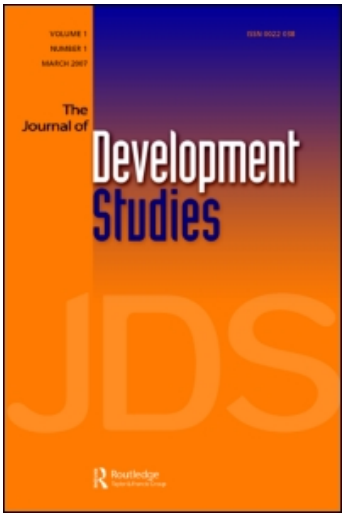


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# The employment effects of wage changes in poor countries

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# The Employment Effects of Wage Changes in Poor Countries

*By Frances Stewart* and John Weeks***

*It is commonly argued that a rise in 'modern' sector wage rates in poor countries will reduce employment as a result of factor substitution. However, it is shown that this need not apply, even assuming the existence of high elasticities of substitution, if there are segregated labour markets, as is common in poor countries. When all labour markets are considered, a rise in 'modern' sector wage rates may* increase *total employment opportunities through the shift in demand towards the more labour intensive low-wage sector. The effects of a rise in 'modern' sector wage rates must, therefore, be analysed in terms of its effect on the distribution of employment opportunities and income throughout the whole economy and not just in one sector.*



A familiar conclusion of marginal analysis is that a rise in the wage rate will, *ceteris paribus*, lead to a fall in total employment; and conversely, a fall in the wage rate will increase the level of employment. The Keynesian revolution, and subsequent developments in the theory of distribution, have destroyed this proposition for policy purposes for developed countries.[1] Yet it remains a central proposition of policy in poor countries.[2] It is our contention that this central proposition—viz., that a rise in wage rates will reduce employment and a decrease will raise employment—is not valid for poor countries either; a rise in the wage rate may increase total employment in some plausible circumstances.

Before going into our argument, it is worth recounting briefly why the Keynesian analysis of the relationship between wage rates and employment is not generally accepted as relevant to poor countries. Broadly, two reasons have received emphasis. First, the type of unemployment to which Keynesian demand remedies apply is that associated with spare capacity in machinery—across the board—as well as spare capacity in the form of under-utilised labour. Although spare capacity in machinery does, notoriously, exist in poor countries [*Little, Scitovsky and Scott, 1970, Ch. 3; Brecher and Abbas, 1972, pp. 126–8, 131–8; ILO, 1972, Ch. 8*], it does not exist in a form which can be remedied by expansion of aggregate demand. It usually does not occur in a balanced form. Expansion of output

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in excess-capacity industries is limited by simultaneous supply constraints elsewhere in the economy, such as basic power industries. Frequently, the spare capacity may be the result of the restriction on the importation of intermediates, which is a consequence of structural and chronic balance-of-payments disequilibrium. Thus the consequences of an increase in aggregate demand are bottlenecks in domestic capacity in key sectors, intensification of balance-of-payments pressures, and domestic price inflation. At most, Keynesian unemployment—i.e., the unemployment of labour that could be absorbed by fuller utilisation of existing machines resulting from an increase in aggregate demand—forms only a very small proportion of total labour under-utilisation [*Rao, 1952; Eckaus, 1955*].

Keynes, in contrast to many of his followers, did accept at least in part a marginal productivity theory of wages. He believed an expansion of employment would be accompanied by falling marginal productivity of labour and a falling real wage rate. However, he believed that the decline in the real wage would be a consequence of the expansion in employment, not a cause. It would not be a cause because the state had no control over the level of real wages; at best it could affect the level of money wages. What happened to real wages depended on the relationship between money wages and the price level. In an economy in which all sectors were affected by a change in money wages, the most likely consequence of a money wage change (upwards or downwards) was a similar change in prices, with no effect on the real wage rate. For this reason Keynes believed that manipulating wages would not be effective in determining employment since the policy makers could influence only the money wage, whereas the real wage was the key variable.

In developing economies, however, changes in money wages in the relatively small 'modern' sector may also constitute changes in real wages. The workers affected only spend a proportion of their incomes on the products they produce, and their consumption of these products accounts for only a relatively small proportion of total sales. Their wages, in general, are only a small proportion of the costs of the products they produce as compared with rich countries. Hence the price level of the products they produce is unlikely to be proportionately affected by a change in money wage rates, so that the ratio of money wages to product prices[3] is likely to be changed by a change in the money wage. The important point is that *prima facie* there is more reason to suppose that changes in money wages will cause changes in real wages, where the controlled sector forms only a small proportion of total activity, and this is the reason why the Keynesian attack on the idea of determining employment via control over money wages appears less effective in the context of developing countries; it is the dualistic nature of developing economies that reduces the effectiveness of the Keynesian critique. It is precisely this dualistic aspect of developing economies on which our main argument is based.

