

PROJECT EAGER/PSG

*Equity and Growth through Economic Research in Africa:
Public Strategies for Growth Component*

**INCREASING LABOR DEMAND AND PRODUCTIVITY
IN GHANA AND SOUTH AFRICA**



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EQUITY AND GROWTH THROUGH ECONOMIC RESEARCH (EAGER)

PUBLIC STRATEGIES FOR GROWTH WITH EQUITY (PSG)

Increasing Labor Demand and Productivity in Ghana and South Africa

Survey of the Literature/DRAFT

I. National and International Labor Markets

As African economies move in the direction of more outward-oriented policies, national labor markets are increasingly becoming linked into a broader market. The process is not an easy one: integration brings gains when (1) the existence of a sufficient level of uniformity among markets ensures reduced transaction costs, and (2) the mobility of the factors guarantees efficient reallocation of resources. National labor markets, though, are often segmented as a result of internal macro and microeconomic policies. Segmentation of labor markets is a considerable obstacle to uniformity and efficiency, and thus to increased welfare resulting from more open trade and factor movements.

A. National Labor Markets in Aggregate

National labor markets may be described in terms of the interaction of the supply and demand for labor. Wage rates are influenced not only by this interaction but also by such factors as the importance of trade unions and their strength vis-à-vis industrial enterprises, the extent to which wage agreements are achieved through collective bargaining, and public policies regulating the labor market.

A.1. Aggregate Demand for Labor

Basic economic theory explains the demand for labor as a derived demand for what the labor force is able to produce. Demand for labor is thus a function on one side of the demand for and the market value of a specific product, and on the other of the productivity of the worker in producing that product.

The schedule describing the demand for labor is downward sloping, as employment is negatively related to the cost of the labor force (wage). In other words, as the amount of labor increases, its marginal revenue product (MRP) falls. This is because (1) as employment rises, so does output, which is itself subject to a downward sloping demand function, and (2) increases in the use of labor, other inputs held constant, result in a decline in the marginal product of labor. Profit maximization in a firm requires that the MRP of labor equals its wage. If the real wage is higher than the full employment wage, unemployment will be generated.

Economic theory in the past decades, through the models designed by Fei-Ranis and Lewis, has argued that in developing countries rapid industrialization is the most effective way causing excess labor supply to be absorbed by an economy. Experience has shown that often the

theory does not correspond to reality. For example, in low income countries between 1965 and 1983, while employment rose by only 4.3% annually, value added in the industrial sector showed an increase of an average 7.1% a year¹.

Economic policy is an important determinant of the demand for labor. Some policies may directly affect the demand for labor. For example, an overvalued exchange rate causes the prices of goods produced in the import competing and export sectors to fall, decreasing the demand for labor in these sectors. Artificially low interest rates make investment in capital goods more attractive, thus shifting resources away from labor-intensive sectors and causing less labor to be employed in all sectors. These policies may be distinguished from factors that directly affect wages, such as collective bargaining agreements and legal minimum wages, fixing wages at levels above the market clearing level.

Through the use of various trade, fiscal, and labor policies, governments can stimulate the demand for labor by (1) increasing the output of sectors that are relatively labor-intensive and (2) increasing the amount of labor utilized in the productive process by creating incentives towards more labor-intensive production.

A.2. Aggregate Supply of Labor

The supply side of the labor markets offers to the policy maker fewer opportunities for intervention than the demand side. The major determinant of the labor supply is population growth. Population growth is, in turn, determined by factors such as health standards, nutrition, and fertility rates, each of which is difficult to influence in the short to medium term. Todaro (1989, p. 187-188) has identified what he has called the "hidden momentum of population growth". Two factors explain this phenomenon. One is that it is relatively impossible to lower age-specific fertility rates in a short period of time. The other is that even after fertility rates have decreased, it will take at least a generation in order to see some effect on the number of the overall population because of the effects of earlier higher fertility rates on the age-distribution of the population².

Given the size of the population, the second major determinant of the supply of labor is its age-sex distribution. This will be influenced by fertility and mortality parameters. Most developing countries have high birth rates and low or falling death rates. This implies that there are, or will be, substantial numbers of young people coming into the work force, creating tremendous pressure on the labor market.

A third influence on the supply of labor is the labor force participation rate. Factors influencing this rate are (1) the period of time during which children remain in school, (2) the

¹ A simple formula that defines labor demand in the industrial sector is given by: $DE_i = hg(V_i)S_i$, where DE_i is annual employment growth in the industrial sector as a percentage of growth in the total labor force, h is the elasticity of growth of employment with respect to the growth of value added, $g(V_i)$ is the growth of value added from the industrial sector, and S_i is industrial employment as a fraction of total employment. This model implies that in order to increase the demand for labor in the industrial sector, an economy must increase the share of industry in the economy, the elasticity of employment, the growth in aggregate value added in the industrial sector or a combination of the three. It should be pointed out that this result was obtained considering those jobs that were directly created by industrialization. A study of labor demand must nevertheless consider also jobs that are created indirectly because of linkages of the industrial sectors with other sectors induced by the fact, for example, that workers with higher salaries increase consumption of other goods. (Gillis, Perkins, Roemer, Snodgrass, 1992, p. 203-204.)

² For a basic, but quite extensive, treatment of population as a determinant of labor supply see N. Birdsall, 1988. Economic Approaches to Population Growth in Chenery, H. and T.N. Srinivasan, 1988. Handbook of Development Economics. The Netherlands: Elsevier Science Publishers: p. 479-535 and Michael P. Todaro, 1989. Economic Development, Fifth Edition, Longman: p. 178-221.

extent to which women work outside the home, and (3) the age at which workers retire. As more resources are devoted to education in many developing countries, some younger people remain for longer periods of time outside of the work force. This is offset to some extent by higher rates of labor force participation by women, often associated with urbanization³. Retirement trends in developing countries are less evident, but also less important, given the age distribution of the population, highly skewed towards the young. Government policies regarding education, social security benefits, and other areas linked to the labor market can have an important effect on participation rates.

A.3. Employment and economic growth

Economic growth increases employment and may result in higher wages, encouraging workers to move to higher paid, high productivity jobs in the formal sector. Investment in physical capital and in people is key to economic growth and higher productivity. If no investment is made, wages stagnate and living standards fall. But simply increasing the stock of physical capital and years of schooling will not automatically translate into sustained growth.

Todaro (1989, p. 178-221) discusses two arguments relating to economic growth and employment. The *conflict argument* observes that maximization of GDP growth is incompatible with maximization of employment. Rapid growth in output occurs because of capital accumulation, which increases capital intensity and lessens the need for labor. Empirical evidence suggests that the increase in economic growth is usually not enough to offset the loss of jobs resulting from greater labor productivity due to more capital-intensive production.

The *congruence argument* states that what is important is total factor productivity, not just that of labor. Productivity of labor can increase because of capital deepening or because of factors affecting the quality of the labor force, such as health and education. Capital-intensive production may actually be costly if its scale is inappropriate to the market size or if production fails to use underutilized resources such as labor.

Economic growth and higher real wages are generated by a rise in labor productivity within specific sectors of the economy, causing workers to move to these higher productivity sectors. But governments will fail if they try to induce this reallocation through measures to stimulate artificially the rise in productivity via capital deepening. It is better to invest these resources in labor through training and education.

A.4. Employment and Inflation

LDCs have used macroeconomics principles to fight inflation and balance of payment deficits resulting from huge accumulation of debts in the 1970s and 1980s and subsequent chronic deficits. With the objective of fighting deficits, LDCs have tended to ignore the link between these policies and the labor market. However, macroeconomic policies that require a cut in aggregate demand -the main thrust of stabilization policies- and depreciation of the real exchange rate required for structural adjustment directly involve the labor market. The role of changes in the level of aggregate demand in the adjustment mechanism depends critically on whether the labor market is fully competitive or whether there is unemployment. The LDCs labor markets are neither fully competitive nor without unemployment. Ignoring the effects of these policies on the labor markets in the LDCs has dramatic social consequences that can undermine the sustainability of the policies. These issues are spelled out more formally in section II.

³This abstracts from the fact that women in rural areas generally participate in productive, as well as household activities.

A.5. Wage Rate Determination

In an idealistically perfect labor market, labor supply and demand meet at an equilibrium point at which there is full employment. Shifts in one of the schedules caused by exogenous factors will be met by movements along the second schedule in order to reach a new equilibrium. Wages continue to be determined by the interaction of supply and demand.

But markets function in an imperfect way resulting in imbalances between the supply and the demand for labor or/and in artificial determination of the wage rate. Suppose, for example, that a minimum wage is set at a higher level than the equilibrium wage. This will generate an excess supply of labor with respect to demand, resulting in unemployment.

In a study on wage movements in South Africa, drawing from the existing literature, J. Hofmeyr (1994) provides a detailed overview of the process of wage determination in imperfect labor markets. Wage, he observes, determination has a microeconomic and a macroeconomic dimension.

On the *microeconomic level*, if there are no obstacles to entry into the labor market and labor markets function without restriction, changes in labor demand or supply will be met by changes in the wage rate. But this is often not the case since wages are instead a function of restrictions on competition that are imposed on the market. Hofmeyr aggregates the restrictions into four basic groups.

a) It is often the case that the flow of information between firms and workers is imperfect, so that both parties are not aware of the market clearing level of the wage. Wages are then established above or below equilibrium.

b) Restrictions can be imposed either by elements exogenous to the market, such as the government, or by the actors in the markets themselves. For example governments can alter the cost of hiring/firing through new labor regulations. Or, in case of monopsony, a firm sets the wage where the marginal cost of labor is equal to the firm's marginal revenue product. By restricting its demand for labor, the monopsonist is able to pay a wage rate which is lower than that which would prevail under competitive conditions. Trade unions may, alternatively, obtain wage rates that are higher than competitive levels through collective bargaining. Both actions reduce the amount of labor employed and cause an increase in the supply of labor to the non-monopsonist and nonunionized firms, reducing the level of wages in these sectors. Thus there is segmentation of the labor market between high and low paying jobs.

c) Heterogeneity of labor, occupation, and firms causes further variations of the wage level from the equilibrium model. Heterogeneity of the labor force induces variability in the wage inasmuch as it raises costs to both the employer and the employee. These costs relate to screening procedures in order to select the right employees, wage premiums to avoid shirking, etc. Heterogeneity in occupation is explained in part by the theory of compensating differentials, which relates education and training to earnings, and in part by the cost of monitoring employee performance. If the cost of monitoring is high, setting wages at high levels helps to guarantee the quality of work.

d) Other secondary elements might affect also wage determination. Location, for example, is an endogenous factor: firms located close to labor sources are able to pay lower wages.

On the *macroeconomic level*, wage determination is a function of the level of economic development, segmentation of the labor market, and discrimination. Following the Lewis-Ranis-Fei model, for example, unskilled surplus labor in the traditional (agricultural) sector is drawn to the modern (industrial) sector without any effect on wages until the surplus is exhausted and the marginal productivity of labor in the agricultural sector rises above the institutional wage. At this

point wages in the modern sector start to rise. This tends to slow the growth in demand for labor in the modern sector, but it is offset to some extent by reinvesting profits in the sector, further increasing the demand for labor. In the end, both wages and employment should increase.

Empirical evidence suggests, however, that this is often not the case. In fact, industrial wages are usually higher than the level that would be necessary to attract labor from the traditional sectors, thus causing excessive immigration and rising unemployment. Even in the face of excess labor supply, wages do not fall, and the unemployed fill the ranks of the informal sector.

Discrimination and segmentation of the labor market, which are developed in more detail further in the paper, have increasingly become the focus of attention of researchers looking at the effects of macroeconomic policies on wage determination. In fact, there is evidence that both phenomena are the determinants of distortions in wages and in the interaction between supply and demand for labor. For example, Mazumdar (1989) points to the fact that wages are determined in different ways in the rural and in the urban labor market. Empirical evidence shows that, in the rural labor market, wage rates are positively associated with favorable weather conditions and busy agricultural seasons, while negatively associated with unemployment. Wage determination in the urban sector, on the other hand, is more a function of government policies such as wage controls, conditions of employment, public sector employment policies, and social requirements.

B. Segmentation and Integration of National Labor Markets

B.1. Labor Market Segmentation

Labor markets are segmented in numerous ways. These include employment status and skill level. In addition, trade unions erect barriers between different pools of labor as they attempt to gain monopoly power vis-à-vis firms. Finally segmentation occurs because of governmental regulations, which often increase the cost of hiring and firing, artificially impose wage rates on different segments of the market, and act in other ways to intervene in the labor market.

Movements among the segments can be constrained by several factors. Unions, for example, may have an impact on labor movements into the high-wage formal sector if management depends on unions for the introduction of new labor force. Large firms, on the other hand, tend to “form” their workers starting from a young age, and keep them for a long time; positions in the high-wage sector thus tend to be filled by promoting inside workers rather than by introducing outsiders.

Supply-side determinants of segmentation are sex and education. Women traditionally work in the informal sector or are concentrated in certain manufacturing activities such as the textile industry. The remuneration of these jobs is quite low both because of cultural factors and because of an excess supply of work force.

Public sector jobs, which provide good remuneration and job security, generally require in developing countries minimum standards of education. The same is true for private firms which offer high wages. The level of education of the work force is in this case the determinant of labor “immobility” from low to high pay positions.

B.1.1. Employment Status

The most apparent segmentation of the labor market appears at the level of employment status. The distinction between employed and unemployed labor force needs to be enriched by the determination of the diverse degrees of employment/unemployment.

Urban sector employment. A first level of employment status is that provided by jobs in

the formal sector in urban areas. The formal sector generally pays better than other alternatives, as employers often pay wages above market clearing levels. The sector is also characterized by large wage differentials based on the different level of skills of the work force, and by high transaction and supervisory costs. Employment in urban areas might also be in the informal sector, in which case transaction and supervisory costs are lower than in the formal sector. Informal sector employment, moreover, might generate higher returns to labor than formal sector employment since it generally combines labor with capital and entrepreneurship.

Rural sector employment. In rural areas, employment is characterized by lower returns to labor than in urban areas. The returns are lower in real terms, even if the cost of living in rural areas is lower than in urban ones, and are a function, among other things, of the availability of land (the higher the density of the population, the lower are the returns to labor). Urban and rural sectors are linked since the excess labor force in the rural sector can be employed in the urban sector at low wages.

Open unemployment. Todaro calculates that about 10 to 20% of the total labor force in LDCs can be defined as openly unemployed. Such a category includes those who are actively seeking for a job and are not currently employed in a job characterized by under-payment or under-utilization of workers. Part of the open unemployed are facing a temporary situation, but all must have some means of support provided by alternative sources such as the rest of the family, the state, etc.

Withdrawn from the Workforce. Women, students, and retirees are the main components of this group. Although they constitute a significant part of the unemployed, especially in developing countries, the welfare implications of being voluntarily withdrawn from the workforce are less clear than for those who are unemployed against their will.

Underemployment. This group includes those that are willing to work more than they actually do (daily, weekly, or seasonally as opposed to full-time). This is considered to be one of the main forms of work underutilization, and it features mainly those who are employed in seasonal agriculture, but also workers employed in social activities, nonagricultural productive activities, etc.

Disguised unemployment. It might be the case that those who are employed full-time in particular activities, and are thus considered employed in the formal sector, are actually working part-time. Disguised unemployment is most frequent among government and parastatal institutions but is also recorded in the rural sector. Such phenomenon is generally the result of social or political pressure to employ workers even if not needed.

Unproductive employment. Characterized by low pay, this group generally includes those who bring a second income to the family, and who are not able to find a job with a better pay in the formal or informal sector. The inability to find a better position is often the result of low levels of education or of social habits that discriminate against specific groups of the population. Unproductive employment is characterized by low levels of productivity that may be caused by malnutrition, poor health, age, etc., or by lack of complementary resources.

B.1.2. Skill Level

Middleton, Ziderman, and van Adams (1993, p. 13-25) divide the labor market into a series of sub-markets according to the specific skills required⁴.

The modern sector. In the modern sector, it is often the case that the demand for skills

⁴ Skills can be acquired either on the job or through formal training and education. But regardless of which is used, each carries both material and opportunity costs. Workers are encouraged to incur these costs by being rewarded with higher wages. Thus the distribution of wages tends to be positively related to the skills required.

differs according to the size of the firm. In larger companies, lower levels of skills are possible since these institutions provide much of the training and have generally quite developed supervisory structures. In smaller firms, on the other hand, the level of skills required tends to be higher since less control is provided and there is rarely opportunity for on-the-job training.

