<td>Increases</td>
<td>May Increase</td>
</tr>
</tbody>
</table>
Case (a). This case occurs if there is dynamic equilibrium in the market in the sense discussed in II.1, the rates of growth of labour income are equalized for the two urban sub-sectors and the value of $z$ is zero (cf. equation 7a). It is seen from (3*) that $P_o$ falls at the same rate at which the organized sector wage is increasing ($v$), and the average earnings in the U-sector decline with $P_u$ remaining constant.

Case (b). It was indicated in the discussion in II.1 that $\alpha, \beta$ (the marginal propensities to consume U-sector goods in equation 7a) could be expected to decline over time. In this case, as also when $z>0$, $\sigma$ will be less than $(\gamma+v)$ and $\ell$ will be between these two values. While this ensures that $P_u$ will decrease through time (cf. 2*a), the trend in the value of $P_o$ depends on the relationship between $\gamma$ and $\ell$, not $(\gamma+v)$ and $\ell$. (cf. 3*).

(i) If $v$ is not too small, when $\ell < \gamma+v$, it may be $\gamma$. In this case we have a declining trend in both $P_o$ and $P_u$, accompanied by decreasing earnings in the U-sector.

(ii) If, on the other hand, $v$ is small it could be that $\ell > \gamma$. Thus $P_o$ increases through time while $P_u$ declines. These two trends have opposite effects on $E_u$, and it appears at first sight that the course of $E_u$ could be upwards or downwards depending on the actual magnitudes involved. But further examination of equation (5*) reveals that in this case $E_u$ must decline; the proof is given in the footnote.  

Footnote on next page
4/ Footnote

Write \( x* \) for \( \frac{dx}{dt}/x \)

From (2*) - \( P^* = \frac{P_o}{W_o} + \frac{W_o}{P_o} \cdot P \) \( (2^b) \)

For the average earning to increase, we must have, from (5*):

\[ \frac{P^*}{P_o} \cdot \frac{P_o}{1-P_o} > \frac{-P^*}{u} \]

\[ > (\frac{P^* + W^*}{P^*_o}) \cdot \frac{W_o}{W_o} \cdot \frac{P_o}{P_u} \]

or \( \frac{P^*}{P^*_o + W^*_o} > \frac{W_o - (W_o P^*_o)}{W_u P^*_o} \) \( (6*) \)

Now the L.H.S. of (6*) is less than unity. However, the R.H.S. of (6*) is greater than unity since from (2), \( W_u P = E_w - W_o P_o \), and by the assumption of the problem \( W_o > E_w \).

Thus the condition (6*) is never fulfilled, and the average earnings in the U-sector must fall when \( P^*_o \) increases and \( P_u \) falls.

In the alternative case, discussed in case (c), for earnings in the U-sector to increase we must have:

\[ \frac{P^*}{u} > -\frac{P^*}{P_o} \cdot \frac{P_o}{1-P_o} \]

or, \( (\frac{P^*_o + W^*_o}{P^*_o}) \cdot \frac{W_o}{W_o} \cdot \frac{P_o}{P_u} > \frac{P^*_o}{P^*_o} \) \( (2^c) \)

or, \( \frac{P^*}{P^*_o + W^*_o} < \frac{W_o - W_o P^*_o}{W_u P^*_o} \) \( (8^c) \)

Both the L.H.S. and the R.H.S. of (8*) are less than unity, so that the required condition may be satisfied, an average earnings in the U-sector may increase when \( P^*_o \) falls and \( P_u \) increases, depending on the actual magnitudes involved.
Case (c). Only in the case where labour income is growing faster in the U-sector $\sigma > (\gamma + v)$ that we have the possibility of earnings increasing over time in this sector. This case is the obverse of Case II (i). With $\sigma > \lambda > \gamma$, $P_0$ decreases and $P_u$ increases. Although from (5*) these two trends are seen to have opposite effects on $E_u$, it is shown in the footnote that in this case, unlike Case b (ii), there is a possibility that $E_u$ may increase. But, as already discussed in II.1, the possibility of $\sigma$ being greater than $(\gamma + v)$ is at best a short-run phenomenon with the kind of linkages between the two urban subsectors we have been assuming.

The essential point is that with migrants responding to a positive wage gap between the rural and the urban formal sector, labour income in the urban U-sector has to increase faster than that in the $O$-sector to prevent earnings in the U-sector from declining. But this does not seem very possible unless the share of wages in the income of the $O$-sector declines over time, since the rates of growth of total income in the two sectors are equalized in equilibrium (and, in fact, with a downward drift of $\sigma$ and $\beta$ the rate of growth of total income in the $O$-sector is likely to be higher).