We assume:

(1) that there exist two markets,[4] or sectors, for non-agricultural labour, the controlled sector where the level of money wages is determined by trade union and employer bargaining and government intervention, and the

uncontrolled sector where incomes are determined by competitive forces.[5] In the controlled sector wages are above their competitive level in the sense that there is excess supply of labour at the ruling wage rate, and the rate would drop in the absence of trade unions, and government. The supply of labour to the controlled sector comes from the rest of the economy, including the uncontrolled sector. Wages in the controlled sector are above those of the uncontrolled sector.[6] The supply of labour for the uncontrolled sector comes from the agricultural sector, the unemployed and the underemployed (i.e., those working short hours in any part of the economy.) According to the Todaro model [*Todaro, 1959*], workers take into account incomes in the high-wage sector, and their estimates of the likelihood of getting a job, in deciding to migrate from the rural sector and deciding whether to look for a job in the urban sector. But his is a two sector model, and assumes that anyone without a high-wage job in the urban sector is unemployed. When we introduce a three-sector model—urban high-wage, urban low-wage and rural—the picture is substantially altered. Workers deciding to migrate to the urban sector must now take into account the near certainty of getting some sort of (low-wage) job in the urban sector as well as the possibility of acquiring a high-wage job, assuming, which seems reasonable, that employment in the low-wage urban sector does not rule out the possibility of acquiring employment in the high-wage sector. Thus supply of labour to the low-wage urban sector is increased by those who join the sector as a stepping stone to the high-wage sector. The greater the wage-differential between the high-wage sector and the rural sector, the greater the supply of labour to the low-wage urban sector for any wage. Whether or not there is surplus labour in this sector is partly a matter of definition and partly of fact. If we define surplus labour as excess of labour supply (in hours) at the ruling wage rate, so an expansion (diminution) of employment does not affect the wage rate, there is surplus labour in so far as marginal disutility of work is constant over the relevant range. In terms of labour hours, if not of labourers [*Sen, 1966*], this may be a reasonable assumption. In any case it seems likely that, if not infinite, the elasticity of supply of labour hours to changes in wages in the uncontrolled sector is very high.

(2) Each sector produces goods and services which are close substitutes with goods and services produced by the other sector. The two sectors compete in terms of final output (sold to consumers) and intermediate commodities (sold as inputs to each sector).

(3) We assume (initially) a closed economy. Both sectors sell only to final consumers or to each other—i.e., the net output (i.e., value added generated in the sector) of each sector is equal to

$$o_1 = c_1 + o_{12}$$
$$o_2 = c_2 + o_{21}$$

where $o_1, o_2$ = net output of each sector;
$c_1, c_2$ = net output sold to consumers;
$o_{12}$ is net output of sector 1 sold as input to sector 2;
$o_{21}$ is net output of sector 2 sold as input to sector 1.

(4) The sectors do not face identical technical/economic opportunities.

If they did, the low wage sector would be at an absolute advantage as compared with the high wage sector and would take the whole market. The two sectors differ in other respects besides the wage rate:

(i) they have differing access to capital funds, with the low-wage sector having much more limited access, and having to pay a much higher price for the funds it does raise;

(ii) they differ in scale; the large scale high-wage sector can use machines which, because of indivisibilities, are not possible for the low-wage sector because of the latter's more limited access to credit, foreign exchange, and foreign technology; and

(iii) their products and services are not perfect substitutes; the high-wage sector tends to produce a more modern and standardised product which allows it to charge a higher price and serve a different market than the low-wage sector.

We may thus view the two sectors as facing different production possibilities, and different factor prices, from each other.