The firm searches for the combination of capital and work force skills that allows maximization of profits. The combination of the two depends on the capability of the managerial staff and the incentives provided by the economic environment in which the firm operates. The different incentives are determinants of choices towards the development of labor or capital-intensive production. Whether a firm moves towards more capital or more labor-intensive production will have an effect on the level of skills required⁵.

The informal sector. The informal sector is significantly less regulated and operates in a very different institutional environment from the modern sector. Its requirements in terms of education of workers are therefore quite different.

In the rural sector, consisting mostly of self-employed small farmers, empirical evidence suggests that increased education (still at very low levels, such as basic reading and computing skills) is positively related to increased productivity. In fact, improved education facilitates access to agricultural extensions services, which provide farmers with the results of agricultural research. As productivity improves, higher levels of technology are attained, increasing further the level of skills required by the sector⁶.

In the urban sector, absorbing a great part of those unable to obtain jobs in the formal sector, skills are usually acquired informally. Middleton, Ziderman, and van Adams focus on the fact that the informal sector, unregulated and easy to access, is heterogeneous. The sector is divided into a lower tier, characterized by low capital, single-person activity, unsteady work, and low earnings. Entering this sector requires low skills that are easily learned informally. The upper tier is characterized by greater use of capital and entrepreneurial skills, and requires higher levels of skills, which are nevertheless different from the ones required by the formal sector. Activities that in the formal sector are performed by different workers, for example, are performed in the informal sector by the same worker. Thus skills are required that cover different areas, such as technical and business skills⁷.

Middleton, Ziderman, and van Adams also focus on the changes in economic trends that affect the skills of the labor force (1993, p. 73-84).

- High population growth rates, and subsequent migration from rural to urban sectors, increase the demand for education.
- Low quality education increases the number of participants in the labor force as more students drop out of schools. At the same time, low levels of skills make absorption into the work force more difficult.
- As population grows, other things equal, physical capital per worker and educational level of human capital tend to fall, generating a growing demand for skilled workers and excess supply of unskilled workers.

⁵ Middleton, Ziderman, and van Adams refer to studies that have proven that hiring practices are driven not by the skills required but by the skills that available, implying that managers adjust their productive techniques to the labor market. In the less developed countries, on the other hand, one observes greater rigidity in adherence to certain skill levels even if these are not well adapted to the market.

⁶ Middleton Ziderman, and van Adams refer to a cross-country study done by Jamison and Lau in 1982 that found that four years of general education increased farm productivity by 8.7% in comparison to no education at all.

⁷ Middleton, Ziderman, and van Adams show that the level of education of skilled workers in the informal sector has increased since the 1970s. In Ghana and Nigeria, for instance, a higher share of the informal sector workers has received education at a post-secondary level.

As economies move towards outward oriented policies, increases in competition and trade have two specific effects on the skills of the labor force:

1. As resources are allocated more efficiently, the market becomes the major determinant of the demand for skills.

2. Increases in competition, at both the domestic and international levels, stimulates firms to improve their technological level, thereby requiring improved skills from their workers.

Middleton, Ziderman, and Adams argue that improvement in the technological level of firms might nevertheless have a “de-skilling” effect on the labor force. De-skilling might occur at two different levels:

- Production level. As new technologies are introduced in the production process, managers are able to use new technological means to control workers performance, resulting in skills being less essential in order to join the labor force. The argument, however, is true depending on the level of new technology that is introduced. High technologies, such as robots, require significantly higher level of skills in order to be operated.

-Labor level. As economies restructure, labor shifts from high-skill manufacturing employment to low-skill employment in the tertiary sector. Experience has shown that where the demand for labor overall grows, the share of new employment created in the low-skill sector is greater than the one created in the higher skill one.

B.1.3. Role of unions and labor regulations

Labor regulation usually covers the conditions for collective bargaining and dispute resolution within the labor market but also is designed to achieve specific social goals such as control over child labor, protection of women and minorities against discrimination, fixing safety and health standards, and fixing the minimum wage. While union bargaining can result in significant distortions in the labor market, proper labor laws decrease the negative impact that unions might have. The World Development Report 1995 suggests a number of directions in which policy makers should focus their attention in considering labor regulations while increasing competitiveness of the economy (World Development Report, 1995, p. 82-85).

First, outward-oriented policies that encourage the exposure of the productive sector to international markets and force it to pay market wages in order to be competitive reduce the strength of unions that tend to ally with employers in order to recover rents derived from their bargaining power.

Second, regulations should ensure that the costs derived from bargaining are in fact borne by the bargaining parties in order to make the negotiations efficient. This implies the exclusion of provision for wages paid to employees on strike, and antimonopoly laws that avoid situations in which firms can increase wages ad libitum, absorbing the raise by imposing higher prices.

Third, labor regulations should guarantee competitiveness in the “union market”, allowing workers to join or not join the unions as they desire. Legislation limiting the number of unions per firm should be avoided.

An interesting perspective is to look at the costs borne by firms in negotiating labor agreements. Firms should be able to choose among the contracting agencies in order to minimize costs of the negotiation. Both the government and the unions can be considered as providers of labor contracts. There are instances in which it is less costly for the firm to use the services of the state; there are other instances in which it is more profitable to refer to the unions.

B.2. Cost and Benefits of Market Integration

In segmented labor markets, resources are not able to reallocate freely on the basis of the

signals of the market because of various constraints. Economic theory assumes that, when making decisions about investment, entities (individuals, firms, societies) undertake a cost-benefit analysis, which defines the internal rate of the return of the project, that is the interest rate for which the net present value of the investment is equal to zero⁸.

The rate of return on a specific investment in human capital such as education or migration between rural and urban areas is calculated over a period of N years by the following equation:

$$\text{Net Present Value} = [B_1 - C_1 / (1 + irr)] + [B_2 - C_2 / (1 + irr)^2] + \dots [B_N - C_N / (1 + irr)^N]$$

where *irr* is the internal rate of return, *B* is the benefits and *C* is the costs in each year, and *Net Present Value* is set equal to 0.

If the internal rate of return is higher than the cost of capital or interest rate, then it will be profitable to make the investment. If, instead, the rate of return is equal to the interest rate, the individual will be indifferent whether to invest in human capital or in alternative investment. If the rate of return is lower than the interest rate, then it would not be wise to proceed with the investment.

The private benefits to an investment in education are given by the difference between the wage that an individual would receive having reached that level of education and the wage that he or she would receive otherwise⁹. Costs are related both to the cash cost of education (tuition, books, transportation, etc.) and to the opportunity cost of attending school and not participating in the labor force.

Although education is an investment in human capital, some of the benefits are acquired directly rather than accruing to the worker in the form of increased wages in the future. While attending school, for example, most people derive some direct "consumption" benefits. Furthermore, their education allows them to lead richer lives in the future, which is a direct form of consumption. While the values of these two types of benefits are difficult to estimate, the direction of bias is clear: including these benefits would raise the internal rate of return.

The calculation above can be used to estimate the social rate of return by using social costs and benefits in place of private costs and benefits. This may be compared with the social rate of discount in the same way that the private internal rate of return is compared with the market rate of interest.

Social benefits tend to be higher than private benefits because of spillover effects which provide the economy with the possibility of seizing new opportunities, participating in technological change, and increasing the overall level of entrepreneurship. Costs will also be higher than private costs, especially for developing countries, because many of the costs of education are borne by the government.

If resources are free to move without restriction, then both the government and the individual will make decisions on investment in human capital according to the respective rates of return. Integration will thus bring more efficiency to the labor market, and wage differentials will reflect the real value of education or other forms of investment in the labor market. What in fact is observed is substantial segmentation, as evidenced by high observed rates of return that persist (Mazumdar, 1989, p. 82-83). This suggests constraints on investment associated with lack of access to capital, imperfect information, and other sources.

⁸For a detailed discussion of cost-benefit analysis in education see Gillis, Perkins, Roemer and Snodgrass, 1992, 229-233.

⁹We must also consider the fact that additional benefits exist because access to higher education improves the possibility of an individual achieving even higher levels of education and higher wages.

B.3. Internal mobility of capital and labor

In developing countries the reallocation of resources following changes in policy and in world market conditions is often slow and difficult. This is due to rigidity in production structures, lack of diversification, poor information, lack of access to capital, weak institutions, etc.

The Harris-Todaro model explains labor reallocation from rural to urban areas in terms of the wage differentials between the two sectors, as well as expectations of finding a job in the urban formal sector¹⁰. There are also other factors that affect the mobility of labor, such as distance and social ties. The shorter the distance from the rural area to the urban center, the larger will be the number of migrants. Moreover, migrants will tend to follow paths that have already been opened by components of their family, tribe etc. that have already migrated.

C. Role of Government Policy

Labor market imperfections have a significant effect on levels of real wages and of unemployment, and it is often argued that it is one of the roles of the government to intervene when markets are imperfect. It is nevertheless important to consider that government intervention is not an unmitigated blessing. Distortions introduced by policies promoting protectionism during import substitution industrialization, fixing minimum wages above the market clearing level, and regulating prices of goods and services may increase real wages for a few, but they also tend to increase unemployment, create a dual labor market, and misallocate resources, resulting in an overall loss of GDP. On the other hand, there is an important role that the government can play in making the transition towards outward-oriented growth less painful to the labor force by providing severance allowances, facilitating access to capital and information, and other measures.

The argument is generally made that the role that the government can play is quite limited because labor standards apply to only a limited part of the labor force. The argument suggests that the formal sector is small and developing countries generally suffer from weak enforcement capacity. Still workers can also benefit from improvement in labor standards in the rural and informal sectors¹¹. Government intervention can be identified in terms of collective bargaining, labor regulations, protection from income insecurity, and public employment (Mazumdar, 1989, 70-78).

C.1. Collective Bargaining

Societies protect themselves against the risks of imperfect labor markets through informal agreements (typically contracts in which employers and employees share part of the risk in production, e.g. share-cropping), collective bargaining (labor unions), or legislation that defines the relationship between workers, unions, and employers.

M. Finnemore and R. van der Merwe have described in their writings about industrial

¹⁰The model assumes the following equation: $M_t = h(pW_u - W_r)$, where M_t is the number of migrants in period t , h is the response rate of potential migrants, p is the ratio of urban employment to the overall labor force, W_u is the urban wage and W_r is the rural wage. Migration occurs if pW_u exceeds W_r . If W_u increases, then to return to an equilibrium situation unemployment must increase as well. (Gillis, Perkins, Roemer, Snodgrass, 1992, p. 200-201).

¹¹ The World Bank identifies four main issues that call for government intervention : (1) uneven market power, (2) discrimination, (3) insufficient information, and (4) inadequate insurance against risk (World Development Report, 1995)

relations in South Africa that the role of the state can be seen under three different perspectives according to its degree of imposition in the bargaining process.

1. Pluralist perspective: the state regulates and restricts competition between capital and labor interest groups by providing a framework of rules to promote collective bargaining.

2. Societal corporatist model: the state's goal is to encourage the interaction of different interest groups by stimulating their participation in the decision-making process in institutionalized forums. Relative to the pluralist perspective, the government does not set the rules by itself but with the participation of unions and workers.

3. Radical perspective: the state is seen as providing only for the interests of capitalists, for example by preventing the mobilization of any group which is a threat to the capitalist system. The state is constraint by the pressure of these interests and state institutions, like the unions in some cases, are thus seen as instruments of the dominating class (Finnemore and van der Merwe, 1992, p. 100-105).

Each society, according to existing labor regulations, productive structure, size of the labor force, and political situation should be pushed towards one of the three models or a combination of the three.

C.2.Labor Regulations

In developing countries, the supply of labor is relatively high while its costs are relatively low. Labor regulation in these economies must therefore find a balance between protecting the rights of the workers, while on the other hand ensuring the gains from comparative advantage given by low labor costs.

Minimum standards of workers rights are set by ILO conventions in terms of free association, forced labor, age requirements, and health and safety of the workplace. Workers' compensations, in terms both of minimum wages and benefits, are established by national laws. National labor laws have an effect on competitiveness of firms. Changes in productivity should be met by changes in real wages. Since productivity is often difficult to measure, a realistic approach in evaluating the fairness of wages is a comparison of the trends of domestic wages in real terms, denominated in foreign exchange, and deflated by the CPI. For example, if wages are increased by the government to a level higher than real wages denominated in foreign exchange, exporters are penalized because of loss of competitiveness. If, however, wages tend to increase at a lower rate than inflation, the effect of the legislation on competitiveness of exporters will be milder.

Labor regulations can also affect the capacity of firms to employ foreign workers and management. Firms in developing countries may benefit significantly from the expertise that foreign employees can bring, especially in economies that are moving towards outward-oriented policies. If regulations limit their participation in the labor force, firms might lose positive spillover effects. It is thereby important that national labor regulations meet, insofar as possible, international standards.

Administration and enforcement of labor regulations are a critical element in developing countries. High administrative costs of compliance with labor regulations increase the labor costs and cause loss of competitiveness in the exporting sector. On the other hand, enforcement should be effective in order to deter avoidance of regulations. For example, the international community might retaliate, with disastrous effects on trade, if local producers do not meet labor standards.

C.3. Protection from Income Insecurity

Most governments attempt to protect from income insecurity workers in both the formal and the informal sector. In the formal sector these measures include unemployment benefits,

severance pay, and job security regulations.

Unemployment benefits are in many countries limited in time in order to avoid demotivation of the labor force to look for a job. Nevertheless, in most instances, they cover basic level of social assistance for those who become eligible for benefits. A critical question is the source of financing for unemployment benefits. In many countries, financing is provided through a flat-tax on the workers payroll, which implies that workers in more stable occupations provide income security for those workers in more unstable ones.

Job security regulations avoid unfair practices such as arbitrary dismissal of workers. Typically, these requirements include (1) a minimum period of notice, often some multiple of the pay interval, and (2) a formula for separation compensation such as a fixed sum which is a proportion of current pay or an amount tied to length of service. These regulations tend to raise the cost of staff reduction and make firms more cautious in hiring and reducing employment levels at the margin. Severance payments made to fired employees are usually negotiated between employee and employers, in some cases following guidelines provided by the government. Labor laws should be able to guarantee level of severance pay that would allow for at least minimum sustenance of the fired workers. In economies where wages are flexible, a substantial part of severance pay is borne by the workers themselves. Employers are, in this case, able to lower the wages to adjust their cost with respect to severance payments. If, instead, wages are not flexible, the increase in cost could cause a reduction in employment.

Evidence of job loss due to labor regulations from the advanced nations is mixed. Houseman (1991) found that job security regulations in continental Europe led to a negligible job loss. On the other hand, Lazear (1990) found that mandatory severance pay reduced employment across OECD countries. However, the same study found no significant change in employment when the before and after comparisons were made for the same country.

In a developing country study of job security laws, Fallon and Lucas (1993) found little evidence that the passage of job security laws in India and Zimbabwe led to a considerable reduction in employment. According to Standing (1989), an ILO survey found that a comparable Malaysian job security had no impact on employment. Finally Marshall (1991) found that labor laws affect the kind and not necessarily the volume of employment.

Fallon and Riveros (1989, p. 36-37) discuss the effects of job security regulations with respect to the period of advance notice required, the formula by which compensation for non-disciplinary dismissal is determined, and government permission requirements. In brief the effects of increased dismissal costs imposed through these three elements are identified as follows:

1. Fall in productivity resulting from increased costs in firing unsatisfactory workers, and, while for given wage levels, efficiency is raised, the firms will move towards more capital-intensive means of production.

2. Loss of flexibility in terms of both employment capacity and output.

3. Possible decrease in both wage rates and profits depending on whether job security is imposed on contracts which were or were not optimal.

The empirical evidence is contradictory on this matter, but it generally appears that job security regulations represent one of the factors that inhibit free movement of resources across the economy. They create disincentives for new permanent hires and, in those economies where temporary hires are not a solution, shift production towards more capital-intensive techniques.

C. 4. Public Employment

In 1980 about 10% of the labor force in Sub-Saharan Africa was employed in the modern sector. Since the early 1980s, wage employment has been dropping sharply (at the average of about 20-22% over the ten year period 1979-1989), hitting equally hard the public and the private

sectors. The ILO has reported that while public employment grew in eight SSA countries at a rate of 7.3% a year during 1975-1980, during the following five years it grew only at a 2.4% average rate (Fallon and Riveros, 1989, p. 36-37).

In their study on government wage policy in Africa, Lindauer, Meesok and Suebsaeng (1988, p.37-61) provide evidence that public employment and wages in the public sector vary significantly among African countries. Furthermore, it appears that wages in the public sector have been falling, with real wages of unskilled labor recording a lesser decline than those of skilled labor. The reasons for this decline include pressures to reduce fiscal deficits, excessive employment in the public sector, and inflation.

