# International Trade and Labor Market Adjustment in Developing Countries

by

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## I. Introduction

The current school of thought in the growth literature appears to favor international openness as the appropriate strategy for generating sustainable growth in developing countries. Relatedly, the import-substituting (IS) paradigm that appeared to dominate much of the 1950s and 1960s has now given way to export-promoting (EP) strategies.[1] While policies based on these international trade-related modes of development are credited with promoting the relatively spectacular growth in especially East Asian economies, what remains unclear is the role of labor market adjustments in transmitting such growth to improving the welfare of the population, at least in the short run. Such transmission has become particularly important as current focus of the debate seems to have shifted from just economic growth to poverty reduction in developing countries.

The neoclassical approach, a la Heckscher-Olin-Samuelson, suggests that trade based on comparative advantage would be welfare-improving for all countries. However, the relative gains would be accrued to the factor used more intensively in the exportable, as the relative world price of the exportable would exceed the autarky price for the given country. Conversely, the factor more intensively engaged in the production of the importable would suffer a loss in its relative price, as demand is reduced with increased trade. Since developing countries tend to exhibit

unskilled-labor abundance relative to the rest of the world, these countries would thus benefit from trade.

As is well understood in the literature, however, there are several reasons why this neoclassical story must be modified, given the nature of developing countries. First, it is a "long-run" framework; second, factor markets are presumed to be "integrated", in that factors may move rather freely across sectors; and third, externalities and other market imperfections are assumed to be non-existent. It is, therefore, important to adopt a more relevant framework to assess the situation of the economies of developing countries. But even in developing countries, there are significant differences, depending in part on the level of development. Indeed, in some instances, the neoclassical framework may be more applicable. Hence, we shall consider this model in addition to what may be generally considered to be relatively typical of developing countries.

## II. The Neoclassical Framework and Labor Markets

Under the above neoclassical thesis, we would expect demand for labor to increase in the exportable sector via derived demand, as exports increase. This should raise both wages and employment. In contrast, output in the importable sector would contract, resulting in a decrease in the demand for labor in the sector. This would then reduce both wages (initially) and employment in the importable sector, though wages would rise as labor supply decreases in this sector, while it increases in the exportable sector. However, whether overall employment increases or not would

depend on the **net** effect across the two sectors.

There would be no distributional aspects in terms of labor (in the relatively orthodox model) either, since labor is assumed to be homogeneous and there are zero mobility costs. There would thus be labor reallocation from the importable to the exportable sector. Labor supply increases in the exportable sector as it decreases in the importable. (Indeed, if there is specialization, the production of the importable would cease.) Hence, one would expect the importable sectoral labor to be absorbed in the exportable sector. Furthermore, since labor is the factor which is relatively abundant, we would expect the wage to increase in the long run for both sectors. Of course, in this "orthodox" model, there is no involuntary unemployment.

The utility of the neoclassical model does not, of course, lie in whether its basic assumptions are satisfied or not but, instead, in whether it provides some **approximation** to the functioning of certain economies, as is more likely in the long run. For example, it predicts that the exportable sector would be more labor-intensive than the importable sector, and that the former's labor would be relatively unskilled. In addition, the model suggests that trade reforms that lead to a more liberalized economic phase resulting in the elimination of distortions, especially in the labor market, would result in increased employment.

**Empirical Evidence**

Several studies have attempted to test the above implications

of the neoclassical model. For example, an NBER project directed by Jagdish Bhagwati and Anne Krueger [1978] dealt with, though in a rather general way, the question of the consequences of trade reforms in ten countries studied. Both authors conclude that the country-specific observations were in concert with neoclassical predictions (Bhagwati [1978], Krueger [1978]). Krueger [1978], for example, observes that employment grew more rapidly under the more liberalized external sector (Phases IV and V regimes).

Another NBER study directed by Anne Krueger attempted to assess the long-run relationship between trade orientation and employment creation, based on the experiences of ten developing countries: Brazil, Chile, Colombia, Indonesia, Ivory Coast, Korea, Pakistan, Thailand, Tunisia, and Uruguay (Krueger [1981]). In particular, the study appears to have uncovered evidence in favor of the predictions of the neoclassical Heckscher-Olin-Samuelson framework. It observes, for example, that in most of the countries, exportable industries tended to be more labor-intensive than the importable (import-competing) industries, and that the use of unskilled labor was relatively intensive in the export sector. The study further finds that employment tended to grow faster in outward-oriented economies, while employment creation was aided by the removal of both factor market distortions and trade restrictions in most of the developing countries.

A World Bank study directed by Bela Balassa also attempted to assess the long-term implications of trade liberalization (Balassa [1982]). Based on the analysis of eleven countries (Argentina,

Brazil, Chile, Colombia, India, Israel, Korea, Mexico, Singapore, Taiwan, and Yugoslavia), Balassa [1982] observes that tariff reduction will tend to benefit employment, since both exportable primary and manufacturing production activities are relatively labor intensive.