Given these differences between the sectors (the three above and the wage differential), an equilibrium situation may arise in which the sectors produce competing goods and services. 'Equilibrium' here means that there is no endogenous tendency for one sector to drive the other from the market, at any point in time.[7]

The nature of the equilibrium, the levels of output and employment in the two sectors, and the response of the system to changes in wage rates depend on the assumptions we make about the production function each sector experiences, and the method of decision making. We start by exploring the implications of adopting neoclassical assumptions—viz., diminishing returns to additional employment and profit maximising. Sub-

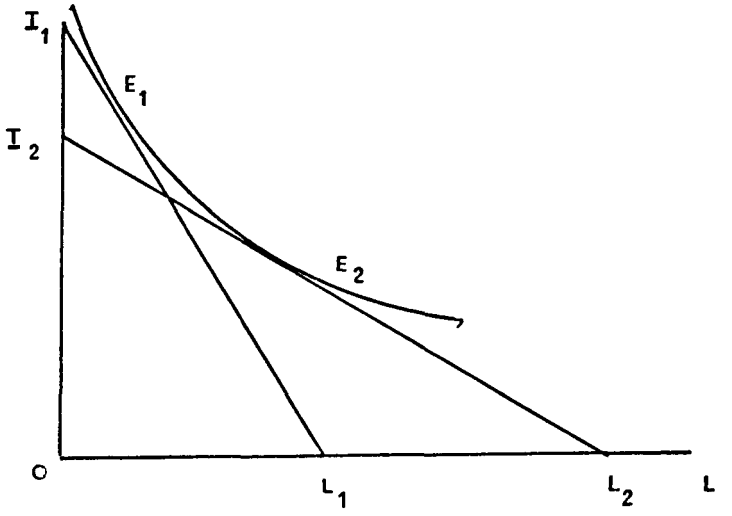


FIGURE 1

sequently we consider how our conclusions may need modification with more realistic assumptions.

Assuming diminishing marginal productivity of labour in each sector and profit maximisation, each sector will employ additional workers until the real wage is equal to the marginal product of labour. This is illustrated in Diagram 1 which shows the profit maximising equilibrium, $E_1$ and $E_2$ for the two sectors, assuming each is producing the same product—in quantity and quality—and they face different factor prices, represented by $I_1 L_1$ and $I_2 L_2$ in Figure 1. Under these assumptions, the low-wage sector will use more labour and less investible resources than the high-wage sector. The low-wage sector will be more labour intensive than the high-wage sector in terms of labour requirements per unit of output, and in terms of investment per man as compared with the high-wage sector. For stable equilibrium the marginal costs of each sector should be approximately the same. In this case, this requires that the extra cost of labour in sector 1, as compared with sector 2, is offset by lower cost of investment. In other words for production in both sectors along the same isoquant, the isoquant curve must also represent an isocost curve, given the differences in factor prices between the sectors. While this might seem to be a rather stringent requirement that makes it unlikely that both sectors would operate simultaneously and in equilibrium, there are other differences between the 2 sectors which make it more likely. In the first place there are *scale* differences. The high-wage sector generally only operates on a much larger scale than the low-wage sector. The large scale of the high-wage sector stems from the advanced country technology with which it operates, and the managerial requirements which are indivisible and make it worthwhile only to operate at a large scale. In contrast, the low-wage sector's limited access to capital and advanced country technology means that its scale of operations is much smaller. It is not necessary for our equilibrium that $MC_1 = MC_2$, only that they are not too divergent. The small firm, if family owned and run, may be content to operate at a lower unit profit. It is only necessary that the firm with the lower marginal costs does not sell at a price which is below the normal profit price level of the other firm. In addition, the very fact of getting larger leads to a rise in wages,[8] and hence a shift from low- to high-wage operations, as the firm becomes subject to union organisation, and government regulations. Thus the two sectors are not operating at the same scale as shown in Figure 1, but at different scales, as shown in Figure 2 below. Consequently, economies associated with scale may offset the extra costs generated by the higher wages sector 1 has to pay. It remains true that sector 1 is less labour intensive than sector 2 in terms of labour requirements per unit of output, and investment per man. Whether it is more or less capital using (i.e., has more or less investment per unit of output), depends on how far investment costs fall as scale rises. Further, the quality of the product produced tends to differ between the sectors. The high-wage sector product is more standardised, more advertised, and packaged, and often with more or higher quality attributes than the product of the low-wage sector. It can therefore sell for a higher price. Nonetheless, it is a close, if not perfect, substitute for the low-wage product