Another important element that must be taken into consideration when looking at government as an employer is that increasing exposure to the international arena is requiring a better functioning bureaucracy. In order to be more efficient, governments need to reform their pay structures and out-source more to the private sector. Emphasis should be placed on high wages and low employment as opposed to what is more common, low wages and high employment. Civil servant work, moreover, has proven to be quite elastic. Lower real wages have therefore brought deterioration of job performance.

The World Development Report 1995 (p. 91-96) focuses on the role of government as an employer. The first consideration is that public servants usually perform quite poorly because of the difficulty of measuring the amount and the quality of their performance. Second, policies that keep low salaries but employment rates high have aggravated the problem. Third, salary compression aimed at reducing the differential between skilled and unskilled workers has caused skilled workers' salaries to fall more rapidly than those of unskilled workers, weakening the performance of the skilled supervisors.

It is important to improve the quality of public work, which is determined not only by the pay of civil servants but also by other variables such as incentive structures, appropriateness of the choice of the employee, and the discipline of the market place. The report suggests that among the policies that might have an effect on the performance of the public labor force are promotion according to the achievement of specific objectives and selection of employees in terms of their merit. As difficult as the reduction in the number of public workers may seem, the reports suggests that at this point the real wage in the public sector has fallen so far that even small severance allowances are able to stimulate a voluntary withdrawal from the public work force. Still, there will always be a strong reluctance of the government to reform the civil service, as this is usually seen as a decrease in its political power.

D. Globalization of the Labor Market

Goods, capital, and services are crossing borders more and more frequently since former centralized economies and developing countries are adopting outward-oriented economic policies. Such interaction has resulted in the creation among countries of links which may have both a beneficiary and a negative potential. Integration in a global market, as basic economic theory states, allows for increased efficiency in the use of resources, reduces costs, and results in a spillover of technology and know-how from more technologically developed countries to less developed ones. On the other hand, integration results necessarily in increased interdependence among economies, which are thus being affected by each other's instabilities. Moreover, the existence of the benefits above mentioned may be jeopardized by obstacles to the mobility of the factors of production.

D.1. International Mobility of Skilled and Unskilled Labor

The assumption of fixed or diminishing returns to scale in economic theory tends to underestimate the benefits of international trade and integration. Increasing returns to scale are in fact the basis of benefits deriving from globalization, provided that resources, or factors of production, are free to move across economies and not only within them.

Labor and capital move across borders in response to the possibility of acquiring specific gains and comparing those gains with the risks involved with migration. For example, if a worker in country A knows that he/she would receive a higher salary in country B, and if there are no barriers to mobility, the worker will move to country B if the gains are greater than the costs (physical and emotional) of moving. If such costs were close to 0, then workers would migrate until the wage in country B fell to the level of the wage in country A. But physical and emotional costs are significant, so that only a limited number of workers migrate, and the wage rate in country B reaches equilibrium at the level above that in country A. This process generates both winners and losers. The winners are the workers that remain in country A (their wages rise) and the employers in country B (their wage bill falls) while the old workers in country B and employers in country A face a net loss.

Empirical evidence has shown that in most cases it is not the lowest income groups that emigrate but the middle ones. Assuming that the lowest income groups are the ones represented by the least skilled workers, it appears that skilled workers emigrate more easily than unskilled ones. This has important implications for the calculation of the overall benefits and costs to an economy of labor mobility. In fact, since more developed countries have higher salaries than LDCs, migration occurs mainly in one direction, draining skilled personnel from those countries that are more in need of the benefits of knowledge.

D.2. International Mobility of Complementary Factors

An interesting aspect of integration is that it is not primarily characterized by migration of the labor force. Most migrants still continue to work in their region (Africans in Africa, Asian in Asia, etc.), with the biggest exception being the United States, where migration from developing countries is relatively important. What actually changes are domestic labor conditions. As economies become more liberalized, economic theory suggests that factor price equalization takes place -if not through migration and capital flows, then through trade in goods and services. Wages have in fact converged in most of the developed world, but this has not been true for the LDCs. Between 1970 and 1987, for example, the ratio of income per capita in the richest countries to that in the poorest rose by five times (World Development Report, 1995, p. 54).

The World Development Report 1995 focuses on the effects that the trend towards economic integration among countries is having on national labor markets. The report identifies technological change and the decrease in transportation and communication costs as the main determinants of the trend. This has been coupled with a shift in development strategies towards more outward-oriented policies, followed by increases in competitiveness which have reduced to a great extent transaction costs.

Wages are affected in those sectors that have been most affected by trade liberalization. Trade with poorer countries, for example, has decreased the level of wages of the unskilled sectors of the developed countries. Removal of protection in developing countries has hurt those employed in the previously protected sectors.

Although much evidence links trade liberalization with poverty reduction, this is not the case for every country. In some instances, such as in Chile and Mexico, trade liberalization has caused an increase in wages and in the demand for skilled labor, due possibly to the introduction of capital-intensive technologies, raising income inequalities within these countries (World

Development Report, 1995, p. 57).

Labor markets are affected by trade liberalization in two distinct ways. First there is a one-time gain as removal of artificial distortions in markets shifts the labor force towards sectors in which countries have a comparative advantage. As a result, nominal wages rise in countries with an advantage in labor-intensive goods but fall in the others. Such a decrease in wages is nevertheless compensated by a reduction in the price of these goods. Second, as shown by the East Asian experience, if investments are made in human and physical capital, countries are able to move from the production of low value exports, to more sophisticated and remunerative products through the importation of new technology.

This process of global integration has also increased the mobility of capital. But this has happened to different degrees in different countries according to their level of development. Sub-Saharan African countries have not benefited to the same extent as other countries. In any event, only 11% of capital formation in poor countries is due to capital inflows, which suggests low attractiveness of the developing markets to foreign direct investment.

Workers can benefit from capital inflows inasmuch as they substitute for domestic investment and thus result in a shift of the production possibility frontier. There are nevertheless potential risks in depending excessively on outside financing. The high mobility of capital is accompanied by high volatility. Moreover, the debt crisis of the early 1980s has shown how companies that are excessively indebted are, in the face of a financial crisis, bailed out by the government, which in turns moves the burden of repayment to the taxpayers, and thus the workers.

The World Bank (World Development Report, 1995, p. 62) recommends the following in order to shift the risk of high capital volatility away from labor:

- Increase the use of market-intermediate finance. This requires the development of financial structures such as stock markets and/or a banking system able to provide and use instruments such as securities and loans within a solid legal framework.
- Reduce the amount of publicly owned external debt. This kind of debt tends in fact to crowd out private investment from which workers have more to gain.
- Pursue sound macroeconomic policies (interest rates, exchange rate, and level of reserves) in order to discourage sudden capital outflows.

II. Demand for Labor

A. Models of the Labor Market Applied to Developing Economies

Annex A summarizes a number of formal models of the aggregate demand for labor, including (1) the Keynesian model, (2) the Phillips curve model, (3) the Friedman and Phelps synthesis, and (4) Lucas' rational expectations model. In general, these models look at the trade-off between inflation and unemployment, assuming that unemployment is reduced as inflation increases. None of these models seems to be particularly relevant to the developing nations.

A.1. Role of Expectations in Agriculture.

One basic reason is that a large proportion of the LDCs economies is agricultural. According to Nugent and Glezakos (1982)¹², because of seasonality in agriculture, output and price are determined at the end of the season. Meanwhile, decisions about employment are made

¹²See Nugent J. B. and C. Glezakos, 1982 for a fuller exposition.

on the basis of expected prices at the end of the season rather than an observed current or on-going price. Thus demand depends on the nominal wage and the price expected at the end of the season as follows:

$$d = a - b (w-pe) \dots\dots\dots [1]$$

where d is the demand for labor, w is the wage rate, pe is the price expected by the farm owner at the end of the season, and a and b are constants.

Moreover, agricultural workers do not make sophisticated decisions about the supply of labor based on expectations. Hiring in such agricultural economies is for short duration and mostly “by the day on the street-corner labor market” Thus, for instance in some parts of Ghana, the agricultural laborer is called “baaday ni” implying hiring of labor by the day. The wage rate is a spot price determined by supply and demand on a day-to-day basis. In such a situation labor supply depends on the observed real wages as follows:

$$s = c + f (w-p) \dots\dots\dots [2]$$

where p is actual price, and c and f are positive constants. Assuming a competitive equilibrium ($s=d$) at the time the labor is hired, the equilibrium level of employment will be as follows:

$$d = x + z (pe-p) \dots\dots\dots [3]$$

As the cropping season unfolds, actual prices tend to deviate from their initial level. If p rises, this will decrease the supply of labor, causing wage rates to increase and employment to fall. This does not imply that there is unemployment, since the labor market remains in equilibrium, but rather that workers respond to a decrease in real wages by decreasing their level of employment. Some models have linked the working capital of farmers in LDCs to the wage funds and have included interest costs of advancing the loans, as well as the wage rate, as the marginal cost of hiring. Thus a nominal shock that reduces the supply of credit as a result of inflation will lead to a fall in demand for labor. This suggests that whereas inflation may have positive real effects on employment and output in the developed nations, its effect in LDCs is likely to be negative. Unexpected inflation will lead to contraction of activities and not to expansion.

A.2. Wage Determination and Employment

The Monopoly Power of the Collective Worker

This model is used to explain urban unemployment and wage determination in the formal sector in LDCs. It is useful in emphasizing the costs of trade unions and labor market distortions. The basic model assumes that a median union worker’s likelihood of getting a job is a decreasing function of the wage rate i.e. $q(w)$, $q' < 0$. If the worker is representative of all workers, then q is the ratio of the demand for labor function and the supply of labor function or simply d/s .

The model further assumes that the representative union worker has two options: getting a job at the going rate or being unemployed. He reaches a utility of $u(w)$ if he gets a job; his utility is $u(0)$ otherwise. $u(0)$ represents his utility for forced leisure plus unemployment benefits if available. It is assumed that these outside opportunities yield a lower level of utility than getting a job. Then the worker’s expected utility is:

$$v (w) = q (w) u (w) + (1-q (w)) u(0) \dots\dots\dots [4]$$

If w is determined by majority voting in the union, this voting maximizes the utility of the median union member, i.e. $v'(w)=0$ so

$$q(w) = -q'(w)(u(w)-u(0))/u'(w) \dots\dots\dots [5]$$

Looking at $q(w)$ as the employment rate, it is higher, the higher $q'(w)$, the smaller $u(0)$, and the lower $u'(w)$. That is to say employment rate will be higher, the higher the risk associated with a wage increase, the lower the unemployment benefit, and the lower the marginal utility of wages. Hence voting will not lead to full employment since the median worker may want to trade off an

increase in the wage rate for a slight increase in the probability of being sacked. Regarding $q(w)$ as the ratio of demand to supply implies that all workers have equal chances of being sacked. However, seniority rules in unions tend to give median workers who tend to have more seniority lower probability of being sacked. This tends to move the wage a bit upward compared with what is presented here. This model is well applicable to LDCs.

Efficiency Wage Models

The main argument of efficiency wage models is that if there is a direct correlation between the wage rate and productivity, then it will be in the interest of firms to raise their wages above the market clearing level and refuse to cut wages even though such high wages can result in unemployment (Leibenstein 1957; Stiglitz, 1974, 1976). Two variants of this model are the shirking and the labor turn-over models.

a. The Shirking Model

The Shirking Model explores moral hazards that exist in the wage relationship. These moral hazards arise out of the cost of monitoring workers' efforts. It is very difficult to establish whether a worker (1) works honestly and productively, (2) works honestly but not productively because of operational constraints beyond his control, or (3) shirks. A worker may shirk if work has an actual disutility to him and if shirking can take place unnoticed. Then the worker may try to get paid without working. On the other hand, an employer may have an incentive to accuse a worker of shirking so that he can get the produce of the worker without paying him, even though he actually did work.

Shapiro and Stiglitz (1984) suggest that firms have an incentive to pay wages above the market-clearing rate to prevent shirking. They argue that if there is full employment with all workers being paid the same rate, the incentive for shirking will be very strong. When the worker is caught shirking and is fired it will not bother him since he can get a new job immediately paying the same wage. To improve productivity firms must pay higher wages than do their competitors as a worker discipline device. This loss of the differential wage between what the worker is earning and what he can earn another job will discourage him from shirking and being sacked. The problem that arises is that all firms may also want to establish this discipline device by paying a rate which is above the clearing-rate. This firm behavior will result in unemployment. The existence of the unemployment will then act as a deterrent to all workers not to shirk.

b. The Labor Turn-Over Model

Stiglitz (1974) presents an efficiency wage model based on labor turn-over cost. He argues that there are costs such as recruitment and training associated with hiring new workers which can reduce the productivity of the whole firm. Salop (1979) assumes that the turnover rate of a firm is a decreasing function of the wage it pays workers relative to the expected wage available elsewhere in the industry. Thus firms have an incentive to increase their wage offer above the market-clearing wage in order to reduce the turnover cost. In equilibrium all firms pay their employees at this above-clearing wage resulting in positive unemployment that makes the expected outside wage low enough to reduce the rate of turnover to its equilibrium level.

This model may also be used to explain unemployment in the urban sector as well as the wage differential between the urban and rural labor markets since the turn over rate facing the urban firm is not only a decreasing function of its wage in relation to other firms in the industry but also in relation to the rural wage (Basu, 1984).

Insider- Outsider Model

The insider-outsider model argues that incumbent workers (the insiders) have the ability to influence the hiring and firing decisions of firms. Lindbeck and Snower (1986, 1988) have suggested that various fixed costs protect insiders from competition from outsiders (unemployed workers). Insiders have rent-seeking activities that they use to increase the fixed costs of hiring outsiders, and hence increase the rent they (insiders) are able to extract. The fixed costs

associated with advertisement, recruiting, and training newly hired outsiders, as well as the cost of firing insiders such as severance pay and legal actions, drive a wedge between the wage a firm will pay to insiders and the reservation wage paid to outsiders. This wedge is further widened because insiders possess firm-specific skills and know-how that outsiders do not have and which entails a productivity advantage. Because of these costs and the productivity differential, the continued employment of an insider rather than an outsider will be more profitable to the firm.

B. Sectoral Allocation of Output in Response to Policy Change

Most policy discussions about trade liberalization and structural adjustment do not explicitly discuss their effects on employment. However, relative factor endowment (including labor endowment) and the differences in the intensities with which factors are used in production (including employment) are central to the theories of trade and investment. Consequently, a discussion of policies of trade liberalization and structural adjustments should be explicitly linked with employment and the labor market. We thus present below the relevant trade theories as they relate to employment in developing countries, beginning with the basic Hecksher-Ohlin (H-O) model and its extensions, then the Ricardo-Viner model, and finally the standard Dependent Economy model and its modifications.

B.1. Hecksher-Ohlin and The Factor Price Equalization Models

The Hecksher-Ohlin's (H-O) trade theorem states that a country has a production bias towards, and hence tends to export, the commodity which uses intensively the factor with which it is relatively well endowed. This theorem was extended by Samuelson (1948, 1949) and by Lerner (1952). The propositions of these authors have come to be known as the Factor-Price Equalization Theorem. The global form of this theorem states that, under certain conditions, free trade in final goods alone brings about complete international equalization of factor prices. In its local form, the theorem states that at constant commodity prices, a small change in a country's factor endowments does not affect factor prices. In other words, the domestic price of factors are independent of the domestic factor endowment. A further development of the H-O model was made by Stolper and Samuelson (1941). This theorem, emphasizing the link between commodity prices and factor prices, states that an increase in the relative price of one commodity raises the real return of the factor used intensively in producing that commodity and lowers the real return of the other factor.-As an example, depreciation of the local currency associated with outward-oriented policy reform will result in a rise of the price of labor-intensive exports, which will translate into higher wages for labor.

These theorems constitute part of the central body of international trade theory (Kemp, 1980) and assume open economies with perfect factor mobility and without factor or product market distortions such as minimum wages or union predetermined wages or commodity price controls. Below we present some modifications of the models that have relaxed some of these assumptions and thus make them more applicable to developing countries economies.

B.2. The Dependent Economy Model and The Effects of Structural Adjustments on Total and Sectoral Distribution of Employment

Policy discussions of liberalization of the external sector have tended to downplay the issue of unemployment mainly for the following reason. In the basic H-O model, a small open developing economy where imports are capital intensive with full mobility of factors and flexible prices, a reduction in import tariffs will have no effect on total employment. The only labor market effects of trade liberalization in such a setting is the reallocation of labor out of importable goods and an increase in the real wage without affecting the total level of employment. However, this conclusion is empirically not a tenuous one since there is evidence to suggest that trade liberalization does in fact result in increased unemployment in the short run in developing nations (Edwards, 1990). This evidence suggests the need for models with more realistic settings for discussing developing economies.