## III. Recent Theories and the Labor Market

As indicated above, the traditional neoclassical theory is essentially long-run in nature, in that the various rigidities and friction are assumed to be non-existent. Hence, it does not even approximate the bulk of developing countries whose conditions differ substantially from those posited in the theory. For example, these economies are characterized by very high unemployment, whether open or disguised, which cannot exist in the neoclassical framework. In addition, there are several enduring sectors, of which the exportable and importable sectors constitute only a part.

To remedy some of these incongruities, several sector-specific models have been introduced into the literature (e.g., Mussa [1978], Neary [1978]). Typically, these models allow for sector-specific fixed capital in the short-run, mobility of labor across sectors, and inelastic aggregate labor supply.

More recently, Edwards [1988], for example, has examined labor market adjustments, in both the long and short runs, for a small open economy with two factors (labor L; capital K), and three goods (exportables X; importables M; non-tradeables N). It is assumed that there is incomplete specialization, that factor supplies are

fixed, and that production functions have the usual properties: positive but diminishing marginal products. The following rank-ordered relative factor intensities are also assumed: $(K/L)_M>(K/L)_N>(K/L)_X$. That is, relative to capital, the exportables sector is the most labor intensive, followed by non-tradeables; the importables sector has the most relatively capital intensive production function. The modelling is conducted for labor market adjustment in response to trade liberalization (reduction in the import tariff), with and without wage rigidities. The major findings are summarized in Table 1.

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Table 1 about here

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**Case A: Absence of Wage Rigidities**

**Short Run**

Capital is assumed to be immobile across sectors in the short run. The following results emerge. The exportable sector will experience an increase in employment in response to trade liberalization, as both labor demand and supply increase. The wage rate will be lower due to both an increase in the supply and a decrease in the marginal product of labor resulting from fixed capital.

Both employment and wage in the importable sector will fall due to a decrease in output demand. While the wage in the non-tradeable sector will also decrease, the change in employment in

that sector will be indeterminate, the direction depending on the substitution relationship between non-tradeables and tradeables. For example, where importables and non-tradeables are highly substitutable in consumption, a decrease in employment is relatively likely, the reverse being the case where the relative substitutability is with the exportable.

**Long Run**

The long-run impacts are similar to those predicted by the Stolper-Samuelson theorem in the neoclassical framework. That is, a decrease in the tariff rate (increased liberalization) leads to a rise in the **relative** price of the exportable, an increase in both its quantity supplied and the use of its relatively abundant factor, labor, raising both employment and wages.

In contrast, production in the importable sector shrinks, resulting in a decrease in the sector's employment. The wage, however, increases in response to a decrease in labor supply, as labor emigrates to the exportable sector in order to achieve inter-sectoral equilibrium.

Demand for non-tradeables would increase in response to positive income effects from a tariff reduction and higher incomes. This would raise the wage in the non-tradeable sector; employment would increase as well, ceteris paribus. Given the relative capital intensity of the non-tradeable sector, however, capital deepening should occur, in response to the higher wage, thus reducing employment. Hence, the direction of employment in the non-tradeable

sector following the liberalization measure would be indeterminate.

**Case B: Presence of Wage Rigidities**

It is assumed here that the wage rigidity is in the form of a minimum wage in the importable sector. This seems like a reasonable assumption, given that in developing economies, minimum wages are usually imposed in the import-competing industry.[2] Hence the importable sector is the "covered" sector, while the exportable and non-tradeable sectors are the "uncovered".

**Short Run**

Both the employment and wage outcomes in the uncovered sectors in the short run are qualitatively identical to those under case A. That is, employment increases in the exportable sector but its direction of change is indeterminate in the non-tradeable sector. Meanwhile, the wage decreases in both sectors. For the "covered" importable sector, employment falls as under case A. The wage rigidity in the sector ensures, however, that the real wage (in terms of non-tradeables) rises.

**Long Run**

As in case A, employment will unambiguously increase in the exportable sector in response to an increase in the derived demand for labor. However, the direction of change on the wage rate will be ambiguous. On the one hand, capital movement to the exportable sector should increase the wage. On the other hand, an increase in the sector's labor supply in response to additional unemployment

created by a binding minimum wage in the importable sector should decrease the wage, so that the net wage change will be indeterminate.

Qualitatively, the employment and wage impacts in the importable sector are identical to case A. That is, employment falls, and the real wage increases, given the wage rigidities. Indeed, the tendency for capital to shift away from the importable sector in the long run, in the light of lower relative returns to capital, would exacerbate the disemployment problem in this sector.

In the case of the non-tradeable sector, employment will increase in the long run as capital relocates there from the importable sector. The increase in labor demand in the exportable sector means that the direction of the wage change in the sector becomes indeterminate, as it recovers from its fall in the short run resulting from labor supply increases.