It should be noted that, contrary to what might be expected intuitively, the value of $v$ which is equal to the rate of increase of $O$-sector wage does not seem to be critical in determining the course of average earnings in the U-sector over time. As long as $\gamma + v > \sigma$, $E_u$ declines, whatever the absolute value of $v$. To take the extreme case of $v = 0$, 
with $z$ being small in 7(a), the downward trend in the values of $\alpha$, $\beta$ may be sufficient to ensure that $\gamma > \sigma$ and a decline in U-sector earnings over time.

Nevertheless, the absolute value of $v$ may be of importance in determining the development of some other important features of the urban labour market. Unless the value of $v$ is small, we are likely to have case b(i) rather than b(ii), so that $P_0$ falls over time. The number employed in the organized sector declines as a proportion to total urban employment. The labour market develops a sector protecting the labour aristocracy whose wages increase through time while the earnings of an average worker in the rest of the market show a persistent decline even if daily wage rates are maintained; and the privileged sector becomes a diminishing part of the market. This is probably the phenomenon of "dualism" within the urban labour market which observers have frequently sensed, and which has sensitive political implications.

II.3 Policy Implications

(a) Increasing O-sector Employment

It is evident from the analysis that any attempt to arrest the decline of average earnings in the U-sector by increasing the rate of employment growth in the O-sector will be self-defeating. If the equilibrating mechanism in equation (7a) works strongly, then an increase in $\gamma$ will in due course increase $\sigma$ by an equivalent amount, and there will be no net overall change in the trends in the labour market. In the short run - which may indeed be a considerable time span - an increase in $\gamma$
without a corresponding increase in \( \sigma \) will accentuate the problem of declining earnings in the U-sector. It will be recalled that the problem arises when \( \gamma + v > \sigma \). Any increase in \( \gamma \) increases the discrepancy in the wrong direction. The value of \( P_u \) will decline even faster than before, and although \( P_o \) may decline at a slower rate or may even increase, the former effect will dominate. From a welfare point of view it might be better if the urban labour market shows the characteristics of Case b (ii) rather than Case b(i) — as it might with a higher \( \gamma \) — but it does nothing to arrest the decline of average earnings in the U-sector.

(b) **Dampening Wage increase in the O-sector.**

The model of Section II.2, which we have been considering, assumed that wages in the O-sector increase at the same rate as labour productivity. Policies to limit or slow down the rate of increase of wages in the O-sector mean, within the framework of this model, a fall in the value of \( v \). The close relationship between the rates of increase of wages and labour productivity implied in this view of the problem is, in fact, consistent with several pieces of empirical work on LDC employment problems. Reynolds and Gregory [1965] found in their well-known study on Puerto Rico that the increase in minimum wages in the island led to rapid changes tending to reduce labour cost — not so much through substitution of capital for labour as through better selection and utilization of the labour force so as to increase its overall efficiency. Several African studies have indicated that wage increases call forth forces quickly to increase the productivity of workers. [cf. Frank, 1968 and Harris}
and Todaro, 1969]. Thus the slowing down of wage inflation can be expected to induce a decrease in the value of v. Now if the rate of growth of production in the O-sector remains unchanged this must imply that the rate of growth of employment (γ) must increase. Since the problem of declining earnings in the U-sector arises because γ + v > σ the policy of wage restraint does not really solve the problem if we merely have γ increasing at the expense of v. However, any trade-off between γ and v in favour of the former is desirable in so far as it increases the proportion of employment in the privileged sector.

The point made in the last paragraph is different from the more general point that a decrease in v (and for that matter γ), if it is not offset by compensating changes in other variables, may ease the problem of declining earnings only temporarily. Because of the linkages between the two urban sub-sectors a fall in the value of (γ+v) could be expected eventually to bring down σ in terms of equation 7(a).

(c) Reducing the share of wages in O-sector income.