As discussed by Edwards and Edwards (1994), the Ricardo-Viner model describing real wage rigidity is a more realistic setting for examining the effects of liberalization in a developing economy. In this model capital is in the short run fixed to its origin. In such a state resource movement is restricted and factor prices are not fully flexible. Hence a tariff reduction can lower the equilibrium real wage rate needed to maintain full employment. Furthermore, if there should be any labor distortions such as government imposed minimum wages or bargained wages (features common in LDCs), real wages will be inflexible downwards and the required reduction in the wage rate will not be forthcoming. Consequently, this rigidity will lead to increased unemployment in the short run.

This more realistic effect of trade policy reform on total and sectoral distribution of output, prices, and employment is the focus of Edwards and Edwards (1994). Beginning with the standard Dependent Economy model, Edwards and Edwards extend the analysis to a situation where there are three goods (importables, exportables, and nontradables). They show that the short run effects on production, prices, and factor rewards of a tariff reform are the following. First, lowering of tariffs protecting capital-intensive industry will increase production of exportable goods; production of importable goods will decrease while production of nontradable goods will either increase or decrease. Second, prices of nontradable goods will decrease relative to those of tradable goods because of depreciation of the real exchange rate. Wages will increase in terms of importable goods and decrease in terms of exportable goods and nontradable goods. The real returns to sector-specific factors allocated to the exportable goods sector will increase relative to all goods. The real return to factors specific to the importable goods sector will decrease relative to importable goods but could increase or decrease relative to other goods. Finally, the real return to the factor-specific nontradable goods sector will increase relative to nontradeable goods but could either increase or decrease relative to the other two goods. In the long run, however, factor rewards are expected to equalize across sectors and real wages will increase if the importable goods sector is the least labor-intensive.

The same model shows that trade liberalization results in unemployment if wages do not adjust downward. If the wage rigidity is limited to the importable goods sector, there will be equilibrium unemployment initially and trade liberalization will tend to increase the gap between wages in the importable goods and other sectors. Workers in this case will be reallocated between nontradable goods and exportable goods. The effects of trade liberalization on total employment would be unclear since there are two forces that affect the equilibrium level of unemployment in opposite directions as employment declines in the importable goods sector and increases in the other sectors.

In a protected economy with minimum wages where the degree of wage distortion in the

importable goods sector is directly related to the degree of trade protection, the model predicts that trade reforms will result in the reduction of the predetermined wage in the importable goods sector to a level compatible with market conditions. Furthermore, where the labor force participation rate is allowed to be a function of the wage rate instead of being fixed, the model suggests that the immediate effect of a trade liberalization will be a decline in the level of employment in the importable goods sector. This decline will increase the level of quasi-voluntary unemployment and will tend to reduce wages in the rest of the economy as some workers seek employment there. In the long run the model expects trade liberalization to weaken the capability of government to grant protection to unions or to certain sectors of the labor market so that wages will come down in line with labor market conditions. This will result in the reduction of the wage differential between the protected sector and the free sector and eliminate quasi-voluntary unemployment. Using the extended dependent economy model in an intertemporal setting, Edwards and Edwards (1994) also show that removal of capital controls where capital mobility distortion and minimum wages exist will lead to increase employment in nontradable goods through a positive expenditure effect.

C. Employment in Relation to Factor Price Distortion

C.1. Minimum Wage Laws and Employment

Minimum wage laws are intended to reduce poverty among the least paid low-skilled workers at the bottom of the wage distribution in an economy. However, these laws have some unintended negative effects on employment. In a static equilibrium, the imposition of a minimum wage, all things equal, will result in unemployment in the short run. To bring the employment level back to the pre-minimum wage level, the government may have to pursue expansionary monetary or fiscal policies. This will tend to increase prices, however, so that over time governments will periodically increase the nominal minimum wage to restore its real value. This will lead to a reduction of employment, which will create further pressure on governments to take action to reduce unemployment. The result is a cycle of minimum wage increases inducing short-run employment losses, inflation reducing the real value of the minimum wage and restoring employment, and a new minimum wage imposed by the government and starting the whole process again.

If the minimum wage coverage is incomplete and covers only specified sectors accompanied by complete wage flexibility in the uncovered sector, there will be no change in aggregate level of employment since the transfer of labor into the uncovered sector is offset by a decline in employment in the covered sector. However, the law will produce both winners and losers. The imposition of a minimum wage in the covered sector(s) will increase the real wages and reduce employment in this sector. Those workers displaced in the covered sector will seek jobs in the uncovered sector(s), thus increasing the supply of labor there. This will result in lower nominal and real wages in the uncovered sector(s). The low-skilled workers who lost their jobs in the covered sector and had to accept jobs in the uncovered sector (s) at reduced wages will lose. Those low-skilled workers originally in the uncovered sectors who maintained their jobs at a lower wage than before will also be losers. The only winners will be those low-skilled workers in the covered sector(s) who were able to keep their jobs after the imposition of the minimum wage.

According to the above, close-to-textbooks, cases minimum wage laws lead to misallocation of resources. Effective minimum wage will reduce employment. The problem confronting many developing and even developed nations is whether the induced wage increase does in fact raise the wages of the poverty-stricken at little cost to total employment, or whether the cost is many jobs and only a few highly paid formal sector workers benefit at the expense of

lower paid informal or rural workers (Freeman, 1992). In an attempt to answer this question, Freeman concludes that minimum wages may be distortionary and thus lower employment levels. However, this conclusion is more potent when one considers minimum wages as exogenously given. If one considers minimum wages as endogenous to economic conditions, their effect on employment levels may not be that serious. Minimum wages may be viewed as endogenous because governments rarely set minimum wages at levels that will cut deeply into employment. If the minimum leads to extensive unemployment it will often be unenforceable because both workers and employers will have incentives to collude and undermine the law and save jobs. Furthermore, governments effectively enforce minimum wage laws to protect workers when the cost of employment is modest, but enforce the laws weakly when the cost of employment is sizable. Freeman finally suggests the possibility of a more formal "political economy" model of optimal minimum wage-setting and enforcement as a solution to the opposing views: set minimum wage to protect the poverty-stricken but do not set it so high or enforce it so rigorously as to seriously affect the level of employment.

C.2. Trade Unions, Collective Bargaining and Employment

The primary objectives of trade unions are to improve the pecuniary and nonpecuniary conditions of employment of their members (Ehrenberg and Smith, 1985). In pursuing their pecuniary objectives, efforts are focused on negotiating higher wages for their members. To the extent that the union is able to secure the wage increase, some of its members will, unintentionally, be unemployed.

To illustrate this point let us assume that there are 2 sectors in an economy: sector 1 and sector 2. Let us further assume that initially both sectors are unorganized. If mobility between sectors is costless, workers will move across sectors until wages are equalized. The common equilibrium wage in both sectors will be, say W_0 , and employment will be E_{0u} and E_{0n} for both sectors respectively. Now let us assume that the union succeeds in organizing the workers in sector 1 and succeeds in raising their wages to W_{u1} . This increased wage will cause employment in this unionized sector to decline from E_{0u} to E_{u1} , with unemployment of $(E_{u1}-E_{u0})$. The unemployed workers in the unionized sector have several options: one option is to seek employment in the nonunionized sector. If all the unemployed workers "spill over" to the nonunion sector, the number of workers bidding for jobs in the nonunion sector will increase, shifting the supply curve to the right. Assuming further that there is no change in demand in the nonunion sector, the spillover will lead to a decline in the wages in the nonunion sector until the labor market in that sector clears at a lower wage W_{n1} and a higher employment level E_{n1} . If the nonunion sector is able to absorb all the workers spilled over from the union sector, then the existence of unions will have no effect on total employment.

However, employers in the nonunion sector may be concerned that the union will subsequently try to organize their employees, and may view the union as undesirable if unionization both increases wages and limits managerial control. The nonunion firms may thus try to "buy off" their employees by offering them wage increases to reduce the probability that the employees will vote for union (Rosen, 1969). Because of the cost associated with union membership, some wage less than the wage in the union sector (W_{u1}) but higher than the wage in the nonunion sector (W_{n1}) will presumably be sufficient to assure employers that the majority of their employees will not vote for a union. This increase in nonunion wages to say W_{n*} which lies above the initial non union wage but slightly below the union wage, will result in a decline in employment in the nonunion sector. Thus not all workers who lose their jobs in the union sector will find work in the nonunion sector because of the decline in employment in the nonunion sector due to the threat of unionization. Furthermore, some of the workers who lose their jobs in

the union sector may even refuse a lower paying job in the nonunion sector with the hope that they may get a high paying union job in the future through attrition such as retirements, deaths, and voluntary separations. Such workers will be prepared to be temporarily unemployed in the hope of getting better paying jobs later. Finally, even some employed nonunion workers may want to quit their low paying jobs in the nonunion sector with the hope that they may find job in the union sector in future. Such decisions lead to "wait unemployment" (Mincer, 1976).

It has been argued by other institutional economists that focusing on union objectives of increasing the wage of its members alone assumes that union behavior reflects only their aim and not the constraints faced by them. To have a complete model of union activities, it necessary to specify their aims as well as the constraints on their actions. The various assumptions about union constraints underscore the competing union models and the extent to which unionism affects employment. We provide below the various union models, their assumptions about the constraints faced by unions, and their implication for employment.

Monopoly Union Model

The proponent of this model, Dunlop (1944), assumes that the union recognizes the existence of a downward sloping demand curve for its members' services. The unions knows that because of the demand curve its members' services are facing, when workers become more expensive their employers will want to hire fewer. Thus the unions objective of raising members wage is constrained by the loss of members' jobs. The union behavior according to this model is that it would like to have both high wages as well as plenty of jobs for its members. Hence the union negotiates towards an optimal wage target which it feels to be a best compromise between high wages and high level of employment. It does so, by balancing the marginal gain due to wage increase and the marginal loss due to lay-off.

The Efficient Bargain Model

McDonald and Solow (1981) postulate that unions are not constrained by the labor demand curve facing their members as suggested by Dunlop. However, they are constrained by the employer's profit level. They argue that it is conceivable that the stronger the union the more it will achieve both greater employment and larger rates of pay. They conclude that it is not necessarily true that there is a tradeoff between wages and employment. The model predicts that in many instances employment will be higher than that which firms would set willingly (Johnson, 1985). Feather-bedding and over-staffing in unionized firms are examples of such instances. McDonald and Solow (1981) argue further that this higher employment might be achieved by direct negotiation over employment or by fixing of staffing restrictions such as the labor-machine ratios. As shown by Oswald (1985), employment in unionized firms can be greater than that of nonunion firms. Hence, unions can be viewed as creating extra jobs rather than reducing employment.

Seniority and Efficient Bargain Model

The efficiency bargain model and the monopoly union models have some internal flaws. They tend to ignore a major institutional feature of unions. In most unions, lay-off are based on "last in, first out." Firms use the length of service as a major criterion in lay-off decisions. Those who have introduced seniority in the efficient bargain model () argue that there is a lay-off ordering which is known to workers. When management decides to lay off workers, say 2%, a large number of the employees know for certain, because of their seniority, that they are insulated from the job cut. Because the union uses majority voting, the seniors' preferences override those of a minority of juniors. Thus unions may be indifferent to the employment level unless in exceptional cases when the majority of the workers are threatened. Thus wages are still the priority, and unions will push up pay regardless of employment consequences perhaps only subject to the constraint that bankruptcy should be avoided. Thus unions allow firms to make

unilateral decisions about employment levels as argued by the monopoly model.

Implicit Contract Theory

The implicit contract theory is a deliberate departure from the traditional idea that wages and employment are determined in competitive markets by the interaction of supply and demand. It predicts that wages remain rigid across booms and busts (Azariadis, 1975; Gordon, 1978). The hallmark of this model is that there is symmetry in information. Both employers and workers know that future product market conditions are uncertain but have a clear idea of the chances of boom and busts. Furthermore, both workers and employers observe correctly the firm's performance such as selling prices and profitability once the future arrives. The firm and its workers thus design their labor contract based on their feelings about risk. Workers are assumed to be risk-averse while firms are not. In such a situation, and assuming that lay-offs are by random, draw both parties will desire a labor agreement in which the wage stays constant regardless of whether the firm does well or badly. Firms take risk, workers do not. Workers are happy to accept a lower average wage if it is a fixed wage that can be relied upon, and firms are content because on average they earn higher profits. This model to a large extent sheds some light on why wages are inflexible.

Even though this model is interesting, it has many flaws. While its original intention was to explain why unemployment equilibrium exist, it seems to predict that the presence of unions in the market leads to larger levels of unemployment than a perfectly competitive market (Akerlof and Miyazaki, 1980). Again, it has been shown that the alleged wage rigidity will disappear once the firm is assumed to be risk-averse as well (Grossman and Hart, 1981). Finally, the assumption of symmetric information is in fact unrealistic.

C.3. Labor Regulations and Employment

C.4. Capital Market Distortions and Employment

D. Role of Management in Employment

Most structural theories of employment - efficiency wage, implicit contract, and compensating wage differentials - have linked the downward rigidity in real wages above the market clearing wage with employers desire to prevent increased incidental costs due to shirking, turnover, or decline in productivity (Brown, 1972; Shapiro and Sliglitz, 1984). However, it is becoming more evident that environmental and organizational factors such as business and human resources strategy, as well as other managerial practices, contribute in a large measure to the (un)willingness of managers to lower wages to the market clearing levels (Klaas and Ullman, 1995). These arguments are presented below.

Environmental Munificence

The resources needed by firms within their environment may be scarce or abundant. When such resources are scarce, competition tends to be strong and firms are faced with significant threats to their survival. The threat to survival is likely to increase the extent to which firms are adverse to risk. Under such a circumstance, the key assumption underlying implicit contract is invalidated. Firstly, when firms are no less risk averse than workers they are unlikely to form and maintain implicit contracts regarding wage stability. Secondly, if firms are faced by the threat of survival (hard times), the incidental costs of wage declines created by behavioral responses to inequity are likely to be lower. This is because wage declines made in response to survival threats to firms are less likely to be perceived as unfair and less likely to generate costly behavioral responses to perceived inequity. Thirdly, by not reducing real wages, firms are foregoing immediate savings in labor costs in order to reap future benefits.

However, when firms are facing threats of survival, the discount rate that is implicitly assumed when evaluating the wage stability decision tends to be higher because they have doubts whether they will be able to receive long-term benefits of an implicit contract regarding stable wages (Shleifer & Summers, 1988; Smith, Cook and Ferris, 1986). Consequently, when resources in the environment of firms are scarce they will be more likely to reduce wages. However, when resources are in abundance, firms focus on growth rather than survivability (Yasai-Ardekani, 1989), thus reducing the importance of cost-reduction opportunities such as cutting wages.

Organizational Strategies

Organizational strategy will also affect the extent to which firms feel that they are insulated from product cost competition. Those that perceive that they are insulated are less likely to reduce real wages than those that are not. For instance, a firm pursuing a differentiation strategy (Porter, 1980) will consider uniqueness rather than cost as its competitive weapon. Alternatively, the pursuit of low cost leadership implies that the firm's competitive advantage depends on its ability to minimize cost. To ensure that managerial behavior is consistent with organizational strategies, incentive contracts are often structured in a way that sensitizes workers to the managers' need to reduce costs for low-cost leadership firms. On the other hand, the incentive structure of firms in differentiating firms is less likely to be concerned about costs to the extent that employees are innovative since costs can be shifted to loyal customers as premiums in

exchange for additional product attributes. Thus there will be greater incentives to reduce real wages to the market-clearing wages for those managers who work in organizations that have low cost leadership as their strategy than for managers in organizations that pursue differentiation.

Whether or not firms in LDCs pay higher or lower wages above the market-clearing wage thus depends to a large extent on the choice of strategy. However, with competition from imports in a small LDC economy, it is likely that most firms will pursue cost-minimization and as such will more than likely reduce wage levels towards the market clearing wage.

Human Resources Strategy

Since wage policies are closely related with human resources strategy, the incidental cost associated with reducing the real wage varies with strategy. If a firm using employer-of-choice strategy reduces real wages and other firms do not, then the firm ceases to be the employer of choice. Because the employer may find it difficult to attract and retain its first choice, independently responding to a declining market-clearing wage may undermine the firm's human resources strategy and practices supporting that strategy. However, for firms pursuing a cost minimization strategy, reducing real wages is unlikely to undermine the firm's human resources strategy or the practices associated with that strategy (Newman, 1988). To the extent that reducing real wages requires the re-formulation of a firm's human resources strategy, reducing real wages is likely to generate transaction costs. As a result, a firm's human resource strategy is likely to affect the firm's willingness to reduce the real wage.