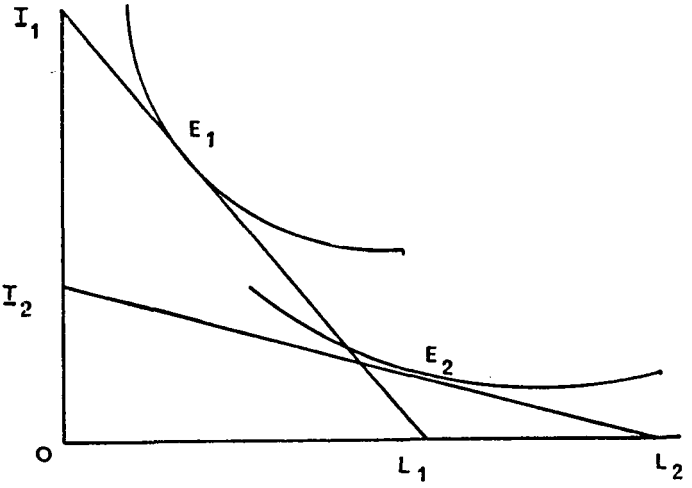


FIGURE 2



fulfilling many of the same needs. If $w_1$ is the wage in the high wage sector and $w_2$ the wage in the low wage sector, then

$$\frac{w_1}{w_2} = \frac{MPL_1}{MPL_2} \qquad (1)$$

and by hypothesis $w_1 > w_2$. Since, therefore, $MPL_1 > MPL_2$, it follows that any switch in output from sector 1 to sector 2 will increase employment. Hence analysis of the employment effects of changing wage rates must take into account the effects of intersectoral allocation of tasks as well as the effects on the level of employment in relation to any given output level in each sector.

An increase in the money wage-rate. $\Delta w_1$, in the controlled sector may be expected to have the following effects:

The increase on the wage rate in the sector will tend to reduce the level of employment associated with any given level of output of the sector. It is also likely to curtail the level of output of the controlled sector in one, or both, of the following ways. If prices are determined competitively entrepreneurs will not be able to pass on the extra wages in prices, and will therefore curtail output, which will have the indirect effect of raising prices of the controlled sector. In so far as prices are determined oligopolistically the increased wage rate may be passed straight on to consumers in the form of raised prices.

The rise in price (and curtailment of output) of the controlled sector will lead to an increased incentive to use the output of the uncontrolled sector, where there are close substitutes, both for intermediate products and for

final consumption. Increased output of the uncontrolled sector will lead to an increase in employment in that sector.

Thus the negative effects on employment of an increase in wages in the controlled sector—resulting from reduction of output in that sector, and substitution for labour [*Harris and Todaro, 1969*][9]—will be offset (in part, whole or even exceeded) by positive effects on employment in the uncontrolled sector.[10] We may summarise the effects algebraically, as

$$\Delta L = -\Delta L_1 + \Delta L_2$$

$$\text{where } -\Delta L_1 = -\left[\Delta w_1 \times \frac{\Delta L_1}{\Delta w_1} + \frac{\Delta O_1}{\Delta w_1} \times \frac{OL_1}{\Delta O_1}\right]$$

$$\text{and } \Delta L_2 = \left[\frac{\Delta O_2}{\Delta w_1} \times \frac{\Delta L_2}{\Delta O_2} - \Delta w_2 \times \frac{\Delta L_2}{\Delta w_2}\right]$$

$$\text{or } \Delta L = -\left[\Delta w_1 \times \frac{\Delta L_1}{\Delta w_1} + \frac{\Delta O_1}{\Delta w_1} \times \frac{OL_1}{\Delta O_1}\right] + \left[\frac{\Delta O_2}{Ow_1} \times \frac{\Delta L_2}{\Delta O_2} \quad \frac{\Delta w_2 \times \Delta L_2}{\Delta w_2}\right]$$

Most analyses look only at effects on employment *in the controlled sector*, and thus capture *only the negative effects* of a wage rise.

What, if anything, can we say about the magnitude of the changes, and therefore the net effect of the wage rise? First, we know that, because $w_1 > w_2$ and $MPL_1 > MPL_2$, then $\frac{L_1}{O_1} > \frac{L_2}{O_2}$. Thus, if we can assume that the total level of output is unaffected by the change, $\Delta O_1 = \Delta O_2$, then $\frac{\Delta O_1}{\Delta w_1} \times \frac{\Delta L_1}{\Delta O_1} < \frac{\Delta O_2}{\Delta w_1} \times \frac{\Delta L_2}{\Delta O_2}$ so that the magnitude of the third term (positive effect) exceeds that of the second term (negative effect). The question, then, is whether the excess, $\left[\frac{\Delta O_2}{\Delta w_1} \times \frac{\Delta L_2}{\Delta O_2} - \frac{\Delta O_1}{\Delta w_1} \times \frac{\Delta L_1}{\Delta O_1}\right]$ is greater than the sum of the remaining terms, which are both negative. The first term is the elasticity of substitution for labour in sector 1 in response to a wage rise. Many would argue that this is likely to be low, particularly in the short run when capacity (and the technique) is fixed. However, further discussion of this must await relaxation of the basic neoclassical assumptions below. The fourth term has not been discussed so far. It represents the elasticity of substitution for labour in the uncontrolled sector, and will only appear if wages in that sector rise too, i.e., if $\Delta w_2 > 0$. Whether wages do rise in that sector depends on the labour supply