## IV. Implications for Overall Wages and Employment

### Wages

In the case of the absence of wage rigidities, wages (in terms of non-tradeables) fall in all sectors in the short run. Thus, assuming that the non-tradeable sector consists of the bulk of the consumption basket in a given developing country, consumers will generally experience a lower cost of living in the short run. The reverse is the case in the long run, however.

The case for wage rigidities in the short run is similar, except that wages would be higher in the importable sector during

the post-liberalization period. However, if the subset of employed workers earning the mandated wage is small, as is likely to be the case in the bulk of developing countries, then it is quite likely that most of the population would experience a lower cost of living when compared to the pre-liberalization period.

In the long run, wages would be higher in all sectors of the economy, that is, under the case of no wage rigidities, consistent with the neoclassical prescription. This favorable situation need not hold, though, where there are wage rigidities, as the direction of the change in the wage rate becomes indeterminate in the covered sectors.

**Employment**

The direction of change in overall employment, whether in the short or long runs, apparently depends on the ability of workers to shift from the shrinking importable sector to the exportable and non-tradeable sectors. In the above model of homogeneous labor, that would pose no problem in the absence of labor market distortions. That is, displaced workers should be easily absorbed and, consistent with neoclassical theory, overall employment would increase.

However, the existence of labor market distortions (wage rigidities in the present model) is likely to prevent non-frictional mobility of labor across sectors, especially in the short run. Nevertheless, as the results in Table 1 indicate, even in the case of wage rigidities, it seems likely that employment

would increase with trade liberalization in the long run, as both the non-covered sectors (exportable and non-tradeable sectors) exhibit increases in employment at the expense of the importable sector.

## V. Emphasis on Aggregate Unemployment

A particularly vexing practical concern of developing countries is that trade liberalization may lead to an increase in aggregate unemployment. In the absence of labor market restrictions, it is expected that there will be no involuntary unemployment, even in the light of decreased employment. However, there is much about the nature of developing countries to suggest that wage rigidities likely exist, so that there may be non-trivial adjustment costs in terms of increased unemployment. And, even where there are no such rigidities, the adjustment may not be sufficiently rapid to prevent unemployment costs in the very short run, especially when significant mobility costs exist. Unfortunately, theoretical modelling seldom deals with this very short-run scenario.[3]

Using a similar three-good sector framework as the above Edwards model above, Cox-Edwards and Edwards [1994] concentrate on the implications of structural adjustment reforms (import liberalization) on overall unemployment in the presence of labor market distortions. Considering a sector-specific minimum wage (imposed in the importable sector), Cox-Edwards and Edwards reach similar conclusions as in the Edwards model (see Table 1). That

is, in the short run, employment would increase in the exportable sector, decrease in the importable sector, but be indeterminate in the non-tradeable sector. In effect, aggregate unemployment could rise with liberalization. A decrease in aggregate unemployment in the long run is likely, though, as it decreases in both uncovered sectors.

Considering an economy-wide minimum wage, Cox-Edwards and Edwards observe that, in the long run, "starting from an initial condition of unemployment, a trade liberalization reform will increase total employment in the economy" (p. 119). In contrast, they find that overall unemployment would increase in the short run in response to trade liberalization. They conclude that "in the presence of labor market distortions, trade liberalization policies usually considered to be beneficial may generate nontrivial (short-run) unemployment problems" (p. 124).

**Empirical Evidence**

Perhaps the most ambitious study on the transitional employment effects of trade liberalization is the relatively recent World Bank project (Michaely, Papageorgiou and Choski [1991]), involving detailed analysis of data from a large number of countries. In this study, the authors distinguish between "gross" and "net" effects, with "gross" akin to the sectoral changes, while "net" refers to the aggregate change. Thus the theoretical discussion above would imply a decrease in gross employment for the importable sector, but an increase for the exportable sector. The

net employment effect then would be positive or negative as the exportable sector effect exceeded or fell short of that in the importable sector, assuming for now a neutral impact from the non-tradeable sector.

The results were generally inconclusive. For some of the countries, there appeared to be increases in net unemployment after certain liberalization periods but decreases following others. However, the authors generally attributed any increases to factors unrelated to liberalization per se. They conclude that "by and large, liberalization attempts have not incurred significant transition costs by way of unemployment" (Michaeli et al. [1991, chp. 6, p. 80].

There have also been several less ambitious single-country studies, most of them involving Latin America. For example, Edwards and Cox-Edwards [1991] observe that the trade liberalization reform in Chile generated unemployment in the order of 3.5 percent. They attribute this to existing labor market rigidities. Corbo et al. [1986] report similar results for the southern cone of Latin America (see also Ramos [1986]). Rama [1994] also observes a negative relationship between trade reform and employment (though no effect on wages) in Uruguayan manufacturing. Revenga [1994] finds that the reduction in tariffs during 1985-88 as part of trade liberalization in Mexico resulted in a relatively small decrease in overall manufacturing employment, accompanied by an increase in wages.[4] The author also reports significant changes in the composition of employment across industries.