Internal Labor Markets

Internal labor markets are characterized by job ladders, limited ports of entry, and the progressive development of firm-specific skills (Althauser & Kallenberg, 1981). Progressive acquisition of firm-specific skills acquired by workers in an internal labor market tends to have little value in the open labor market. Because of that, firms must pay for the training in its acquisition (Becker, 1975; Parsons, 1977). If the cost of training is borne by the employer, then loss of the worker with such a skill is likely to be more costly to the firm than the loss of workers with general non-firm funded training. Firms with firm-specific workers tend not to indulge too much in the reduction of real wages. Furthermore, because of the limited number of entry ports in an internal labor market there is little competition for the positions that are not used as ports. It

has been shown that the greater the competition for jobs the less likely will incumbents respond to perceived inequity. The availability of replacements discourages workers from risking their positions by engaging in behavioral response to perceived inequity. By limiting the port of entry the firm reduces the risks associated with engaging in such behavioral responses. Hence the use of internal labor markets reduces the likelihood of lowering the real wage when the opportunity arises.

Free Agency Culture

There are differences in how organizations try to ensure that employees contribute the goals of organizations (Butler and, Ferris and Napier, 1981). Some organizations use training and the socialization process to elicit loyalty and to forge equalization of individual and organizational goals; others adapt a "free agent" culture (Hambrick & Snow, 1989). In a free agent culture, each party is free to renegotiate or terminate the employment relationship if the current agreement is not serving the party's interest. Under such circumstances, the cost associated with real wage reductions to the employer is minimal because canceling the contract is not seen as unfair. In such a culture firms are likely to reduce real wages when the opportunity arises.

E. The Role of Education in Development

Even though the idea of education as a form of investment that can contribute to individual and social development has been around for a long time, it was popularized in the 1960s with the formal exposition of the human capital theory (Schultz, 1961, Becker, 1964). The human capital theorists argued that not all increases in national output can be accounted for by the growth in conventional inputs such as physical capital, labor, and land. The residual puzzle in the growth equation should thus be at least partially accounted for by looking at the investments in human capital (Schultz, 1961). These theorists argued that the relationship between human capital formation (education) and development stem from two major links: the link between education and the external environment on one hand, and the link between education and individuals' internal development on the other. The external link suggests a direct relationship between schooling and labor market outcomes, such as productivity and growth, or the "external efficiency of education." The internal link proposes a relationship between school participation and the learning outcomes, such as cognitive skill acquisition, or the "internal efficiency of education." The human capital view thus suggests that education leads to higher skill acquisition; higher skill acquisition translates to higher occupational attainment and earnings as well as greater productivity and growth.

Labor Market Outcomes

The human capital theorists argue that there is a tradeoff between low level of education and earnings today, on one hand, and more education today and higher earnings tomorrow on the other. Proper discounting of the costs and benefits associated with education investment leads to estimates of profitability from both the private and social point of view. Similar to the rate of return to any project, the return to educational investment is the discount rate that sets the net present value of the net stream of benefits equal to zero. Alternatively, the educational rate of return is that discount rate which sets the present value of benefits equal to the cost of education. The cost of education includes direct costs of all resources used to provide education such as teacher's salaries, books, and the use of classrooms, as well as the earnings that were foregone during the period of education.

Evidence from developing countries indicates that the social returns to education are at least as high as any reasonable measure of the opportunity cost of capital. This suggests that investment in people may be as conducive to economic growth, if not more, than investment in machines (). The evidence also suggests that rates of returns are highest in primary education,

followed by the secondary education and the university. However, there is a diminishing return to education across levels of development: the more developed a country, the lower the returns to education at all levels. Finally, it has also been shown that private returns to education are higher than social returns at all levels, reflecting public subsidization of education in most countries. Thus education improves the economic status of individuals who invest in it. Furthermore, investment in education even when subsidized by government is an efficient way of allocating resources because of its high social returns.

Education and Economic Growth

The direct relationship between expansion in education and economic growth has been studied extensively since the work of Schultz (1961) and Dennison (1967). Their approach called "growth accounting" breaks down a country's economic growth into various contributory factors such as investment in physical capital, growth in the work force, and investment in human capital. Evidence using growth accounting confirms the link between education and national income. For example, it has been shown that about 17.2 percent of economic growth in Africa, 11.1 percent in Asia, 5.1 percent in Latin America, and 8.6 percent in North America and Europe can be explained by education (Psacharopoulos, 1984). Saxonhouse (1977) also studied the Japanese cotton spinning industry from 1891 to 1935 and found that among other factors, education had a large significant impact on productivity growth in the industry. Another study by Easterlin (1981) of twenty-five of the world's largest countries found that the spread of technology depended on the learning potential and motivation that were linked to the development of formal schooling.

Education and Income Distribution

The net effect of expansion in education has also been found to reduce the dispersion of earnings and hence resulting in a more equitable distribution of income (Psacharopoulos, 1988 p. 103). The equity effects of education, however, depend on which level of education is expanded. It has been shown that providing primary education to 10 percent of those without it would make income distribution more equal by nearly 5 percent compared with the present level of an inequality index (Marin and Psacharopoulos, 1967). Giving higher education to 5 percent of those with secondary education, however, worsens the inequality index by 2 percent. This is due to the fact that most university students come from higher income groups in most countries, and hence state subsidies for their education boosts their future earnings at the expense of the general taxpayers, who are less likely to enroll their children in higher education.

Even though most theoretical and empirical literature supports the link between education and development, there is some literature that seems to undermine such a contention. One of these arguments is the "screening hypothesis." Proponents of the screening hypothesis argue that employers prefer and in fact pay higher salaries to more educated workers because employers use schooling as a proxy for various unobservable natural characteristics that such workers have that correlate with productivity. To the extent that those with greater natural ability receive more years of schooling, the higher earnings of the more educated are due to their greater genetic ability rather than to their education. Hence, once screening is taken into consideration, the social return to investment in education maybe halved (Taubman and Wales, 1973).

Despite the plausibility of this argument, there is no empirical evidence to support screening. For example, Griliches (1970) has shown that including a measure of ability in the earnings functions does not diminish the importance of schooling in determining earnings.

Another, argument against the development effect of schooling, especially greater equity in income distribution, is the duality argument (Gordon, 1972). Proponents of this argument assert that there are good jobs and bad jobs. Whereas education helps those in good jobs to achieve high pay, it does not do so for those who are locked up in bad jobs with few promotion prospects. Even though this argument has not been disproven empirically, there is evidence to show that many workers have been able to cross over to the higher segments of the economy by acquiring more

education (Psacharopoulos, 1988, p.106).

Quality Versus Quantity of Education

Most recent discussions on the effect of education on development have focused on the number of years of schooling - the extensive margin -, and the quality of education - the intensive margin. Even though a lot of evidence exist about the extensive margin, evidence on the quality of education is scarce in the development literature (Behrman and Birdsall, 1983). This is due to the absence of longitudinal data sets that follow students over time in developing nations. Moreover, educational quality means different things to different people. Some measure quality using the traditional input approach. This approach measures quality based on the expenditure per pupil or the rate of repetition in grades. The problem with this definition is that spending more money in schools does not necessarily mean that the money will be used efficiently, and automatically promoting students does not guarantee that the student will be of high caliber. There are others who use the output approach and define quality of education based on the students' learning achievement. The flaw with this measure is that there are so many factors other than schooling, such as prior cognitive knowledge and family background, that correlate highly with cognitive achievement, thus making it difficult to isolate the effect of education. However, extensive work with educational production functions have suggested that even though family factors are associated with achievement, specific educational inputs such as availability of textbooks and well trained teachers have a net effect in raising achievement (Heyneman and Loxley, 1983).

E.1. Private Versus Public Education

Workers acquire vocational and technical skills in many ways. These include (1) publicly supported training before employment, (2) in-service training provided by employers, and (3) training by private trainers and voluntary organizations. Many types of vocational schools and training centers offer publicly supported pre-employment training for entry into skilled occupations in the modern sector. The instruction offered in schools is usually referred to as "vocational education" while the instructions offered in centers are referred to as "vocational training." In addition, higher technical training is provided at the post-secondary levels in technical colleges, polytechnics, and junior colleges. Vocational schools are mostly run by ministries of education while vocational training centers are managed by the ministry of labor. While training in vocational schools may be extensive and provide both general and vocational courses, the training in centers is usually intensive, often of shorter duration, and typically places less emphasis on general skill acquisition.

On-the-Job training Versus Vocational Schools

The payback to effective investment in education and training is realized only when workers use their job skills to combine with other factors of production - land, capital, and management - needed to enhance productivity. However, the combinations of factors of production appear in different forms and are used in different ways across nations and within nations across sectors, industries, and even firms. Skill formation or training is more effective when these differences are recognized prior to the design of training programs. Thus within a given economy two main factors should inform the mode of training used. First is the degree of division of labor and specialization. Specialization creates the possibility for workers to learn from others with more advanced knowledge of the work, thus suggesting the advantage of training during employment or on the job training.

The second factor is the central role played by technology and processes. Changes in technology and processes not only offer employers the choice between various combinations of factors of production but also, because they change rapidly, frequently alter the nature of the job

skills required: This rapidity in skill changes makes employers seek training from outside institutions such as vendor training or vocational training.

The outside institutions seeks to link themselves to these characteristics of modern sector employment in two ways. First, they use the formal structure of occupations and procedures of occupational analysis to determine the knowledge and skills that need to be developed. Second, the technology and procedures of the workplace are replicated within the training institutions. The greater the degree of job specialization and the more rapid the change in technology, the more difficult and expensive these linking mechanisms become. Hence, there will be pressure on the institutions to make the training broader and more general. To make training less broad will require the use of in-service training.

E.2. Basic Skills, Industry-Specific Skills and Firm-Specific Skills

Human capital theory argues that people acquire knowledge, capabilities, and experiences that translate into productivity in the workplace and yield rewards. The marginal productivity of a worker depends on the human capital that the individual has acquired. The reward, in the form of wages, is equated with the marginal product of the worker. Hence, individuals are rewarded for the skills they possess. Skills so defined are a transferable form of human baggage that can be carried from one job to another, from one point in time to another, and from one place to the other. On the other hand, the institutionalists argue that skills may be attributes of jobs as well as attributes of individuals (Thurow). The two skills may not be the same. Employers use screening devices to hire workers based on their trainability. Thus “enterprises mold men to jobs but not jobs to men” (Doeringer and Piore, 1971). Thurow’s job competition model suggests that the marginal product of labor adheres in jobs and the number and types of jobs in the economy are technologically determined. But whether skills are attributes of jobs or attributes of people, the policy makers’ concern is to be able to synchronize “the skills in men” with “the skills in jobs” that are technologically determined.

There are two main types of skills: basic skills and job-related skills. Basic skills are typically acquired prior to entering the labor force. They consist of literacy, problem solving, numerical, and written communication competencies. Workers usually acquire them through the public and adult education system rather than through employers. Job-related skills historically have been provided through employers. The two types of skills are complementary. Basic skills help workers learn what they need to do in their jobs (Bishop, 1984). Job related skills may be specific to a firm, an occupation, or an industry. While basic skills can be used to enhance individuals productivity in many jobs in many different firms and industries, firm-specific skills will enhance the productivity only of the firm in which the worker is currently employed. Thus an individual can use the basic skills to help his or her work in any job. On the other hand, firm-specific skills cannot be used in any firm other than the one in which the worker is currently working. To the extent that the worker is mobile, he or she carries along with his or her the basic skill.

This distinction between basic and firm-specific skills underscores the reason why firms do not want to pay for the cost of acquiring basic skills, the benefits of which do not accrue exclusively to a single employer. Firm specific skills, on the other hand, are normally learned either formally or informally on the job. More experienced workers teach new workers company procedures, rules, culture, and knowledge that are unique to the firm.

In addition to skills that are specific to firms, there are skills that are specific to a given industry (Neal, 1995). For example, all firms in a given manufacturing industry may value a common set of skills that are vital to the production process in that industry. However, these same skills may not be valued by firms that manufacture different products in other industries. In a

study using the displaced workers survey, Neal (1995) found that displaced workers who found jobs later in firms in their pre-displaced industry earned significantly higher than those who found jobs in firms in industries other than their pre-displaced industry. Thus workers receive compensation for some skills that are neither general nor firm-specific but rather specific to a set of firms that produce similar products and services. Training in those skills may best be accomplished through industry-specific training programs.

Finally, there are occupational skills that are specific to neither a firm or an industry. Examples include welding, pipe fitting, and electrical repair. These skills may be acquired through formal technical schools or training centers. Often, however, they are acquired in apprenticeships, in which the apprentice works for a reduced wage in return for on-the-job training.

E.3. Financing and Reorganizing Education and Training

Re-organization and financing of education and training programs may not have a universal policy prescription. The structure of education and its concomitant financial emphasis will differ from country to country in tandem with the initial conditions within a given country. However, the evidence in most developing countries as described earlier suggests that for the poorest countries, the safest approach is to increase primary education coverage for children in the six to fourteen age cohort (). Investment in primary education, as indicated earlier, has the highest social return. Unless the population in a given country is literate, other investments such as physical projects fail (Minga and Tan, 1987). Haveman and Wolfe (1984) have also identified many non-market benefits of primary education including better sanitation, more efficient consumption, and more leisure time all of which are also socially beneficial.

As development takes place and primary education expands, the next focus should be on secondary education. Even though some countries have tried to "vocalize" this level of education, the evidence to date does not support the economic viability of this approach (Psacharopoulos and Loxley, 1985). In view of such evidence and the fact that the unit cost of vocational training is high, it may be more advisable to maintain and emphasize general skills acquisition in secondary education using traditional more conservative approaches. Nevertheless, the need to industrialize has exerted considerable pressure on governments in developing countries to put emphasis on vocational training. These efforts need to be encouraged. However, the question that arises is, where should vocationalization begin? Evidence suggests that the social rate of return for employment-based education and training is well above that from investment in formal secondary technical education (Jimenez, Kugler, and Horn 1986). The reason for this conclusion is quite obvious. Employers are better situated to know what the demand for labor is. Furthermore, the cost of on-the-job training is shared between the employer and the worker whereas a large proportion of the cost of formal vocational training is borne by taxpayers. Thus vocational education seems to serve society better when it is offered by employers as post-employment training.

If the social rate of return to vocational education may be smaller than primary education, the returns to university and other post-secondary education are even lower. Too much of the education budget in most developing nations is devoted to university education despite its lowest rate of return (World Bank, 1986). Attendance at universities in most developing nations is free, yet a disproportionate number of people who attend the universities are from relatively affluent families. If students pay some, if not all, of the cost of their education, they will make better choices on the subjects that they study. Because of the inverse relationship between levels of education and the rate of social return to educational investment, investing more in lower levels of education will be the better route to go in most developing nations.

III. Characteristics of the Labor Markets in Ghana

A. Segmentation of the Labor Market

Social inequities such as persistent poverty, income inequality, failure of education and training, discrimination, and emergence of non-competing groups in the labor markets are more pronounced when labor markets are not perfect. In a developing economy like that of Ghana with a high degree of imperfection, there is the tendency for markets to be sheltered from competitive forces because of constraints such as physical or occupational mobility, technological dualism, and differences in education across regions and groups. Consequently, the labor markets in economies like that of Ghana may be segmented either by regions, by socio-economic status, by gender or by institutional factors including unions and social employment norms and customs. These segmentation affects the degree of labor force participation, employment/unemployment status, and wage levels across various sectors of the economy and population groups.

The UN African Statistical Year book 1990/91 estimated the economically active population in Ghana in 1990 to be 5,686,000 or 38% of a total population of 15,028,000. The economically active population is equally divided between the agricultural labor force with a population of 2,839,000, and the nonagricultural labor force with a population of 2,847,000. The Ghana Statistical Services Quarterly Digest of Statistics estimates that 229,000 of the economically active population (4% of the non-agricultural labor force) were employed in the formal sector. Compared with the Jobs and Skills Program for Africa's (JASPA) estimate of 1,266,000 or 44% of nonagricultural labor force employed in the informal sector, the formal sector pales to insignificance.

A. 1. Employment Status

Estimates of unemployment are sketchy in Ghana. The ILO yearbook of Labor Statistics reported a registered nonagricultural unemployment figure of 31,000 for 1990. This figure as a percentage of the nonagricultural labor force suggests an unemployment rate of 1%. A more recent estimate puts the unemployment rate at 5.5% of the active population (Beaudry and Sowa, 1994). The first estimate is admittedly based on registered unemployment. Considering the infantile stage of labor market institutions in Ghana, recorded information by the employment agencies are gross under-representation of actual unemployment. The second estimate was calculated from the Ghana Living Standards Survey (GLSS) and defined unemployment to include active people either searching for jobs in the last one week, waiting to start new jobs, or not searching for jobs because they did not believe jobs were available. The authors concluded that only 27% of people included in the 5.5% unemployment rate were actually searching for jobs. Using this stricter definition of unemployment puts the rate at about 1.5%.