in that sector. If there is surplus labour—i.e., excess supplies of labour at the ruling wage—as suggested earlier—then $\Delta w_2 = 0$. In the absence of surplus labour, the wage in that sector will tend to rise with an increase in employment in the sector, but given the labour supply situation the rise in wage is likely to be extremely small.

A key assumption is that the overall output level is unaffected—i.e., $\Delta O_1 = \Delta O_2$: what happens to the level of output, in response to a wage rise, is a complex matter depending on the propensity to consume of different classes, the effects of any price rises on the level of demand, and the response of the government to the changes in question. In a closed economy, no change in the level of output seems a reasonable assumption as the rise in purchasing power among workers enjoying a wage rise may offset any effect of a price rise—though of course this depends on what happens to the total wage bill, in both sectors combined. In an open economy the level of output also depends on foreign demand. In many developing countries, the overall level of output is set by foreign exchange availability in relation to propensity to import, as output expands. What happens to this balance, in this case, depends on price changes, subsequent exchange rate changes and flows of international capital, and the propensities to import of the two sectors. This is clearly a complex matter with which we cannot fully deal here. One can be fairly confident of two (offsetting) directions of change: on the one hand the wage rise and price rise, unless fully offset by exchange rate changes, may diminish the net trade balance and reduce the inflow of capital. On the other hand the propensity to import is likely to be higher in the high-wage than in the low-wage sector.

The discussion has been concerned with output and employment consequences of a wage change, where the 2 sectors are assumed to be producing substitute goods. Some of the output of the high-wage sector may be complementary, rather than competitive, with output of the low-wage sector. Some activities may be simultaneously substitutes and complements, in the sense that the activity as a whole—e.g., housing or repairs —is positively related to the level of output of the high-wage sector, while both sectors compete with one another in performing the activity. It might seem that where goods are complements rather than substitutes a reduction of output in the controlled sector will actually reduce output and employment in the low-wage sector. However, this only follows if the relation of complementarity holds between the output of the controlled sector and output of the uncontrolled sector, but *not* between output of the uncontrolled sector, and itself. In general, the opposite situation is likely. The uncontrolled sector is more likely to be complementary with itself (produce its own inputs and provide for its own consumption) than to be complementary with the high-wage sector. For example, repairs, transport and construction activities for the low-wage sector are likely to be performed by other enterprises in the sector, because members of the sector have close contacts with each other, and cannot afford the prices of the high-wage sector, whereas only a proportion of repairs, etc., needed for the high-wage sector are likely to be performed by the low-wage sector. Similarly, workers in the low-wage sector are more likely to live in houses produced

in the uncontrolled sector, than workers in the controlled sector. This tendency for each sector to use more of its own inputs and consumption goods, relatively, than those of the other sector, means that any initial switch of output between the sectors will tend to be reinforced, or multiplied, by a subsequent switch as source of inputs and consumption goods are also switched.

Two of the assumptions made above seem unrealistic: the nature of the production function facing firms in the two sectors, and the assumption that workers are employed so long as their contribution exceeds their wage. This last assumption is probably a reasonable assumption to make for the controlled sector. However, the uncontrolled sector is largely composed of family enterprises, some of whom may have an obligation to provide for family members irrespective of their contribution to the enterprise. In such a situation, the extra cost of employment may be close to zero. This means that the ratio of the labour intensity of the sectors may be greater than an assessment of the ratio of their wage levels would suggest. It is also likely to lead to a situation where many of the employees are underemployed (i.e., working few hours, or very unintensively.) In this situation while the method of production employed for an extra output will tend to be labour intensive, relative to the controlled sector, increased production may reduce underemployment of existing employees, rather than adding to the total *numbers* employed. An assessment of the effect on employment of a wage change (as in the expression above) should be calculated in terms of *labour-hours:* the effect on *labourers* depends on the extent and response of underemployment among existing workers.