More recently, Milner and Wright [1998] provide perhaps the most comprehensive test of the predictions of the Edwards-type model presented above, based on evidence for the African industrializing economy of Mauritius. They find that exportables employment rose both in the short and long runs, but that wages fell in the short run and rose in the long run, consistent with the predictions of the model (see Table 1). As argued above, this phenomenon is likely attributable to the short run effect being dominated by labor supply shifts between the importables and exportables sectors in response to liberalization. In the longer run, however, the derived-demand effect kicks in.

With respect to importables, Milner and Wright find that employment and wages increased together in both the short and long runs. The wage increase is generally consistent with the predictions of the Edwards-type model (except in the case of the short run in the absence of wage rigidities; see Table 1). However, the result on employment contrasts with the theoretical prediction, which indicates a fall in employment in both the short and long runs. A plausible explanation is offered by the authors for this inconsistency. They argue that in an economy with an expanding labor supply (assumed fixed in the Edwards-type model), labor supply could have increased sufficiently to raise employment, despite the decrease in labor demand. In the case of Mauritius, the expanding labor supply was fuelled by increased labor force participation of women. Indeed, though not discussed by the authors, the decline in the positive wage impact of the output

shock between the short and long runs (from .14 to .09; see their Table 4) is consistent with this story.

It is apparent from the Milner and Wright evidence for Mauritius then that, in response to trade liberalization, net (aggregate) employment would increase in both the short and long runs, assuming an expanding labor force. These results are, therefore, consistent with the predictions of the neoclassical model. As we have observed above, however, there is much evidence, especially from Latin America, that seems to be at variance with the neoclassical predictions. The difference in results might simply due to the extent of wage rigidities in the Latin American economies.

## V. How Long Are the Short and Long Runs? - The Role of Supply Response and Asymmetry

The question of the length of the short or long run is, of course, important to policy makers in developing countries. After all, if the expected benefits of the long run are to be realized, it is important to know for how much longer the citizenry must wait. The appropriate response to this issue depends in great part on the question of product supply responsiveness. For example, a number of studies have bemoaned the relatively inelastic product supply that may have led to de-industrialization of many developing countries following structural adjustment (e.g., Lall [1995]).

The effect of trade liberalization on the importable sector is almost immediate, as many of the relatively inefficient firms are

likely to wither rather quickly with increased foreign competition. (In some respect, that was why they needed protection, in the first place.) In contrast, the response of the exportable sector is likely to occur with a considerable lag, as the product supply responsiveness is likely to be small. This may occur for several reasons: poor infrastructure, imperfections in the capital market, institutional impediments such as onerous bureaucracy, etc.

Unfortunately, the above asymmetric responsiveness between the exportable and importable sectors is not captured in many of the existing models. However, its implications for unemployment in the very short run can be profound. It means that unemployment is likely to rise more than would be expected within the framework of the short-run models depicted above.

Due to low product supply response, the wage elasticity of demand for labor is likely to be relatively small. Hence, if mobility costs are low, then the fall in wages may be large compared with the increase in employment. Thus wage income will tend to fall. This is likely to be the case in the very short run, at least, and to provide a major political challenge in many developing countries embarking on trade liberalization.

## VI. Implications for Inequality

As the above discussion indicates, there would appear to be important implications for inequality resulting from adjustments in the labor market. This is more probable in the short than long run, and for sector-specific wage rigidities than for economy-wide wage

rigidities or absence of wage rigidities. For example, in the absence of wage rigidities and perfect labor mobility, there should be no more wage inequality than what prevailed previously to the trade liberalization. And, where there is economy-wide wage rigidity, sectoral differences in wages following liberalization should be minimal. In contrast, where sector-specific wage rigidities are present, the wage gap would increase between a shrinking covered sector (the importables) and the uncovered sectors (exportables and non-tradeables), in response to trade liberalization. The inequality would be larger as the wage elasticity of demand for labor is smaller for these uncovered sectors.

There is a silver lining in the inequality story, however. In the long run, international trade should reduce the ability of imperfect-behaving agents such as labor unions and governments to continue to ratify such rigidities. The extent to which international trade may succeed in weakening rigidities would, of course, depend in part on the nature of such rigidities themselves.

**Sources of wage Rigidities**

By wage rigidity, it is meant here a wage above equilibrium. This may occur from several sources. The usual salient source is government, in the case of a mandated minimum wage, or labor unions in terms of monopoly rent-sharing arrangements. In either case, trade liberalization should unleash competitive forces to whittle down the economic rent or force the government to adopt a less

binding minimum wage law.[5]

Wage rigidities could also result from efficiency wage models. Profit-maximizing conditions, in the presence of quasi-fixed costs, may imply that employers pay workers above equilibrium as a mechanism to minimize turnover costs, such as training, recruitment, hiring, and firing costs. This form of wage rigidity should, in general, not be eroded by trade, except to the extent where trade succeeds in reducing such costs, probably as a result of measures to improve competitiveness in the face of increased competition from the outside world.