Notwithstanding the estimates from the GLSS, a casual observation of the streets and alleys in both the rural and urban areas in Ghana during working hours suggests a massive underutilization of labor which is not -or cannot be- effectively measured using unemployment rates based on standard definitions. Independent estimates from various sources suggest that, in fact, the rate of unemployment among the nonagricultural labor force could be as high as 45%.

As shown in Table 1, the UN African Statistical Yearbook 1990/91 estimated that total employment among the nonagricultural labor force in Ghana was 2,847,000 in 1990. The

Ghana Statistical Services Quarterly digest of Statistics also estimated that only 229,000 of the non-agricultural labor force were employed in the formal sector in the same year. The Jobs and Skills Program for Africa (JASPA) further estimated that employment in the informal sector in 1990 was 1,266,000. Assuming that all informal sector employment were in the nonagricultural sector, then unemployment in the nonagricultural sector alone could be as high as 1,282,000 or 45% of the nonagricultural labor force.

Table 1

Year	Total NonAgric Labor force (a)	Formal Sector Employment (b)	Informal Sector Employment (c)	Residual [a- (b+c)]
1990	2,847,000	299,000	1,266,000	1,282,000

Sources: Non Agricultural labor force figures from the UN African Statistical Yearbook 1990/91.
Formal sector employment figure from Ghana Statistical Services Quarterly Digest of Statistics.
Informal Sector employment figures from the Jobs and Skills Program for Africa (JASPA).

A.2. Formal/Informal

Formal sector employment is defined as the recorded employment in establishments employing five or more workers (ISSER, 1995). This sector's employment consists of workers in both the private and public sectors. The major component of the private sector employment includes the formal agricultural sector¹³, the mining and quarrying sector, manufacturing, electricity, gas and water, construction and services. The construction sector has the lowest share of formal employment with only 4.2% of total formal sector employment. It is followed by employment in formal agriculture which declined from 17.3% in 1960 to 7.9% in 1991. The mining and quarrying sector constitutes 9.2% of total formal sector employment recording an increase of 2.5 percentage points from 6.7 % in 1965. The manufacturing sector accounts for 12% of the formal sector employment declining from its peak of 21% in 1987. Services are the main mean of labor absorption in the formal sector, recording a share of 66.8% of all employment in the formal sector.

Overall, the formal sector employment decreased of 44% from 1960 to 1991. In more detail, it increased from 332,900 in 1960 to 483,500 in 1976 and then began to decline in 1979 reaching a low of 186,300 in 1991. The sharp decline in formal sector employment after 1985 is due to the retrenchment in the public sector as part of the structural adjustment program. Private sector employment's decline from 149,000 in 1960 (45% of formal sector employment) to only 31,000 by 1991 (16%) contributed significantly to the overall decline in formal sector employment.

The conceptual difference between the formal sector and the informal sector in Ghana

¹³The formal agricultural sector consists mainly of employees of COCOBO and of other private plantations.

is based on the ease of entry and the method of production (Mazumdar, 1995). While it is easier for job seekers to get jobs in the informal sector it is difficult to get jobs in the formal sector. It is thus not surprising that in a period of retrenchment in the public sector and decline in overall employment in the formal sector, employment in the informal sector has been increasing. It is estimated that in 1990 the share of informal sector employment in total overall employment was 45% and its share of the urban employment was between 60% and 84%.

The informal sector in Ghana, as in other developing nations, consists of two major sub-groups: the wage earners and the self-employed. Although casual observation suggests a surge in the number of self-employed workers, entry into the informal sector, however, may be easier for the wage earners than for the self-employed. This is because the wage earners tend to operate in a more flexible labor market with no institutional constraints such as union bargained wages and legislated minimum wages, mainly as a consequence of the smaller size of informal establishments and difficulty in enforcement. Consequently, wages are not held above the supply price. Wage flexibility in this sector provides job seekers with easy access to jobs as long as they are willing to accept wages below the prevailing wages.

Self-employed labor is characterized by the existence of entrepreneurial skills as well as working capital, and it can be divided in different categories according to the size of capital and/or the extent of overheads carried. In fact, the return on the investment of this group of "owner-workers" reflects to a large extent the size of capital available to them and the overhead cost incurred. The earnings that self-employed gain are usually for their labor, their enterprise, and their capital.

The wide disparity in the use of capital and entrepreneurial skills tends to define the dispersion of earnings in the sector. "Owner-workers" possessing large capital and good entrepreneurial skills may earn more than workers in the formal sector. Nevertheless, it is quite obvious that some of them with little or virtually no personal capital but relying on financial means owned by larger businessmen may face wages lower than those earned by casual laborers.

As mentioned earlier, the JASPA estimates that total employment in this sector has increased in the last decades by 250%, moving from 356,000 in 1970 to 1,266,000 in 1990. The informal sector is usually the employer of last resort, mainly because of the ease of entry associated with it and the relatively unstructured nature of its operations. As a consequence it attracts workers with low probabilities of obtaining employment in the formal sector especially migrants possessing little or no formal education from the rural communities to the urban areas.

A.3. Rural/Urban Labor Markets

The rural labor market in Ghana has the largest share of the active population with a ratio of rural to urban employment of 4:3. Farm labor dominates the rural labor market while the formal and informal sectors of the economy are diffused into both the rural and urban markets with a greater concentration of both in the urban labor market.

Even though there seem to be evidence of rural-urban shift in Ghana, the transmission mechanism may be different from that postulated in the Harris and Todaro model. Migrants do not move to the urban areas in expectation of getting a job in the formal sector. A few people that I talked to seem to have accepted the fact that there were no jobs in the formal sector but rather came to Accra with the hope of owning their own businesses. Thus the expectation is not to join the formal sector but to be part of the informal sector, which is also easier to enter. This interpretation suggests that the wages in the urban informal sectors are higher than rural wages.

B. Causes of Segmentation

A major segmentation in the Ghanaian labor market is the dichotomy between the formal and informal sector. Whereas it is easy to enter the informal sector, entry into the formal sector is difficult. The reasons for the difficulty in entering the formal sector includes the retrenchment exercise carried out in the public sector during the Structural Adjustment Program (SAP) and the effects of import liberalization and continued depreciation of the cedi on manufacturing employment.

Even though there is no data on average earnings in the informal sector, the surge of employment in the sector and the flexibility associated with its wages suggest a downward pressure on informal earnings. At the same time, compression of wages in the public sector and the minimum wage paid by employers in the formal sector suggest that average earnings in the formal sector exceed average earnings in the informal sector. The differences in earnings between the two sectors and the protection accorded the employees in the formal sector due to a de facto employment freeze in the public sector has created a "labor aristocracy" in the urban labor market. A small proportion of the labor force privileged to be employed in the formal sector controls a large proportion of the income generated in the modern economy whereas a large number of workers are left to share the dwindling income in the informal sector and denied entry into the formal sector.

Another factor inhibiting mobility from the informal sector to the formal sector in Ghana is the operation of an internal labor market especially in larger establishments. Generally, internal labor markets emerge when firms encourage lifetime commitments of workers by recruiting them at an early age at low levels and promoting them to higher levels as positions become vacant instead of recruiting older workers from outside. In Ghana efforts by some employers to ensure such an integrated labor force are reinforced by socio-cultural values associated with loyalty to authorities, thus the desire to maintain an internal labor market is both a supply as well as a demand phenomenon. Therefore, the opportunity for those outside the formal internal labor markets to move from the informal sector to the formal sector is seriously hampered with years spent in the informal sector.

Segmentation also occurs when attributes of labor are used as labels in hiring employees or selecting occupations. When this happens the labor market may be split into noncompeting groups. In Ghana, the most significant of such attributes are sex and education. Women typically self-select themselves into retail self-employment. For instance, over 33% of women compared with 17% of men work in household businesses while the ratio of men to women in the formal sector exceeds 3.0 (Beaudry and Sowa, 1994, p. 370). Even though incomes of some women in the household business sector may be relatively high, a large proportion of women, especially the younger ones, are driven into a narrow and lower band of the household business as peddlers of, say, "iced water." Another characteristic associated with women employment is the relatively lower level of education received by women. According to recent estimates, fewer than 30% of women in Ghana have education above primary school level, compared with 50% for men. The lower levels of education achieved by women as well as the self-selection process, restricts their entry into higher paying jobs in government, state enterprises and the private non-household sectors.

B.1. The Industrial Relations System

The main actors in the industrial relations system of Ghana, as in most nations, are the workers and their unions; the employers and their representatives; and the government agencies

concerned with workers, enterprises and their relationships. The role of government in most industrial relations system is indirect, however because the government of Ghana has historically been the single most important employer of labor its role in the system of industrial relations has been unusually strong.

During the 1960s and throughout the First Republic, the Trades Union Congress (TUC) - the federation of all unions in Ghana- was an instrument of government control over labor, its leaders being appointed by the government itself. Between 1966 and 1971, the First Military government and, later, the Busiah administration attempted to sever relations with the unions and adopted a policy of confrontation by decentralizing TUC's operations. With the overthrow of the Busiah administration, attempts by the Second Military government of 1972-78 to coopt the unions failed. Between 1985 and 1992 the PNDC military Junta used coercive measures to cope with labor agitations and to allow government to implement wage, employment and pricing policies prescribed by the SAP. Labor-government relations in the fourth republic have been eroded further due to declining real wages, increasing unemployment and the general sense of insecurity among workers.

The Trade Union Congress of Ghana is a federation of 8 national unions: The General Agricultural Workers Union (GAWU), the Industrial & Commercial Workers Union (ICU), the Local Government Workers Union (LOWU), the Maritime & Dockworkers Union (MDU), the National Union of Seamen (NSU), the Public Utility Workers Union (PUWU), the Railway Workers Union (RWU), and the Teachers & Education Workers Union (TEWU). In 1988, the total membership of all unions combined was 371,339 with the Industrial & Commercial Workers Union and the General Agricultural Workers Union alone representing about 40% of the total unionized sector. However, by 1991 membership in unions had dwindled to 297,332, recording a decline of 20% since 1988. In absolute terms the major decline came from the Industrial & Commercial Workers Union, the Local Government Workers Union, and the Teachers & Educational Workers Union, which, combined, lost over 50,000 members.

Although private sector employers traditionally have not been major actors in the industrial relations system in Ghana, less restrictive labor regulations under the Economic Recovery Program (ERP) have strengthened the bargaining power of employers and have allowed them to shed excess labor. This action form the part of employers coupled with the retrenchment in the public sector contributed to the shrinkage in the size of union membership in the country.

The actors in an industrial relations system operate within a context of technical, market and power relations within the larger community. These contexts which are external to the system are decisive in shaping the rules established by the actors. In Ghana the technical and market constraint facing actors in the last decade or so have been defined by the ERP and SAP. The three most important aspects of the ERP/SAP as they affect the industrial relations system in Ghana have been the liberalization of trade; divestiture; and the retrenchment in the public sector. These three aspects of the recovery and adjustment programs have influenced labor regulations in the country. To carry through the liberalization, divestiture and retrenchment policies, the government had to move away from its traditional alliance with labor as it was in the 1960s to one of non-cooperation. The government did this in two ways. First, its support for a centralized bargaining was withdrawn leaving national and local unions to bargain individually. Second, the government abandoned the national incomes policy. Labor reacted to these changes through frequent disputes and strike actions which have soared since 1989 after it had declined from its peak in the 1980s. In 1990 and 1991 24 strike activities were recorded each year compared with an average of 18 strikes in the previous three years.

B.2. Labor Regulations

Historically, the industrial relation system in Ghana has been characterized by a system of centralized collective bargaining under which wage levels and structures as well as working conditions were established at the national level. Individual local unions then negotiated with their employers within the framework of the national agreement. This system was however abolished with the introduction of the SAP. The abandonment of centralized bargaining paved the way for the massive retrenchment exercise embarked upon by the government in the public sector. Workers were then left to negotiate with their employers at the local level. The result has been a "chaotic situation whereby wages and wage structures ...are being settled through strike actions and other ad hoc procedure rather than through bargaining and negotiation" (ISSER, 1995, p.159).

IV. Characteristics of the Labor Market in South Africa

A. Segmentation of the Labor Market

South African society is significantly divided, although in the past few years strong efforts have been made to reduce differentials among its population. Hofmeyr suggests that the segmentation of the South African labor market is multi-level (Hofmeyr, 1994, 71-72). In the urban sector, levels go from the low-pay jobs in the self-employed informal sector, which has the highest participation of African workers, to the high-pay occupations for the most part in the hands of the White population. Africans employed in the rural sector represent a level lower than the informal urban sector. With the exclusion of the lowest level, the rest of the jobs are subject to rationing through age and racial discrimination and union actions.

A.1. Employment Status

The now defunct South African National Manpower Commission determined that in 1991 the economically active population of South Africa was 13.4 million people out of a total population of 39.4 million. Among the economically active population, only 8 million people were employed in the formal sector while the rest was almost equally divided among employed in the informal sector and unemployed (Chadha, 1994). International Monetary Fund statistics show that in 1993 the official unemployment rate in South Africa for October was 29% (3.6 million people) but it is estimated that 44% of the total labor force could not find a job in the formal sector. The 1994 survey conducted by the CSS reported the rate of unemployment, including discouraged workers who have given up looking for jobs but who would accept a position if offered, at 32.6%. Such a figure is even more significant if combined with data about inequality. South Africa's Gini coefficient, according to the Presidential Commission to Investigate Labor Market Policy (Commission), is 0.65 (where 1 equals complete inequality and 0 total equality), compared to 0.61 in Brazil, 0.50 for Mexico and other middle-income countries, and 0.41 for the advanced industrialized countries (Report of the Labor Commission, 1996, p.5). The Commission reports that 65% of Africans are poor compared to 33% of Coloreds, 2.5% of Asians and 0.7% of Whites, and that Africans represent 95% of the population living in poverty¹⁴.

¹⁴Throughout this paper, the term African is used to denote people of Bantu descent. The term Black refers to Asians, Coloreds, and Africans.

Discrepancies of data on unemployment might be caused by the definition of unemployment itself. Unemployment can be calculated by subtracting from the economically active population the number of formal job opportunities. But this measure will not take into account those who are employed in the informal sector or in subsistence agriculture. Barker suggests that in 1990 the number of economically active people without a formal job in South Africa was roughly 5.4 million, while "strict" unemployment (that is excluding those employed in the informal sector and subsistence agriculture) was about 2.6 million (Barker, 1992, p.76).

Unemployed labor force can be classified in four sub-groups:

1. Frictional unemployment. This includes unemployment derived from labor force turnover and takes into account those that are unemployed while switching from one position to another. It is usually a short-term phenomenon.

2. Cyclical unemployment. This is due to temporary decreases in the demand for labor, such as during recessionary periods.

3. Structural unemployment. This category is generated by the overall inability of the economy to provide jobs. It is a long-term phenomenon, which is due to rapid growth of the supply of labor, the kind of technology used (capital or labor-intensive), the inflexibility of the labor market, or mismatches in skill and location.

4. Seasonal unemployment. This is due to the increases and decreases in the demand for labor over a year. It is a predictable phenomenon and therefore easier to manage than other categories of unemployment.

South Africa seems to be facing principally a problem of structural unemployment to which cyclical unemployment is superimposed from time to time making it difficult for the researcher to assess unemployment rates. Chadha (1994) provides evidence that in 1991 only 6.5 to 13.5% of the employment gap was attributable to Keynesian factors such as utilization rate and capital stock, thus eventually disappearing with the end of the recession. His study, instead, confirms the existence of a substantial classical employment gap due to market-clearing wages of unskilled labor 22 to 24% lower than the existing wages. Chadha argues that it is mainly the unskilled unemployment that is structural due to the growth of union leverage in plant negotiation among those who are employed. His implication is that as the influence of the unions in the overall economy grows stronger, and competitive wages are paid in the nonunionized sectors, the wage gap will continue to increase. Economy-wide wages will rise with a consequent increase in unemployment (Chadha, 1994, p 12-23).

Barker (1992, p.78) suggests that cyclical unemployment is a sensitive indicator of short-term economic fluctuations. In fact, a decrease in registered unemployment is a lagged consequence of an up-swing in the economy: production and demand increase and firms employ more workers. An increase in registered unemployment, instead, is a signal that production is falling as firms need to utilize fewer workers to face a decrease in demand for their product.