The problem of declining earnings in the U-sector may be avoided if the share of wages in the O-sector could be allowed to fall. To illustrate: let us consider an extreme Lewis type of model in which the formal sector wage Wo remains constant in the same way as Wu. In this case, if there is equilibrium growth of income in the two subsectors, as given in 7(a), we must have σ > γ, since v can be expected to be significantly larger than z. The labour supply to the urban market thus grows at a rate higher than γ, but lower than σ. Thus Po falls through
time and $P_u$ increases - leading to opposite effects on average earnings in the U-sector. However, with $E_w$ constant $P_u$ increases by a larger amount than $P_o$ falls, and U-sector earnings show an upward trend. The opposite trend is, however, possible if we do not have equilibrium growth in the urban economy because of a downward trend in the values of $\alpha$ and $\beta$ (which may, indeed, be induced by the falling share of wages in the O-sector). In this case $(Y+v)$ will continue to be higher than $\sigma$, and unless $v$ is large it is possible for $\gamma$ to be greater than $\sigma$. Thus $P_o$ increases and $P_u$ falls, and the net effect is for U-sector earnings to decline. This brings us to the crux of the problem - the magnitude and changes in the value of $\alpha$ and $\beta$ the propensities to consume the U-sector goods.

(d) Policies to increase the Values of $\alpha$ and $\beta$.

It was seen that if the share of wages in the O-sector does not fall, the rate of growth of income in the U-sector has to be higher than that in the O-sector to prevent the undesirable trends in the urban labour market we analyzed in Section II.2. This can be achieved only with $\alpha$ and $\beta$ increasing over time. In our analysis we did not consider substitution between the goods produced by the two sectors due to changes in relative prices. This is because, with our assumptions, the wage cost per unit of output remains unchanged for both sectors. In any case, it is

\[ \frac{dP_u}{dt} = -(W_o/W_u) \cdot \frac{dP_o}{dt} , \] 

and noting $W_o > W_u$.

---

5/ This can be seen simply by differentiating (2) with respect to $t$.
not known a priori to what extent the goods produced by the two sectors are competitive with each other for consumption in the local market. Much more research needs to be done to identify policies which will help to increase the propensity to consume U-sector goods. Here we can only underline the point that, in terms of the model of the labour market we have been analyzing, this is, indeed, the critical issue.

It should be added in this connection that policies to increase agricultural productivity will also tend to prevent a decline in U-sector earnings by increasing the supply price of labour, $E_w$.

To conclude this section: direct measures to increase $\alpha$, $\beta$ and $E_w$ are of central importance to the problem of earnings in the U-sector. Policies of wage control in the O-sector, given the initial rural-urban wage gap, may not affect the course of U-sector earnings significantly, but are still desirable in so far as they can be expected to increase the relative size of the high wage sector in the urban market (by affecting $Y$).

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6/ This argument ignores possible effects on the migrants' expectations about future wages in the O-sector.
III. The Urban Labour Market with Two Types of Workers

We have so far assumed in our analysis that all migrants from the rural areas are competing for a job in the organized sector. But the urban labour market may contain a sizeable body of migrants who are there only for a short spell without any wish to seek a permanent career in town. They will be sharing in the employment offered in the unorganized sector together with those who are competing for a more permanent job in the organized sector. Such migrants, who might be called "visitors" to distinguish them from the more "regular" migrants might be of several categories: (a) seasonal migrants who are willing to be absent from agricultural work only during the slack season; (b) "target workers" seeking to meet a specific demand for cash; (c) migrants for short periods of their working life during which their marginal contribution to the family pot is small.

The regular migrants are concerned with both sectors of the labour market and their expected wage is:

\[ E_W^R = P_{Wu}^R + P_{Wu}^O \]  

\[ \ldots (2') \]

The visitors, on the other hand, operate only in the unorganized sector and their expected wage is:

\[ E_W^V = P_{Wu}^V \]  

\[ \ldots (2'') \]

Here \( P_u^- \) is redefined as:

\[ P_u^- = \frac{N_{u,t-1} + \Delta N_u}{N_{T,t-1} + S_{mt} + G_t + V_t} \]  

\[ \ldots (4') \]
We now have two supply functions of migrants

\[ S_{mt} = f(E_w^r) \quad \text{....(1'), for "regulars"} \]

\[ V_t = g(E_w^v) \quad \text{....(1''), for "visitors"} \]

Together with the old equation (3) defining \( P_o \), we have six equations to determine the six variables \( E_w^r, E_w^v, P_o, P_u, S_{mt} \) and \( V_t \).