## VII. Characteristics and Functioning of Labor Markets in Developing Countries

The models from which many of the above predictions emanate attempt to approximate the conditions of developing countries. Unfortunately, conditions differ significantly even among these countries. Hence, in order to appropriately delineate which predictions are most suitable for which countries, we discuss in this section the characteristics and functioning of labor markets across developing economies. Hopefully, both commonalities and differences among these countries can emerge.

Four sectors of the labor market may be identified in developing countries: formal rural, informal rural, formal urban, and informal urban.[6]

The **formal rural sector** is characterized in great part by

medium or large-scale commercial agricultural operation. It may entail proprietorship, partnership or corporation; however, most of the workers are unskilled. This sector is likely to be more pervasive in Latin America than Africa. It usually involves exportable cash crops such as coffee, bananas, cocoa, and tea. The **rural informal sector** consists mainly of small-scale operations with self-employed persons and unpaid family members, most of whom are unskilled. Located in this sector are also small-scale operations involving (exportable) cash crops, as well as non-tradeable food. Labor productivity is usually quite low in the sector.

The **formal urban sector** comprises medium and large enterprises producing both tradeable and non-tradeable goods, using a relatively sizeable amount of skilled as well as unskilled labor. They may either be private or state-owned enterprises. Wages and other forms of working conditions are usually subject to formal contracting and government regulations, which may entail fringe benefits and minimum-wage requirements, respectively. It is also here that labor union activity is likely to be prevalent.

The **informal urban sector** is characterized by self-employed individuals in the urban sector and privately-owned enterprises producing mainly services or other non-tradeables. These include: small traders, bricklayers, carpenters, tailors, cobblers, taxi drivers, and food vendors. This sector is generally unregulated,[7] wages and job security are low, and fringe benefits like health insurance, life insurance, or pension, are generally nonexistent.

Union activity is rare, legal minimum wages do not apply, and wages are flexible. There is also high underemployment in the sector.

Table 2 presents a summary of the characteristics of the various sectors as presented by Mazumdar [1989]. This classification is based on the three-sector typology. The urban delineation is similar to the that presented above. The rural depiction is relatively detailed, however. It consists of agricultural and non-agricultural workers. The agricultural sector is further sub-divided into plantations and non-plantations labor. To the extent that the former sector is sufficiently regulated, it could be viewed as a "formal rural" sector, given the classification criteria advocated by Kannappan [1985] and Mazumdar [1983], for example. Nevertheless, this sector is likely to be characterized by low wages; job security may be high, though implicit contracts may be rather prevalent.

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Table 2 about here

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**Importance of Various Sectors**

The above sectors are of varying importance in terms of employment for different developing countries. The characteristics may also differ by region or development level. Nevertheless, the informal sector (informal rural and informal urban) represents a sizable share of the economies in most developing countries. For example, the share of the informal sector in nonagricultural

employment was about 55 percent in the early 1990s for Latin America, 60 percent in the mid-1980s for India, and 64 percent for sub-Saharan Africa (SSA) in the early 1990s (World Bank [1995a]).

For an illustration of the relative importance of the various sectors classified above, we employ relatively detailed data on SSA provided in World Bank [1995a]. These are presented in Table 3. It is apparent that agriculture is the dominant sector, employing over 60 percent of the work force. It is followed by services at roughly 25 percent. Industry, especially wage paying, is rather minuscule, constituting less than 10 percent of the work force.

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Table 3 about here

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The non-wage subsector, which approximates the informal sector, constitutes the bulk of the economy in SSA, according to Table 3. In agriculture, for example, it is roughly 90 percent of the employed workforce. It is over 60 percent in both industry and services. For the whole economy, the proportion engaged in the informal economy may be estimated at roughly 80 percent.

Thus the informal sector constitutes a sizeable segment of the economy in a large number of developing countries. Its relative importance is likely to be country-specific, though. For example, there appears to be an inverse relationship between income per capita and the size of the informal sector (Turnham [1993]). Even for upper middle-income developing countries, however, the informal sector still constitutes a considerable share of employment

(roughly 30 percent). The relative importance of the informal sector also appears to be increasing. In Latin America, for example, the share of the informal sector in nonagricultural employment increased from 40 percent in 1980 to 47 percent and 55 percent in 1985 and 1993, respectively.

**Importance of the Public Sector**

Another important characteristic of the labor market of developing countries is the considerable, nearly dominant, share of government employment, though this phenomenon is far from uniform. As Table 4 indicates, the share of public sector in non-agricultural employment has been large in the SSA and Middle East-North African (MENA) regions compared with OECD countries. The shares in Latin America and Asia are somewhat comparable to that in OECD, though. Similarly, Kraay and van Rijckeghem [1995] find that central government in developing countries was 23 percent over 1972-1980 and 28 percent during 1981-1992; the respective shares for SSA were 28 percent and 35 percent. Similar observations have been made by Lindauer et al. [1988], who find that employment expanded faster in the public than private sector, especially for SSA.