Race is one of the main determinants of the inequalities within the labor force. While the total percentage of employed is 67.4 %, African employment is the only category below the mean at 58.9%, while unemployment among Coloreds is 23%, among Asians 17%, and among Whites 6.4%. About 42 % of the Africans employed are unskilled workers compared with 1.8% among White workers, 4.3% among Asians, and 34.6% among Colored workers. While among the White population 40% are employed in high remunerative occupations such as management, professionals, and technicians, only 14% of Africans are found in these categories. Africans are strongly represented in agriculture, fishing, forestry, and domestic service, which use intensively unskilled labor. These sectors, moreover, are subject to lower pay and are quite unorganized if compared to the other formal sectors (Bhorat, Leibbrandt, and Woolard, 1995, p. 15-19).

A gender differential also appears to exist since evidence suggests that women suffer more from unemployment than men across races. Among the White population, women are about

33% of the total labor force and represent 50% of the unemployed. Among the Black population, the rate of unemployed women is about double the rate of unemployed men (in 1990 15.7% of black women were unemployed compared to 8.3% men) (Barker, 1992, p. 157).

According to the IMF the unemployed in South Africa have the following characteristics:

- 50% are under 30 years of age;
- 60% have never held a job before;
- about 70% have been seeking a job for the past year;
- most of the unemployed have below standard 10 education;
- 50% are discouraged workers (not looking for a job).

Moreover, according to data from the International Labor Office (ILO), South African unemployment is mostly concentrated among the young black. Males twenty to twenty-four years of age represent 20% of the work force and 25% of those who are unemployed or discouraged.

Harber has elaborated scenarios, taking into account the segmentation of the South African labor market, in order to determine the effects of policies on the different categories of unemployed in the country. With this purpose, the productive sector is divided in three main groups: (1) primary: agriculture and mining, (2) secondary: manufacturing, electricity, gas, water, and construction, and (3) tertiary: trade and services.

According to alternative scenarios in which each group expands to a different degree, Harber reaches the following conclusions:

- (1) expansion of the primary sector will generate a rise in employment in the non-White population, and within this a rise in the share of the African workers;
- (2) expansion in the secondary sector will generate the lowest increase in total employment, with a rise in the share of the Black workers but a decrease in the share of Africans;
- (3) expansion of the tertiary sector will generate the highest increase in total employment, with the largest growth registered in high/medium-skill jobs. This expansion will result in a reduction in the jobs held by Colored and African workers but a significant increase in the share of jobs held by the Asians (Harber, 1995, p.41-48).

Following these results, Harber recommends that policy makers should take into account these effects when defining the priorities of policy change. If the aim of the policies is an overall increase in the levels of employment, an increase in the tertiary sector would seem be most appropriate. If, instead, the objective is to increase the levels of employment of the Black, and especially the African population, which is the one that is recording the highest level of unemployment, then an expansion of the primary sector will be the appropriate choice. The same considerations should apply in terms of skills requirements. If, as it appears, South Africa faces excess supply of unskilled labor, then the primary sector should be the one subject to expansion.

A.2. Formal/Informal

It is generally assumed that as excess labor migrates towards urban areas because of expectations of higher wages, but is not absorbed by the formal sector, the unemployed labor force will tend to fill the ranks of the informal sector. Barker, warning that data for unemployment for South Africa are quite unsatisfactory due to a high possibility of errors in measurement, reports that in South Africa, while the supply of labor is of about 350,000 new workers per year, from 1980 to 1990 there were only 50,000 jobs per year created in the formal sector (Barker, 1992, p. 71). The available data, in fact, show that in 1993 about 44% of the labor force in South Africa was without formal employment (about 5.4 million people) (IMF, October 1993). The trend has been a negative one: Hofmeyr reports that while in the 1970s, 72% of the new entrants into the labor market could expect to find job in the formal sector, in the second half of the 1980s this number had fallen to 7% (Hofmeyr, 1994, p. 26-27).

Estimates on the informal sectors are only partially reliable. The South African Central Statistical Service has determined that in 1990 2.8 million Black, Asian and Colored workers were involved in the informal sector (32.3% of the economically active population). This number includes housewives and scholars: if the two latter categories are removed, the figure falls to 1.7 million people (20.3% of the economically active population). Income in the informal sector is usually quite low. Nevertheless, the rise in employment offered through this sector has increased by 50% the average salary of Black workers (from 8.5% of White workers in the early 1980s to 12.7% in 1990) (Barker, 1992, p. 81).

The contribution to GDP of the informal sector has been estimated to be around 7%. Average income in the sector in 1989 was about 60% lower than wages in non-primary formal sectors but with a significantly skewed distribution (Hofmeyr, 1994, p. 26-27). Most workers in the informal sector are black and female. They are self-employed, only marginally directly affected by labor and capital laws, but still influenced by general regulations at the macroeconomic level (Makgetla, ?).

A.3. Rural/Urban

Most of the existing literature on South Africa has limited information about the structure of agricultural production in the country. One of the reasons could be that the labor force in the agricultural sector in South Africa has been significantly decreasing since the 1960s. In 1993, only 4% of the total employed work force was occupied in the agricultural sector compared with about 18% in the 1960s. At the same time, nonagricultural wage employees have increased from 35% of the total work force in 1960 to 40% in 1990, while nonagricultural self-employed workers have decreased from 5% in 1960 to 4% in 1990 (IBRD/WB, 1995, p. 8).

Labor supply for the agricultural sector, Diane Flaherty (1995) observes, has been a function of the apartheid policies pursued in the past. The two main features of this system, which was characterized by a strong racial bias, were the control of the access to land through land tenure law (restricting Black ownership of land, mainly through resettlement in the homelands) and the preferential treatment that was given to commercial farming (mainly White) relative to part-time or household farming. These policies have had detrimental results on the performance of the agricultural sector. For example, absentee rates among men in rural areas of the homelands, where the greatest number of Black farmers was resettled, are as high as 80%, with women doing most of the work but not controlling the distribution of the output from that work (Flaherty, 1995, p. 7-10).

Drawing from data from the National Manpower Commission (NMC) and the Central Statistical Service (CSS), Baker provides the following data for the nonagricultural sector (Barker, 1992, p.117-119):

- (1) The percentage of highly skilled workers has risen from 8.6% to 14.5% of the total nonagricultural work force in the past 25 years. The proportion of middle-level workers has also grown from 28.4% to 33.8%, while that of semi/unskilled workers has decreased from 63% to 51.7%.
- (2) Among the highly skilled workers, the greatest rates of growth have been for engineers and what has been defined in the survey as "others". Among the medium level workers, the highest growth has been recorded among service workers and mine workers.
- (3) High levels of vacancies for skilled occupations shows that the demand for skilled workers has increased but has not been met by a proportionate increase in the supply. Forecasts on the occupational status of the South African labor force show that such shortage of skilled labor force will decrease slightly by the year 2000, while the excess supply among the middle and lower-levels of the work force will increase.

B. Causes of Segmentation

In a study that looks at migration as one of the indicators of South African labor market segmentation, Neva Seidman Makgetla () argues that in an homogenous market labor is allocated to different production activities so as to equalize the marginal revenue product. A segmented market, on the other hand, is characterized by a process of reallocation resulting from social institutions such as of labor regulations, family structure, and the system for education and training.

Makgetla identifies four main segments in the South African labor market:

1. *Primary labor market*. This is divided into two sub-sectors:

- a. managerial and professional employees (white, highly skilled, legally protected)
- b. stable blue collar employees (increasingly black but still mainly white, unionized, male, ranging from medium to high skilled).

2. *Colonial sector*. This includes mining, farming, and domestic activities. It is predominantly black, skewed towards male participation in mining and female participation in housework. The level of qualification of the workers is quite low, although some degree of skills is required. Legal protection is very low.

3. *Secondary labor market*. For the most part this segment includes the informal sector (service, trade, and food production and processing). It has high Black and female participation and is almost entirely non-regulated.

4. *Non-market labor*. Unpaid reproductive housework as well as community work fits into this segment, which almost entirely comprises Black women. The only regulations that are applied are the ones derived from family and civil law.

The causes of this segmentation relate to levels of education and training, transaction costs involved in hiring and firing, and the capital constraint. These give rise to large and persistent wage differentials between the different sectors.

B.1. Education and Training

Data on education in South Africa show a wide range among the different groups of the economically active population. In 1985, 95% of the white population had received some education, but 63% had achieved an education level of standard 10 or higher. In comparison, 75% of the black population had received some education with only 5% above standard 10, while the majority (54%) was between standards 3 and 9.

Barker (1995) identifies different occupations of the South African labor market by the level of education required.

-High-level workers. Workers with at least two years of formal education or training after standard 10. This component of the work force has grown quite rapidly in the nonagricultural sector in South Africa and represents now 15% of total employment in the nonagricultural sectors.

-Middle-level workers. Workers have at least a standard 7 or 8 of education, and weeks if not months of training. This group represents about 34% of the labor force.

-Semi-skilled workers. Primary education is sufficient but must be accompanied by a short period of training.

-Unskilled occupations. No formal education is required.

These latter two categories employed about 52% of the work force in 1989 and are the categories in which some decline has been recorded since the 1970s.

Barker refers to a study by Strauss (Strauss, 1990) that identifies some of the major

characteristics of the South African labor market:

1. Rapidly rising demand for employment due to population growth skewed positively towards the Black population.
2. Although after the abolition of apartheid, discrimination has diminished, the legacy of the old educational system that penalized the black population¹⁵, is still present.
3. Inadequate living conditions of the black population, accompanied by the realization that education does not necessarily yield employment, has decreased motivation to send pupils to school.

On one side, the educational system is not structured in a way that it stimulates the acquisition of skills needed by the economy; on the other, only a very small proportion of students enrolled in post-secondary education obtain technical degrees (about 13%), while only 0.02% of Black matriculates in 1989 qualified to enter technological education at the tertiary level (Barker, 1992, p. 108-109).

Barker's findings show further that very little is spent by South African employers in training. In 1989, this was equivalent to 2% of total costs compared to an average 5% in other countries. The low figure is detailed by the following evidence:

- Apprenticeship training has actually fallen during the 1980s by about 40%;
- In-service training is vaguely determined. The employers that provide this kind of training often do not report the data to the government, but as a measure Baker utilizes the number of trainees under industrial council agreements or where training schemes are compulsory. His findings show that in 1991 only 25,000 to 45,000 employees were involved in training schemes¹⁶.

Further indicators of inequalities in education are (1) the high ratio of enrollment by Blacks in primary relative to secondary schools, (2) the under-qualification and low pay of teachers of Black students, and (3) the much higher ratio of pupils to teachers in Black schools (Barker, 1992 p. 156).

B.2. Transaction costs

Barker argues that the Black labor force has characteristics that are quite different from the White workforce in terms of language, culture, and educational levels. Employers hiring Black workers usually have to incur increased costs in building the necessary skills for the workers to access employment. These increased cost will often result in a reduction of wages paid to the Black employees (Barker, 1992, p. 166).

[...]

B.3. Industrial relations

Minimum wages are determined in South Africa by a dual system. Industrial councils determine wages through negotiations in those sectors of the economy where the relationship between unions and employers is relatively strong. Agreements are reached without the intervention of the government, which publishes the agreements in the Official Gazette, giving

¹⁵In 1976 expenditure per capita was R605 for white pupils and R40 for black pupils. This was at the height of the Soweto protest against the compulsory use of Afrikaans as the language of instruction. In 1990 the gap had been closed slightly but the differential was still quite high with R3082 per capita spent on white pupils and R764 on black ones. (Finnemore and van der Merwe, 1992, p. 47-48).

¹⁶Barker argues that this is probably due to the fact that this kind of training is industry specific, and therefore there is not a direct interest on the part of firms to involve their workers in such programs.

the, statutory force. Industrial councils in South Africa have decreased in the last decade because a great number of employers have exited them and the number of employees covered by them has decreased.

When this sort of negotiations cannot occur, the government has instituted wage boards that determine the minimum wage. Generally these wages are considerably lower than the ones adopted by the industrial councils. Statistics from the National Manpower Commission show that in South African about 34% of the economically active population is covered by minimum wage (51% of the non agricultural economically active population).

As transactions costs are determined by the interaction of unions and employers, and by labor regulation provided by the State, it is important to look at the status of unionization in South Africa¹⁷. Membership in registered unions has increased during the decade 1980-1990 (2,46 million in 1990).

The three most powerful Unions are the:

1. Congress of South African Trade Unions (COSATU) - 1.3 million members, a non racial, but still mainly black, moderate union strongly supported by the African National Congress (ANC), committed to a socialist economic system-;

2. National Council of Trade Unions (NACTU) - 250,000-350,000 members, a more radical affiliation that maintains that the leadership of the organization should in the hands of the blacks-;

3. Federation of Salaried Staff Associations in South Africa (FEDSAL) - 250,000 members, majority White, but based on principles of non-racialism and market oriented economy.

In a study on South African industrial relations, Finnemore and van der Merwe argue that unions such as COSATU, in order to combat unemployment, pursue policies such as the creation of special youth programs, which ensure jobs in community service and environmental projects at low wages. The main result of such policies is to perpetuate the already existing segmentation of the labor market. Participants in the unions have high skills and are employed in long-term, high-paying jobs, while those who participate in the program, with low skills and low pay, are kept on the periphery (Finnemore and van der Merwe, 1992, p. 215-218).

According to Finnemore and van der Merwe's analysis, firms in South Africa are at the moment implementing one of the following strategies:

Autocratic unitarism and union suppression. Based on the assumptions that labor costs must be kept to a minimum and that the aim of a firm is the maximization of profits. With this goal "sweetheart" unions were created (such as the UWUSA) to avoid unionization by an independent union.

Constitutional pluralism and collective bargaining. Entails respect for freedom of association, rights of union to bargain on wages and condition of service, right to strike, etc. This is the way most companies in South Africa deal with their workers, and the shift has been caused by changes in the economic political environment. Under this strategy, workers have a say in the decision-making process of the company. Companies have the right to close their plants, or relocate. Safety issues and technological change are constantly challenged by the workers through the unions both in the workplace or in court.

Consultative pluralism, worker participation and union collaboration. A mix between the two previous forms, this is the one that according to Finnemore and van der Merwe is an

¹⁷Finnemore and van der Merwe argue that in South Africa most firms have pursued union bashing strategies following the protest movements of the 1970s. But as the power of the unions grew in the 1980s, South Africa started accepting more collective bargaining in order to resolve conflict within the labor market. By the end of the 1980s, political stoppages and frequent strikes had lowered considerably the levels of productivity of the country and collective bargaining needed to be revised. (Finnemore and van der Merwe, 1992)

economic necessity in the case of South African, where the high cost of labor requires employees to improve the quality of their work.

Finnemore and van der Merwe (1992, p. 217-219) observe that the following are likely to characterize industrial relations in South Africa: (1) unions come under pressure of their political parties to reduce their demand for the common good, (2) employers become more subject to labor pressure, (3) racial integration increases in the work place, (4) as more women will enter the workplace, more flexibility of work is demanded, (5) trade liberalization and exposure to international competition push both unions and employers to rethink their positions more efficiently, (6) homogenization of labor laws in South Africa and in the homelands is necessary.

B.4. Capital Constraints

Harber argues that as economic growth in South Africa has declined from 6.3% in 1960-65 to 0.8% in 1981-1994, capital-output ratios have increased. Raphael Kaplinsky (1995) looks at capital intensity in the South African manufacturing sector, the greatest contributor to the formal sector and GDP and finds two possible explanations as to why it is so high:

- primacy has been given over the past years to capital-intensive production;
- distorted factor prices, in the form of high wages and/or low cost of capital, have stimulated capital-intensive production¹⁸.

Kaplinsky looks at the breakdown of capital-output ratios across the manufacturing sub-sectors and finds that only in some of these sub-sectors has investment been comparatively high. Moreover, the high level of capital is due more to shifts towards capital-intensive sectors at the expense of those that are labor-intensive than to changing factor proportions within industries. Such a pattern appears to be a product of political choices during the last years of apartheid when investments were only reluctantly made in labor-intensive sectors. This argument is confirmed by the work of Ben Fine (1996, p.17-18) on the industrial sector in South Africa, which reaches the conclusion that the growth of capital-intensive industry has in fact reflected the interests of a small group in the economy, that is the large-scale private corporate capital and its representation through the state.

Kaplinsky suggests that high levels of capital-intensive production could also be a function of a distorted choice of technology. Choice of technology in South Africa, Kaplinsky argues, is not a function of relative prices but rather of the specification of the output mix¹⁹. The most evident example is given by the technologies that were applied in the chemical sector in order to deal with the oil embargo during the 1970s and the 1980s. A review of the feasibility studies of the projects shows that many were not economically viable.