If the supply functions for both types of migrants are upward sloping we will, in normal equilibrium, have both types of migrants in the urban market, and the "visitors" will have a lower expected wage than the "regulars". This situation is depicted in Fig. 1.

\[ \text{Figure 1} \]

If one of the supply curves of migrants is completely elastic, we will still have both types of migrants in the labour market (with the supply price of "visitors" being at a lower level), so long as the other supply curve is upward sloping in the relevant wage. Thus, in Fig. 2 the given \( E_w^v \) determines \( P_u' \), and \( P_u' \) in turn determines \( S_{mt} \). The same mechanism operates vice versa when the \( S_{mt} \) function is completely elastic. It then determines \( P_u' \), and given this and \( W_u \), the migration function for visitors determines \( V_t \).
However, if both migration functions were completely elastic, then, barring a most improbable coincidence, one type of migrant will completely displace the other. For example, if $E_w^V$ was very low, the earnings in the U-sector $P_u^W W_u$ will be low, and the expected earnings of regular migrants ($P_u^W W_u + P_0 W_0$) could well be below the given supply price of regular migrants ($E_w^R$), so that the only migrants in this case will be the visitors. Alternatively, $P_u^R$, determined from the regular migrants' balancing of their chances in the organized and unorganized sectors taken together, could lead to a $P_u^W W_u$ which was below the supply price of visitors, so that no visitors would be attracted to the market. The latter would indeed be the case if $E_w^R$ and $E_w^V$ were equal; and it may seem that since both types are temporary migrants while they are operating in the U-sector, the presumption would be in favour of their supply prices being equal. But there are two reasons why this may not be so: (1) the regulars
wishing to break into a permanent career in the O-sector will need to make their presence felt more systematically in the urban market, while the visitors may come only in periods when their opportunity cost is low. In terms of a one period model this means that generally $E^w_r$ will be greater than $E^v_w$; (ii) although we have so far been carrying on the discussion as if only migrants of a particular type would be exclusively interested in the U-sector of the market, there will be several groups of the native urban population who would form part of this group. These will include the secondary workers whose participation in gainful activity outside the home is sporadic - as is probably true of married women, or whose entry into the formal sector is severely restricted for one reason or another - as is true of non-prime age male workers in many labour markets. If this group is in fairly elastic supply at a low supply price, then only those temporary migrants whose marginal supply price is below this level will be participating in the U-sector. In other words, interpreting equation (1'') to include migrants as well as a section of the natives $E^v_w$ could be below $E^r_w$ because of the lower supply price of the special groups of natives in the market.

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7/ This statement does not mean that no non-prime age male worker is ever employed in the organized sector, but that the barriers to entry for these groups is sufficiently strong for them to evaluate their probability of getting an O-sector job as negligible. Such barriers could be due to conventional discriminatory practices or to rational employer response to legislation determining minimum wages and other working conditions. For evidence on age and sex selectivity of workers found in the O-sector, see Mazumdar [1974].
Thus when \( E^V_w \) is less than \( E^R_w \) for either of these two reasons, it is possible, with a perfectly elastic supply curve for both regulars and visitors, for the regulars to be excluded from the U-sector. When regulars are excluded from the U-sector, they would presumably be wholly unemployed during their period of search for an O-sector job. But to tie up the analysis on this point, it is necessary to introduce an additional assumption: it is that the probability of getting an O-sector job when an unemployed person is searching full-time (call it \( P_f \)) is greater than the probability \( P_0 \) we have been talking about so far as the assumption that the job-seeker is employed part time in the U-sector. In this case we will have:

\[
E^R_w = P_f W_o > P_0 W_o + P_u W_u \quad ..... (8)
\]

The regular in other words, evaluates the enhanced probability of getting an O-sector job as greater than the equilibrium earnings in the U-sector.

In fact, the visitors, many of whose participation in the urban labour market is short-term or intermittent, are much more likely to have an elastic supply function than the regulars who are interested in a long-term commitment. Thus the more realistic case would seem to be that represented in Figure 2. Depending on the level of earnings established in the U-sector by the visitors' supply price, some regulars (O0A) do participate in the U-sector even while looking for O-sector
jobs, but others (AB) are totally unemployed during the process of
search.

The material introduced in this section leads to several
interesting conclusions and the revision of some of the results of
Sections I and II.