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Table 4 about here

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Part of this pervasiveness of the public sector in employment might be attributable to the development strategies adopted in many

of these countries, where the government was cast as the major agent of development. Thus many existing firms were nationalized after independence, while government sought and retained majority shares in new enterprises. In many cases, however, the lack of sufficient private investment meant that government has had to serve the role of "employer of the last resort". In addition, public sector employment has historically been attractive, especially in terms of benefits relative to those in the private sector: job security, subsidized housing, pension, enhanced social status, and opportunities for further earnings through moonlighting and economic rent-earning (Gelb et al. [1991]).

The recent expansion of the public sector in the 1980s may further reflect the growing attractiveness of government jobs, especially in the face of a declining import-substituting sector in response to increasing trade liberalization measures in developing countries. Meanwhile, continued subsidization of post-secondary education in many of these countries has meant that there is pervasive and increasing excess supply of the relatively educated. This has further expanded the government's role as the employer of the last resort. As the employment situation has become more precarious for the relatively educated, fringe benefits associated with public sector jobs have been rendered even more attractive. Stevenson [1992], for example, argues that while the attractiveness of government jobs was primarily based on their relatively high wages in the 1970s, the 1980s have witnessed job benefits as the major attraction.

**Underemployment**

Another distinguishing characteristic of the labor markets of developing countries is the presence of large "underemployment", a "disguised" form of unemployment where employed individuals work less than their desired hours of work at the going wage. Such pervasiveness clearly renders the official (open) unemployment rate, which includes only individuals looking for work in the formal sector, an inadequate gauge of effective unemployment in developing countries. For example, the officially reported unemployment rate in Ghana for 1988-89 was only 1.6 percent, compared with 24.1 percent underemployment (World Bank [1995b]). In some developing countries, for instance, the combined open and disguised unemployment can be as high as 60 percent (Turnham [1993]).

As in developed economies, but more so in developing countries, the importance of procuring accurate data on disguised as well as open unemployment cannot be underestimated if a better picture is to be obtained on the implications of international trade for unemployment. For example, there is the tendency of workers disemployed in the formal sector to enter the informal sector, where they may remain under-employed. Should such workers be "discouraged" due to diminished likelihood of getting work in the formal or modern sector and hence stop seeking work there, they would no longer be considered (officially) unemployed. Similarly, if job prospects improved and increased migration from rural to

urban areas, then previously underemployed individuals would now become part of open unemployment. This is precisely why there is the tendency in much of the empirical literature to concentrate on analyzing employment rather than the unemployment rate per se. Yet, in a growing economy, employment may increase as a result of a growing labor force, that may be unrelated to trade, so that this phenomenon of an expansion labor force may need to be properly controlled in order to accurately reflect the implications of trade.[8]

**Segmentation of the Labor Market**

Another important aspect of the labor market in many developing countries is the pervasiveness of a lack of integration of labor markets. On average, wages in the urban formal sector have typically exceeded those in the other sectors. Part of the rationale is that skilled levels have been higher in this sector. Another rationale is also that the formal urban sector is segmented from the others as a result of institutional barriers: minimum wage laws, unionization, or due to the payment of above-equilibrium wages resulting from decisions of firms to pay wages that minimize labor costs per efficiency unit of labor. Such above-equilibrium efficiency wages may be ratified by the existence of turnover costs: search, hiring, training, and severance.

Segmentation is likely to occur between the informal sectors and the formal ones, especially the formal urban. Such segmentation may help to explain why labor costs are considered to be quite high

in many developing countries, especially in SSA, while at the same time there is plenty of unemployment, including underemployment, and most workers earn extremely low wages, even among relatively educated individuals. To the extend segmentation is pervasive, increased trade may further exacerbate wage inequality problems in developing countries by increasing labor supply in the other sectors more than would have otherwise been the case. With wages rather flexible in the informal sector, informal-sector earnings could significantly be eroded. As we have observed, this would be especially the case if the formal sector overlapped significantly with the importables sector.

There are other sources of segmentation as well. For example, mobility costs across regions are likely to be high in many developing countries. This may be due to transportation and other economic costs. However, there could also be cultural and ethno-linguistic or religious differences that might raise mobility costs.[9] This may also pose frictional problems for both intra- and inter-sectoral adjustments.

The effectiveness of market segmentation varies substantially across developing countries. Union activity, for instance, seems generally more effective in Latin America than in other regions (Agenor [1996, p. 284]). But even in other regions, such as SSA, the union premium is not insignificant. Schultz and Mwabu [1997], for example, estimate a union wage premium of 19 percent for South Africa. Unfortunately, such estimates seldom include fringe benefits that can be very substantial in large unionized firms in

the importables sector.[10]

**VIII. Realities and Implications of and for Trade Theory**

Given the characteristics and functioning of developing countries' labor markets depicted above, first, what does existing trade theory imply for labor market adjustment in these economies? Second, what are the implications of the realities for possible modifications in trade theory?