It was assumed above that there was diminishing marginal product of labour in both sectors, and no distinction was made between the short run and the long run, nor was there any discussion of the investment implications of a change in the share of output of the 2 sectors.

The assumption that the wage is equated with workers' marginal product requires the existence of continuous variability between factors (men and machines) *and* that marginal product of labour diminishes as employment increases, both in the short run and the long. Fixed coefficients may prevail in some processes, particularly in the short run. Moreover, the amount of equipment available in each sector is fixed in the short run. If this capacity is underutilised, output is likely to increase more than proportionately with employment—i.e., the marginal productivity of labour is greater than the average product, and thus the real wage must be less than the marginal product of labour. As full capacity is reached, the marginal product drops sharply until it approaches zero. In the modern high-wage sector a form of J-shaped cost curve may often be the best approximation to reality.[11]

Consequently, the assumption made above of steadily diminishing marginal product of labour as employment increases, equated with the real wage, is unreal. So long as there is spare capacity, average product of labour is rising and the marginal product exceeds the wage. When full capacity is reached marginal product of labour is indeterminate or falls sharply below the wage rate. In contrast, the neoclassical model in which capital equipment may be gradually spread more and more widely, and

used more and more intensively, with an increase in employment, may be nearer to an approximation of reality in the low-wage sector. The obvious example is land, which may be used more and more intensively. But other forms of complementary assets—tools and equipment—may also be used more or less intensively. However, even in this sector there are areas where there is spare capacity of capital equipment and where output may increase more than proportionately with employment.

Once we drop the assumption that the wage is equated to the marginal product of labour in each sector, we can no longer assume that the ratio of the wages in the two sectors shows the inverse of the relative labour requirements for producing additional output. With spare capacity in each sector, we may assume that the wage sets the lower limit to the marginal product of labour in each sector. If there is spare capacity in each sector and,

$$\left.\begin{aligned} MP_1 &= \frac{\Delta O_1}{\Delta L_1} \geqslant w_1 \\ MP_2 &= \frac{\Delta O_2}{\Delta L_2} \geqslant w_2 \end{aligned}\right\} \qquad (2)$$

For given change in output, $\Delta O_1 = \Delta O_2$

$$\frac{\Delta L_2}{\Delta L_1} = \frac{(\geqslant w_2)}{(\geqslant w_1)}$$

then we may assume that the ratio of the wages gives some guide to the labour requirements.

Alternatively, we may assume that, while there is spare capacity in the controlled sector, the uncontrolled sector displays neoclassical diminishing returns and the wage is equated to the marginal product of labour. i.e.

$$\left.\begin{aligned} MP_1 &= \frac{\Delta O_1}{\Delta L_1} \geqslant w_1 \\ MP_2 &= \frac{\Delta O_2}{\Delta L_2} = w_2 \end{aligned}\right\} \qquad (3)$$

Therefore, for given increase in output, $\Delta O_1 = \Delta O_2$

$$\frac{\Delta L_2}{\Delta L_1} = \frac{(\geqslant w_1)}{w_2}$$

Or, as discussed above, we may assume that family obligations to provide employment mean that the wage sets the *upper* limit to the marginal product of labour, i.e.,

$$\left.\begin{aligned} MP_1 = \frac{\Delta O_1}{\Delta O_2} &\geqslant w_1 \\ MP_2 = \frac{\Delta O_2}{\Delta L_2} &\leqslant w_2 \end{aligned}\right\} \qquad (4)$$

and for given increase in output, $\Delta O_1 = \Delta O_2$

$$\frac{\Delta L_2}{\Delta L_1} = \frac{(\geqslant w_1)}{(\leqslant w_2)}$$

These alternative assumptions have different implications for the change in employment consequent upon a wage increase in the controlled sector. (2) above, as argued, may have similar implications, to that assumed initially, of $w_1 = MP_2$ in each sector. (3) above means that for any change in output, employment changes in the controlled sector are *less*, while those in the uncontrolled sector are the same, as under neoclassical assumptions. Hence the net employment effect is more likely to be positive (or likely to be smaller in a negative direction) than under neoclassical assumptions. Finally, the fourth set of assumptions (4) are likely to give the greatest positive, or the smallest negative, employment effect.

Thus a more realistic approach to the nature of available equipment capacity suggests modifications to the above analysis. The general proposition—that a switch in output from the high-wage to the low-wage sector is likely to increase labour use—remains true, but the wage rates in the 2 sectors cannot be taken as indicators of the changing employment requirements.