(a) If the "visitors" dominate the U-sector, as has just been
discussed, or if an elastic supply function for visitors is
combined with an inelastic supply curve of regulars, then the
level of earnings in the U-sector is independent of conditions
of employment and wages in the 0-sector (although in the
latter case both "regulars" and "visitors" are found in the
U-sector). It is determined by the (constant) supply price of
visitors. Thus even if there is a gap in earnings between the
two urban sub-sectors, the level of earnings in the U-sector is
not below the relevant supply price of migrants (as was seen to
be the case if predominantly regulars came in response to the
wage gap). The policy conclusion of some importance follows
that a reduction in the wage gap between the rural sector and

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8/ The definition $P_0$ in equation (3) is unchanged, except that the
denominator now includes the unemployed job searchers as well. $P_f$
is greater than $P_0$ by a factor which will presumably vary inversely
with the degree of underemployment in the U-sector, $1-P_u^r$

9/ Note that the inelasticity of the supply function of $E_r^u$ is compatible
with the constancy of the marginal supply price of regulars over time.
The supply are shifts from period to period.
the urban O-sector, will not increase earnings in the U-sector. It will only alter the proportion of regulars and visitors found in the sector.

(b) In this case earnings in the U-sector will not move over time determined by changes in \( P_O, W_O, \) and \( P_u \) as discussed in Section II. Whatever the values of \( P_O \) and \( W_O, P_u \) (with unchanged \( W_u \)) will always adjust to give a level of earnings equal to the constant supply price of visitors. Changes in \( P_O W_O \) merely affect the proportions of regulars and visitors to be found in the U-sector, and the problem of declining earnings discussed in Section II is obviated.

(c) In some cases, when U-sector earnings are low because \( E^V_w \) is low, and regulars are largely excluded from the U-sector, the latter does not serve as a channel through which migrants pass into the O-sector. Paradoxically, in this case, migrants wishing to enter the O-sector will be selected from relatively high rural income groups. Many migrants with moderate income levels will be deterred from looking for work in the urban market because the established level of earnings in the U-sector is too low relative to their supply price, even after taking account of the probability of getting an O-sector job. Only those migrants will be involved in job search in the urban market who can finance themselves during this period. In other words, the marginal supply price of some groups of migrants \( E^r_w \)
is high not because their alternative income is higher, but because the cost of financing their job search is high (ultimately, of course, because of the imperfection of the capital market).

(d) Finally, the differentiation in the supply prices of the visitors and the regulars suggests that in some cases the observed gap in earnings between the two urban sub-sectors may give a misleading idea about wages in the O-sector being held at an artificially high level by institutional pressure. The two sub-sectors, absorbing different types of workers (and migrants) may both be in equilibrium with levels of earnings equated to the respective supply prices of the two groups.

10/ For an example of a two-tier labour market with different levels of earnings, well before the era of trade unions and government legislation, see Mazumdar [1973].
Conclusions

The paper investigated the workings of an urban labour market with two sub-sectors - entry into one of which (the U-sector) is easy, and in which variable hours of work permit the possibility of someone employed in the sector searching for a better paid job in the O-sector. The theoretical analysis helped us to classify several distinct labour market types which are likely to be found in LDC's. It will be useful to summarize these types for the benefit of the reader.

1. A two-tier urban market fed by migrants wishing to break into the sector with artificially elevated wages, would generally be characterized by underemployment and low income in the U-sector. In equilibrium, U-sector earnings would be below the marginal supply price of migrants. The changes in income distribution in such a market over time would depend on the rates of growth of income in the two sub-sectors (which are interrelated), and on the behaviour of wages and labour productivity in the O-sector. Three main types of changes over time in the market were distinguished.

2. The most undesirable case from the point of view of worsening income distribution is one in which wages and productivity in the O-sector increase at such a rate that the rate of growth of labour supply to the market (l) is greater than the rate of growth of O-sector employment (γ), as well as that of the U-sector income (σ). In this case - case b(i) of Section II - wages increase in the O-sector while earnings decline in the rest of the market (if the alternative income in the rural sector is constant), and at the same time the privileged sector becomes a diminishing part of the market in terms of labour absorption.
3. If the rate of increase of wages and productivity in the
O-sector is not too large \( \ell \) will be less than \( \gamma \), although still less
than \( \sigma \) - case b (ii). Earnings in the U-sector still decline relative
to O-sector wages as well as relative to income in the agricultural sector
but at least the share of urban employment in the privileged sector tends
to increase.

4. We can have declining earnings in the U-sector even if wages
and productivity do not have an upward trend in the O-sector. This will
come about if there is a downward trend in the marginal propensities to
consume U-sector goods \((\alpha, \beta)\), - with the result that the rate of growth
of income in the O-sector is higher than that in the U-sector.