As is clear from the above, despite a great deal of cross-country variation, the labor markets for developing countries typically consist of several sectors, are dominated by the informal sector, are likely segmented, and are subject to low derived labor demand elasticities. Trade liberalization may indeed achieve at least the short-run results predicted within the framework of the Edwards-type capital-specificity models. Unfortunately, these short-run results are not very encouraging, for overall wages are likely to fall, while increases in aggregate employment need not occur.

Meanwhile, the inability to correctly measure effective unemployment (open plus disguised unemployment) suggests that an accurate empirical verification of the theory is dubious. Irrespective of the measurement problems associated with unemployment, however, the structure of the labor market depicted above has special implications for trade theory. For example, it suggests that a two-sectoral representation of the labor market, that does not take account of the informal labor market, is

problematic.[11] This is due, in part, to the fact that much of the informal labor market entails non-tradeables. More recent models, however, have attempted to remedy this shortcoming (e.g., Edwards [1988], Cox-Edwards and Edwards [1994]).

It is also important to note that the direct implications of the more relevant trade theory are for the importables, exportables, and non-tradeable sectors, which do not necessarily overlap sufficiently with the labor markets of developing countries, as delineated above. For example, the formal and informal (urban and rural) sectors consist of both tradeables and non-tradeables. To determine the implications of trade for the general economy, therefore, it is important to map these "theoretical" sectors into the "actual" sectors depicted above. The formal urban sector, for instance, contains significant shares of both tradeables and non-tradeables. Thus the implication of trade in the presence of wage rigidities in this sector will have to take into account the relative importance of the theoretical sectors in the sector, especially given that there are different employment and wage predictions for tradeables and non-tradeables.

The dominant informal sector deserves special attention. The rural informal sector comprises mainly exportables and non-tradeables.[12] Hence, trade liberalization is likely to benefit this sector in employment,[13] but not in wages in the short run.[14] The **urban** informal sector entails non-tradeables. Hence, while wages are predicted to fall (in the short run), the direction of employment change is indeterminate. Any expected benefit for

workers in this sector in terms of earnings, therefore, seems dicey. The implication is also that the majority of the population, who are likely to be located in the informal sector, face the real possibility of a diminution in their standard of living in the short run.

The role of the public sector in the labor markets of developing countries, depicted above, also requires special attention. As we have observed, governments can influence the level of unemployment and inequality via their ability to set wages in the public sector. In addition, they can affect the degree of imperfection in the economy that bears on the labor market functioning and outcome. Governments can also influence the horizon (short run versus long run). In effect, the government can play at least an important intervening role in the trade-labor market relationship. Unfortunately, this role is not well understood in the trade literature.

Furthermore, in the light of asymmetry in responsiveness between labor demand decreases in the importable sector and increases in the exportable sector, there is need to incorporate such a stylized fact into trade theory. This "very short-run" horizon is likely to be characteristic of many developing countries. Indeed, political realities may be such that the short-run equilibrium may not be even politically feasible, unless the likely negative consequences associated with the very short run can be sufficiently alleviated.

Finally, there is need for more definitive empirical analyses

of this important subject on the implications of trade for labor market adjustment. Such analyses would entail detailed data at the country level, but also a cross-country comparative analysis that would allow for better standardization and generalization.

## Notes

1. See Bhagwati [1978] and Krueger [1978] for summaries of arguments in favor of EP strategies. While these two studies concentrate on country-specific data, a number of cross-country studies have also been used to support the EP thesis (Balassa [1985, 1978], Ram [1985], Feder [1982], Tyler [1981], Michaeli [1977], Maizels [1968], Emery [1967]). Edwards [1993] provides a more recent summary of the literature on the role of openness and trade liberalization on growth in developing economies. For African economies, in particular, see for instance Sachs and Warner [1997], Ghura [1995], Lussier [1993], and Fosu [1990].

2. Edwards [1988] also considers the case of an economy-wide minimum wage. The implication of this assumption for predictions of the model will be discussed later.

3. For an example of a study that assumes imperfect mobility, see Agenor and Aizenman [1996]. In this model, the authors assume a two-sector (exports and non-traded), three-goods (exportable, non-tradeable, and labor), and a small open economy, with imperfect mobility of labor across sectors; capital is fixed by sector. An above-equilibrium wage is paid in the exports sector in order to reduce turnover costs. The quit rate depends critically on the wage differential between sectors (Harris-Todaro assumption). The model predicts that the unemployment rate would decrease or increase, in response to trade liberalization (reduction in tariffs), depending on the wage elasticity of the export relative to the non-traded goods sector, falling (increasing) as the elasticity is less (greater) than unity.

4. During this 1985-88 period, which constituted a relatively early part of the liberalization process, the reduction in tariffs was about 10 percentage points, compared with 2-3 percentage-point decrease in employment.