In the longer run a change in sectoral allocation of output will have implications for investment requirements. In so far as the investment costs per unit of output are lower in the low-wage sector, investment requirements, for a given output growth, will also be lower. But we argued above that this was not necessarily always the case. The impact on savings must also be considered. The normal assumption that more labour intensive employment reduces savings does not apply here, because it supposes a uniform wage rate between techniques, whereas here the wage rate is assumed to differ between the sectors. The impact on savings available for reinvestment depends on the wage bill as a share of output in each sector, and the propensities to save of entrepreneurs and workers in the 2 sectors. The evidence on these propensities is scanty and unreliable. The frequent predominance of foreign investment in the high-wage sectors (and its

complete absence in the low-wage sector) also influences, via remitted profits, the availability of savings for local investment.

There are also consumption effects of the wage increase, which in the long run might have an important impact on the sectoral distribution of output, independent of relative price changes. This is difficult to analyse *a priori*, because we cannot predict with confidence the impact of an increase in the controlled sector wage on the wage bills in the two sectors. Let us take the case where a higher wage and less employment in the controlled sector results in a higher wage bill (the demand for labour is inelastic). Higher wages may make this larger wage bill more import and sector 1 intensive, if such goods are characterised by high income elasticities. In such a case, there could be a secular shift in demand away from the low-wage sector by high-wage workers.

However, if the rise in the controlled sector wage results in an increase in the sector 2 wage bill which is greater than the increase in the sector 1 wage bill, one would have to know the consumption patterns of low-wage workers in order to reach an overall conclusion. As argued above, workers in the low-wage sector, because of their lower incomes and their close relationship with the sector, would tend to spend a higher proportion of their income on products from sector 2 than would be the case for high-wage workers.



It is, perhaps, illuminating to compare the relationship between high- and low-wage sectors *within* a poor country, to that of the relationship between a developed (high-wage) country and a poor (low-wage) country. Given fixed exchange rates—which of course are implicit in the relationship between sectors within a country (a single monetary area)—and in the absence of tax/subsidy arrangements, a rise in wage rates in the high-wage country will reduce its competitiveness *vis-a-vis* the low-wage country, and, to the extent that output between the 2 countries is competitive, will increase the share of output produced by the poor country. Given the greater labour input per unit of output in the poor country, and the availability of surplus labour in that country, world employment will be increased as a result. The switch in output towards the poor country is likely to lead to a greater use of inputs and consumption goods from the poor country, reinforcing the original change, on the assumption that there is spare capacity in the poor country. As with our two sector model, the net effect on output and employment will depend on the effect on the total level of world output, as a result of the change. The analogy between the two situations breaks down here, however. In the first place, given restrictions on migration of labour, the high-wage country does not have access to surplus labour from the low-wage country, as the high-wage sector does from the low-wage sector. In the second place, the rich countries can be assumed to give priority to full employment of *their* labour force, in their policies, and pay no attention to employment in the poor country. In the third place, and most important, the rich country has control over its monetary, exchange rate and budgetary policy, and may therefore react in a

way that will offset the initial change, which may not be possible for the high-wage sector in the poor country.