5. The prevalence of two types of job seekers in the urban market
- those with and without an interest in breaking into the O-sector, called
regulars and visitors respectively - modifies the results to some extent.
An interesting labour market type can be distinguished in which the
equilibrium level of earnings in the U-sector is uniquely determined by
the (elastic) supply function of visitors. U-sector earnings in such a
market are independent of conditions of employment and wage changes in
the O-sector, although the latter determine the proportions of visitors
and regulars found in the U-sector.

6. If the visitors' supply price establishes U-sector earnings
at too low a level then regulars may be largely excluded from this market.
Thus, in spite of ease of entry and variable hours of work, the U-sector may
not serve as a channel for new workers wishing to break into the O-sector,
or provide the opportunity of financing their job search. In this case
the regulars will be totally unemployed during their process of search and the presumption is that they would come from a relatively higher income group than otherwise.

7. The difference in supply prices of the visitors and the regulars suggest that the difference in the levels of earnings between the two urban sub-sectors may give a misleading idea about wages being artificially elevated in the O-sector. In some labour markets, equilibrium earnings will be established at different levels in the two sectors, determined by the different supply prices of the two types of job-seekers.

It is hoped that this classification of possible types of labour markets, based on the theoretical analysis of the paper, will provide a useful framework for empirical investigation of trends and conditions in urban labour markets of LDC's. No attempt has been made to cite empirical evidence in this paper. Some of the available empirical material (which is still woefully small) has been reviewed in Mazumdar [1974].

Attention may be drawn, in conclusion, to the substantial problems of worsening income distribution in the urban economy found in the labour market types 1-4. Policy measures to arrest this trend were reviewed in Section II.3.
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The Rate of Open Unemployment

It may be useful to point out the implications of our models for the equilibrium rate of open urban unemployment as discussed by Todaro. The burden of our discussion has been that the problem in urban labour markets of LDCs is that of low income in the unorganized sector. If, however, a situation like that discussed in the cases (a) and (b) of Section II in the text persisted for a long time, there will be a continuous downward trend in the income per earner in the unorganized sector - so that ultimately the latter tends to zero, and we have a state in which job-seekers are totally unemployed. This will be especially so if in the specific labour market concerned the unorganized sector accounted for a relatively small part of the total employment. In this case equilibrium will be established when $E_w = P_o W_o$.

From equation (3) given in the text, and taking a continuous time version of the model, we have:

$$\gamma N_o (t) = \frac{E_w}{U(t)} = \frac{W_o}{W_o}$$

-- 3(a)

It is necessary at this stage to distinguish between two concepts of the rate of unemployment - what we might call the "gross" rate and the "net" rate. When the rate of growth of urban employment is expanding at a constant rate at any point of time there will be job vacancies equal to $\gamma N(t)$, and these jobs will be competed for by job-seekers given by $U(t)$. 
The "gross" rate of unemployment can be defined as the number of job-seekers at any point of time relative to the total number employed in the organized sector of the labour market. The "net" rate of unemployment on the other hand, is the total number of job-seekers minus the number of vacancies as a proportion of the total employed. We can then derive the two measures from 3(a). The gross rate of unemployment is

\[
U(t) = \frac{\gamma W_0}{E_w} \quad \text{-- 3(b)}
\]

The net rate of unemployment is:

\[
\frac{U(t) - \gamma N_0(t)}{N_0(t)} = \frac{U(t) - \gamma}{N_0(t)} = \gamma \left[ \frac{W_0}{E_w} - 1 \right] \quad \text{-- (9)}
\]

It is seen from (3b) that the gross rate of unemployment varies directly with the rate of growth of urban employment \(-\gamma\). Differentiating (9) with respect to \(\gamma\) it is seen that the net rate of unemployment also varies directly with \(\gamma\) (given \(W_0\) is greater than \(E_w\)). This conclusion is the exact opposite of the conclusion reached by Todaro in his model of urban employment. Thus we disagree with Todaro's policy conclusion that when the rural-urban wage ratio increased, by a certain amount (say 1.9 per cent), "the rate of modern sector job creation must grow by an additional 1.9 per cent just to prevent the equilibrium employment rate from falling below its original level" [Todaro, p. 146]. The increase in the rate of
growth of urban job creation will increase the urban unemployment rate even further than the increase caused by the lift in the wage ratio.

From (3b) and (9) we also see that both rates of urban unemployment varies directly with the extent of the wage gap \( \frac{W_o}{E_w} \).