5. "Minimum wage" here is being applied generally; it may entail other government mandates involving labor, including mandated fringe benefits, and even working conditions.

6. There are normally three sectors identified in the literature: the rural, urban formal, and urban informal (e.g., Mazumdar [1983, 1989], Rosenzweig [1988]). However, in some countries, the formal rural sector may not be insignificant. In Kenya, for instance, formal sector wage earners are about equally divided between rural and urban areas (Riveros [1989]). Hence, we adopt here a finer classification to encompass this stylized fact, despite the traditional three-sector classification. Fields [1990] also provides a further distinction within the informal sector: "easy-entry" and "upper-tier", with the latter providing wages that are comparable to those in the lower rank of the formal sector. These relatively high wages are preserved by certain constraints, such as

financial capital requirements.

7. For the use of regulation as the major basis for formal-informal sector classification see, in particular, Mazumdar [1983] and Kannappan [1985].

8. It is interesting to note from Milner and Wright's [1998] empirical evidence on Mauritius, for instance, that employment increased for the importable sector in the short run, contrary to the prediction of trade theory, which the authors attributed to an increasing labor force. Note that had the unemployment rate been used instead, the contradiction might not have occurred, depending on if the increase in employment was proportional to the labor force expansion.

9. Recent religious-based incidents of violence in Indonesia and Nigeria, among many others, provide a vivid example of the perils that might await those who venture to live and work in communities that are relatively alien to them. Even in the U.S., where labor mobility is rather rapid, there is still evidence of "social economy" that may result in regional idiosyncratic differences (Fosu [2000]); see also Ward and Dale [1992]).

10. The union fringe benefit effect has been found to be significant in developed countries. Freeman [1981], for example, reports a large proportion for the U.S. For an exposition on the union impact on fringe benefits see, for example, Fosu [1993].

11. The early trade theory of the Hecksher-Ohlin-Samuelson type, as indicated above, assumes only exportable and importable sectors. For more recent models that simulate the labor market conditions of developing countries but use this two-sector modelling see, for instance, Agenor and Aizenman [1996].

12. The exportable sector is likely to consist primarily of small-scale export producers, such as cocoa farmers in West Africa and tea and coffee producers in East Africa.

13. Note that the direction of employment change for the non-tradeable sub-sector is predicted to be indeterminate, though (see Table 1).

14. For the large majority of developing countries, the short-run phenomenon may be relatively typical for two reasons. First, capital mobility across sectors is likely to take a long time; second, and relatedly, the experience of policy reversals in many developing countries in the past is likely to generate expectations that are short-run in nature.

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**Table 1. Sectoral Employment and Wage Changes After Liberalization**

| | No Wage Rigidities | | Wage Rigidities | |
|---|---|---|---|---|
| | Short-run | Long-run | Short-run | Long-run |
| Exportables | (+,-)(+,+) | (+,-) | (+,?) | |
| Importables | (-,-)(-,+) | (-,+) | (-,+) | |
| Non-tradeables | (?,-)(?,+) | (?,-) | (+,?) | |

Notes: The table is adapted from Edwards [1988]; also see Milner and Wright [1998]. "Wage rigidities" refers to the case of minimum wages. The first and second coordinates in (.,.) refer to changes in employment and wages, with "+" , "-", and "?" indicating positive, negative, and indeterminate directions, respectively. For example, (+,-) shows positive and negative directions of change for employment and wages, respectively. The wage is defined as the nominal wage relative to the price of non-tradeables.

**Table 2. Structure of the Labor Market for a Developing Economy (African?)**

**I. RURAL**

1. Wage Labor on Plantations

2. (i) Workers in the small-scale farm sector
   (ii) Owner, operational small-scale farm
   (iii) Owner, including share croppers

3. Non-agricultural workers
(i) Self-employment, full-time
(ii) Self-employment, part-time
(iii) Wage labor, part-time
(iv) Landless, full-time wage labor

**II. URBAN**

A. **The Formal Sector**

(i) Public and large scale firms
(ii) Private (large enterprises)

B. **The Informal Sector**

(i) Informal sector wage labor
(ii) Self-employed workers
(iii) Casual wage labor

B. **The Unemployed**

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Source: Mazumdar [1989, p. 3]

**Table 3. Distribution of the Labor Force in SSA**

Sector (share of employment in parentheses)

I. Industry

(i) Wage industry (3)
(ii) Non-wage industry (6)

II. Services

(i) Wage services (9)
(ii) Non-wage services (15)

III. Agriculture

(i) Wage agriculture (6)
(ii) Non-wage agriculture (55)

IV. Unemployed (6)

Source: World Bank [1995].

**Table 4. Share of Public Sector in Non-agricultural Employment by Region (percent)**

| | |
|---|---|
| Asia | 19.8 |
| Latin America | 17.7 |
| MENA | 31.7 |
| SSA | 32.9 |
| OECD | 20.6 |

Source: World Bank data reported in Berthelemy et al. [1998]