DISTRIBUTION OF INCOME WITH DIFFERING HIGH-WAGE SECTOR WAGE RATES

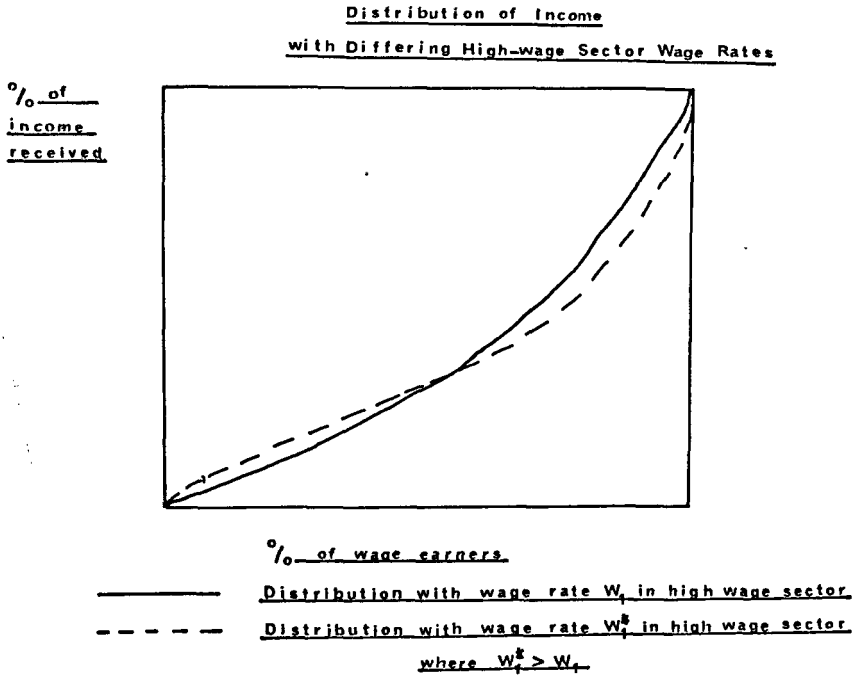


FIGURE 3

We have not been concerned here to discuss the welfare implications of the possible strategies. A lower wage rate in the controlled sector may involve greater employment opportunities there, and less in the low-wage sector. A higher wage rate, while diminishing employment opportunities in that sector may expand them more than proportionately in the low-wage sector. Which is better, from a welfare point of view, is a complex matter depending on how one values the relative welfare of different groups of workers and different income categories. This is a situation where Lorenz curves cross, as indicated in the diagram below. To draw welfare implications in such situations is notoriously difficult.

In conclusion, we stress that our model may not be sufficiently realistic. In particular, we have dealt for the most part only with a closed economy. We have not examined, in detail, possible supply constraints in the low-wage sector. Nor have we examined the implications of the differing incidence of technical progress over time. However, we feel that analysing the employment effects of changes in wage rates in a two sector framework is an improvement on the one sector analysis, and the 2 sector approach

must be pursued if intelligent wages and employment policies are to be formulated.

NOTES

1. Though some are resuscitating the thesis for developed countries [see *Peter Wiles, 1973, pp. 83, 330*].

2. This is a key element in the ILO employment-promoting strategy [see *ILO, 1961, pp. 56 ff; ILO, 1964, pp. 141 ff; ILO, 1970, pp. 185 ff*]. The 'employment effect' of wage rates is stressed in a recent ODA paper, see Overseas Development Administration [*1972, pp. 17–20*]. The theoretical argument and an attempt to quantify it are found in J. R. Harris and M. P. Todaro [*1968*]. For a brief survey of the African literature on the 'employment effect' see [*C. R. Frank, Jr., 1971, pp. 799–801*].

3. The *real wage* may be defined as changing if the ratio of money wages, in aggregate, to product prices, in aggregate, changes. From the point of view of the entrepreneur this means that, for any given labour productivity, the cost of labour per unit of output has changed, and therefore there is an incentive to change production methods. It is this aspect of changing real wages which is relevant to choice of technique and demand for labour. It also means that the workers' command of purchasing power over the product has changed. This is the relevant aspect determining the standard of living of workers, the supply of labour and aggregate demand (in real terms) from workers' expenditure for the products produced.

4. For discussion of 'duality' in the industrial sector, see R. R. Nelson, T. P. Schultz and R. L. Slighton [*1966, Ch. 4*] and Kilby [*1969*].

5. A major proportion of employment in this sector is self-employment. However, for brevity, we normally refer to the sector as 'low-wage sector' because this emphasises its fundamentally distinguishing characteristics, access to low cost labour, in contrast to the high-wage sector.

6. See P. Kilby [*1967*], ILO [*1972, Ch. 13* and *1970*], for documentation for Nigeria, Kenya and Colombia. The existence of a dual labour market is generally accepted as valid for poor countries. For a model based on similar assumptions to ours, see D. Mazumdar [*1973*].

7. Over time technical progress, with differing incidence between the 2 sectors, may lead to one sector gradually ousting the other.

8. The association between wage rates and scale in developing countries has been well documented [see e.g., *Dhar and Lydall, 1961* and *Okita, 1964*].

9. It has been suggested that these authors' results are misleading on their own grounds, see C. R. Frank, Jr. [*1971*].

10. Todaro [*1969*] has also argued that an increase in the wage-rate may increase employment, but on quite different grounds. He argues that firms will suffer a reduction in income as a result of the wage increases. Given a rigid capital constraint this loss in income will mean that they cannot afford to buy (indivisible) machinery, and will therefore use more labour intensive methods of production than before. The effect on employment will thus be positive, assuming that the income effect out-weighs the substitution effect of the wage rise—i.e., assuming that labour is a Giffen good.

11. See J. S. Bain [*1968*], *Industrial Organisation*, for empirical evidence of J (on its side) and U-shaped cost curves in the US.

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