According to Kaplinsky's argument, policies must be implemented through employment-focused manufacturing strategies by stimulating private investment in labor-intensive sectors of production and assigning to the State the role of crowding in investment through its own strategic investment plan.

B.5. Wage Differentials as an indicator of Market Segmentation

¹⁸Fallon has argued that empirical evidence shows that slow employment growth in South Africa has been caused by changes in factor prices induced by an increase in the wages of the Black workers rather than by artificially low levels of cost of capital. (Fallon,., 1992)

¹⁹Kaplinsky derives data from the research done by Black, A., 1991 "Manufacturing Development and the Economic Crisis" in S. Gelb, 1991. *South Africa's Economic Crisis*, Cape Town: David Philip and London: Zed Books and Natrass, J., and R.P.C. Brown, 1977. *Capital Intensity in South African Manufacturing*. Black/White Income Gap project, Interim Research report n. 4, Durban: Dept. Of Economics, University of Natal.

Differences exist in the level of wages among the different segments of the labor market, although it is difficult to determine whether the differences are a product of employers' policies or of factors such as educational levels and seniority.

Studies have been done to determine the wage differentials. Swart (1978) argues that differentials are due mainly to discrepancies in productivity (70%), and this is mainly a product of before-the-market discrimination rather than within-the-market discrimination.²⁰ Human and Greenacre (1987) find instead that race and gender are main determinants of the differential. As an example, the study shows that in relation to the salary of a 35 year old male worker with standard 10 education, the salary of a White female with the same characteristics is 49%, of an Indian or Colored male 45% , of an Indian or Colored female 28%, of an African male 23% and of an African female 16%. During these past years the trend has shown some reversal, with salaries for Black workers having increased by 2.88% a year while those for White workers have increased only of 0.1%²¹.

Bhorat, Leibbrandt, and Woolard (1995, p. 19-21) identify wage income as one of the main determinants of income inequality in South Africa. Data are provided that show that the wage structure is still at least partially determined by race, although in recent years the gap has narrowed. Inequality appears to be largely a function of the overlap between race and occupation, but it is also evident in intersectoral differences in employment and earnings. In the public service, for example, wages for the highest level employees are about 20 times greater than for the lowest ones, and the private sector faces similar differentials.

Hofmeyr looks at wage patterns for Africans in South Africa since 1985 (Hofmeyr, 1994, 155-164). In detail he analyzes manufacturing, mining and construction sectors, which represent almost 50% of formal sector employment. Finally he observes agriculture and domestic services as indicators of the general status of the labor market.

Generally speaking, average reductions in wages in the formal sector after 1985 have been almost negligible. Where there has been a decrease in wages, it has been almost entirely within the White labor force. The study provides evidence that Whites in higher paying occupations suffered lower wage decrease than Whites employed in the lower paying ones, while average real wages for Black in higher paying occupations increased less than those of Black employed in lower paying jobs. A different trend is shown in the construction sector, where wages for African fell more than for the White population.

Hofmeyr observes that in agriculture and domestic services there has not been any scarcity of labor following 1985. Increase in wages after that date in the nonagricultural sector have, therefore, been the product of institutional changes rather than market forces²². The increase in actual wages in the nonagricultural unionized sector (mining and manufacturing) at rates more rapid than the increase in wages in the nonunionized sector is an indication of the growing fragmentation of the job market.

As the wage differential widens, Hofmeyr argues, the number of unemployed continues to grow. While in an undistorted system, those who cannot find jobs in the formal sector increase

²⁰By before-the-market discrimination the author refers mainly to education. Segments of the population have different access to education and this determines their level of productivity and their wages. Discrimination within-the-market, on the other hand, implies wage differentials among workers with the same skills and occupation. Quoted in Barker, 1992, p. 159.

²¹Quoted in Barker, 1992, p. 159-160.

²²This is based on the assumption that if the agricultural and domestic services sector faces excess labor supply, than the excess labor could be drawn in the nonagricultural sector without increasing wages (as long as the wage paid by the latter is higher than the wage paid by the former).

the number of employed in the informal sector (at lower wages), pressure for higher wages in the formal sector instead pushes the unemployed to prefer to be unoccupied while waiting for an occupation in the formal sector (Hofmeyr, 1994, p. 155-169)²³.

The differential between high pay and low pay in South Africa is considered to be significant with respect to both developed and developing countries, and this is increasing already existing social tensions. It is a priority of the Ministry of Labor to reduce this gap. The Presidential Commission to Investigate Labor Policy argues that since the high wages at management level are a function of the shortage of skilled labor, the country must implement policies that are aimed at increasing the supply of skilled labor force (Report of the Commission to Investigate Labor Policy, 1996, p. 70-71). Such policies are: reorientation of education and training towards the training of personnel in the managerial, technical, and financial areas; removal of restriction on working permits to skilled non-citizens and removal of veto powers on issuing the permits (still held by most professional associations); recruitment of skilled personnel from other developing countries; reduction of state-funded training of high level specialists (which often emigrate) but at the same time ensure policies that would stimulate such training; coordination under a General Accord the remuneration policies of organized business in order to limit the increases in management salaries.

B.6. Public versus Private Sector

A report prepared by the University of Natal in Durban analyzes the Public Works Programs (PWP) that have been carried out in South Africa in order to provide short term relief to unemployment while providing the society with structures that will, in the long term, be useful assets²⁴. PWP are considered a tool for the reduction of cyclical unemployment and were widely applied in developed countries during the 1950s. In developing countries PWP have been implemented in order to respond to short term crisis, usually provoked by drought or floods, but also in order to reduce long-term structural unemployment. Projects have been divided into three categories: (1) directly productive (direct effect on output, ex. irrigation, grainage, etc.), (2) economic infrastructure (promotion of economic activity but indirect effect on output, e.g. roads, bridges, etc.), and finally (3) social infrastructure projects such as schools, hospitals, etc.²⁵. Empirical evidence shows that LDC tend to devote the greatest amount of resources to economic infrastructure although directly productive projects are the ones that creates the higher number of jobs.

C.1. Structure

[...]

C.2. Wage Differential

[...]

²³ A study by Hamermesh and Rees finds that unions have caused wages to peak between 10 and 30% higher than in non unionized sectors. Cited in Barker, 1992, p. 137.

²⁴ Economic Research Unit, University of Natal, Durban, 1993. Special Employment Report. Durban: Urban Foundation.

²⁵ The report cites for a study on the efficiency of public works programs Burki, S.J., D.G. Davies, R.H. Hook and J.W. Thomas, 1976. Public Works Programs in Developing Countries: a Comparative Analysis. World Bank paper n. 224, Washington DC: World Bank.

D. Labor Productivity

D.1. Measurement of Productivity

Productivity can be defined as the ratio between the output of production and the input of production. If the input considered is labor, then the ratio refers to labor productivity; if the capital is in the denominator than the figure will correspond to capital productivity. Alternatively, total factor productivity is defined as the ratio of output to a weighted average of inputs

Productivity is determined by many elements such as technology, capital investment, utilization of production capacity, management skills, quality of labor, and structure of the economy. A study by Biggs, Shah, and Sristava of sub-Saharan Africa in comparison with Asia finds that African firms are similar to Asian firms with the exception that in Africa small firms (less than 20 employees) are more labor-intensive than larger firms, which is not usually the case in Asia (Biggs, Shah, and Srivastava, 1995, p. 29-35). This suggests that in Africa labor productivity tends to increase with the size of the firm.

[It would be interesting to undertake the same sort of analysis for South Africa, trying to identify what are the characteristic of unproductive firms. In fact, the dimension of the firm is also relevant to the characteristics of the employees.]

There are a number of problems associated with trying to measure productivity at the level of the firm. Barker argues that the biggest problem in measuring productivity is given by the fact that it changes with the business cycle.

D.2. Causes of Productivity Differences

Productivity in South Africa has fallen steadily in the period between 1970 and 1990, mainly because of a decline in capital productivity while unit labor cost have increased more rapidly than in other industrialized countries. Harber suggests that the decline in productivity is a function of increased capital intensity in the industrial sector, with the decline of labor relative to capital being less pronounced in the agricultural sector compared with the industrial sector (Harber, 1995, p. 20-26).

Productivity enhancement is one of the major goals of the Presidential Commission to Investigate Labor Market Policy. The Commission argues that increases in productivity in the long term is the principal determinant of a nation's wealth. In fact, productivity at the microeconomic level increases the returns to factors of productions of the firm, increasing at the same time its ability to invest. Moreover, since South Africa has opened its economy to the world market, a rise in productivity is essential to the survival of the country in face of competition from other markets.

The Commission argues that the first step consist in increasing the productivity of the scarce inputs, that is the intensive utilization of capital and skilled labor and the extensive utilization of unskilled labor. This policy must be sustained by a rise in both domestic and foreign demand, with the aim of avoiding significant losses of jobs caused by the natural "downsizing" that accompanies strategies to increase efficiency.

The Commission reports that a number of surveyed South African firms have pointed at obstacles to increases in productivity, both exogenous and endogenous to the firms itself. Most firms have identified as the major impediment the relationship between the firm and the environment in which it operates. It appears that the level of productivity of the firm is highly affected by unsatisfactory relationship with suppliers, consumers, other firms in the same industry, and tertiary institutions. On the other hand, there are a number of constraints that are determined within the firm itself, and first of all the low capacity of its workforce, both in terms

of management and workers. Such low capacity is mainly caused by inadequate levels of education, which does not ensure the necessary quality of decision-making. The relations between managers and the workforce are often constrained by hostile a relationship between management and unions. This results in a lack of identification of the workers with issues related to productivity.

D.3. Complementary Factors

Baker identifies socio-political circumstances such as social conflict and political uncertainty as factors influencing productivity (Barker, 1992, p. 61-69). Conflict between employers and workers, as is often the case in South Africa, reduces the incentive and the capacity to improve productivity.

There is some debate on the effect that unions might have on productivity. The *positive approach* supports the theory that if the result of the collective bargaining process is an increase in wages, firms will be stimulated to reduce inefficiency in their productive systems. At the same time unions might create a healthier working environment which should avoid decreased productivity as a result of dissatisfaction. The *negative approach*, on the other hand, looks at unions as the element that might impose restrictions on the mobility of the workers within or between firms. In this case, management would not be able to reallocate the factors of production according to needs generated by the changes in the market.

Some studies have found a significantly negative relation between productivity and level of unionization of a plant, while others have not found any significant relation linking the two. Barker suggests that the determinant of the relationship is not the unionization of the firm, but whether the relationship between the employers and the union is a conflictual one or a productive one.

D.4. Technology and Management

The South African President's Council in the Report of the Committee for Economic Affairs on a Strategy and Action Plan for the improvement in productivity in the RSA determines that while external factors account for 15% of the level of productivity of a firm, management is responsible for the remaining 85% (in Barker, 1992, p. 67). Management is in fact involved in decisions concerning investment in research and development, which is the main factor influencing productivity. Skills of management are thus an important factor, and the evidence appear to indicate that there is a lack of such skills. The question is then one of targeting training and education, that is whether to give priority to the employers or the employees.

This assumption is not supported in Biggs, Shah, and Sristava's study of the relation between economic growth and technical capabilities, which finds that technical efficiency is low in three African countries (Ghana, Kenya, and Zimbabwe.) In the regression showing the sources of this inefficiency in manufacturing enterprises, the educational level of the general manager is not significant. More important is the level of workers' training, technology transfer, and foreign management and/or capital.

D.5. Labor Qualifications

Lack of skill of the labor force, partly due to lack of investment in training and high rates of illiteracy, is an important determinant of worker productivity. It is realistic to assume that if productivity and training of the work force are positively related, then a shortage of skilled labor would be a determinant of low productivity levels. Barker looks at the vacancy rates of specific

posts, using them as proxies for labor shortages (Barker, 1992, p. 106-124). Keeping in mind that such data suffer from errors in measurement (they do not take into account for example, persons who occupy jobs for which they have not had the proper training), data from 1981 to 1989 show the highest levels of vacancies recorded in the highest skilled occupations such as professional, technical, managerial, transport, and communications. The National Manpower Commission confirms this trend, since in 1990 it determined that the critical occupations were in engineering, computer science, artisans (electricians, telecommunications, etc.) and general (among which doctor and accountants).

Forecasts from the Institute of Future Research (Dostal, 1984) and the Department of Education confirm this trend. According to their data, the demand for skilled workers increases at rates of from 3 to 5% a year until the year 2000. Assuming a real economic growth rate of about 3% a year, the analysis of the IFR forecasts an increase in the excess supply of labor for middle-skill occupations, which in Barker's analysis will result from an increase in the level of education of Blacks. A shortage will still exist in the high skill occupations.

The increase in demand for skilled workers, Barker argues, is a product of the following factors:

1. Shift from primary and secondary production to the service sectors.
2. Shift from unskilled to skilled occupations within sectors, motivated by the fact that as the market opens to international competition, workers must be more flexible and possess more analytical skills.

D.6. Recommendation from the Presidential Commission to Investigate Labor Market Policy

The Commission has examined a number of institutions and policies that are currently dealing with issue of productivity, and has forwarded a number of recommendations. A critical role has been played recently by the National Productivity Institute, which was established in 1968 and consults with private companies as well as government departments and parastatal organizations. The NPI is government funded and thus should embody in its recommendations the economic principles envisioned by South African policy-makers. The Commission suggests to the NPI a tripartite approach to productivity that includes (1) reallocation of labor during transition phases in the reorganization of business, (2) cooperation with enterprises in developing measures to increase productivity, and (3) an equitable distribution among the different participants of the society of the fruits of increased productivity. Within such a framework, the NPI is recommended to provide consulting and training activities within the framework of publicly supported programs and especially to the small, micro, and medium enterprises which have the highest potential for growth, but limited means. The Commission recommends that the calculation of indicators of productivity from CSS statistical data should be the responsibility of a specifically created institution able to provide an integrated labor market information system. The Commission further suggests the launching of a National Productivity Campaign, although at the moment no study has been done on the effects of such an action, and the coordination of government policies in order to be aware of the effects of the latter on productivity.

Particular importance is given to the role plaid by the Workplace Forum and the Labor Relations Act. The Forum, as stated in the LRA, gives the opportunity to workers to intervene, even if in a limited way, in the decision-making process of the firm with the aim of increasing flexibility of production and lessening the tension between management and workforce. Still, the activities of the Forum are quite limited, and the Commission recommends an increase in its use by making it more accessible to workers. The Commission states that while employment standards do not appear to be a significant obstacle to productivity (as confirmed by the most

recent ILO Review), recent trends in production are jeopardizing the fundamentals of the Basic Conditions of Employment Act (BCEA) increasing the potentiality for absenteeism, and in specific sectors (financial and services) are actually coming into conflict with the BCEA itself. The evolution of the workforce organization must be accompanied by an evolution of the working standards. It is, in fact, often the case that new categories of workers are not covered by the BCEA (for example in the construction industry).

Finally the Commission recommends the implementation of multiple shifts in production, which may require additional investment in terms of plant reorganization but which will at the same time increase significantly the number of job opportunities. The Commission also auspices the introduction of "best-practice" production methods through the dissemination of information on new production technologies to those firms that are currently utilizing obsolete or nonefficient means of production.

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ANNEX A
Models of the Aggregate Demand for Labor

We begin this survey of models of aggregate demand for labor with Keynes' General Theory, through the dismissal of Keynes and the compromise of Phillip's Curve (1958) and rational expectations by Lucas (1972), to the current structuralist and neo-structuralist demand models. Along the way we will try to suggest the applicability of the models to LDC economies.

Keynes' General Theory of Employment

The basic tenet of Keynes' General Theory of employment was that expansionary macroeconomic policies such as increases in the quantity of money and devaluation of exchange rates could be used to maintain full employment. By implication a contractionary policy such as a decrease in the money supply and appreciation of currencies would inevitably lead to reduced demand for labor or employment. The underlying assumption of all demand models beginning with the Classicists is that firms employ labor at the point where "the wage is equal to the marginal product of labor" (Keynes, 1932). This "indefeasible" (Keynes, 1932 p 17) assumption in log-linear terms is as follows:

$$d = a - b (w-p) \dots \dots \dots [1].$$

where d is the log of labor demand, w is the nominal wage, and p the price of output with a and b being positive constants. Following from the above and assuming the classical approach that the wage rate will always adjust to maintain "full employment" with the possibility for only frictional" and "voluntary" unemployment then the following is true;

$$d = s \dots \dots \dots [2]$$

Substituting [1] into [2] thus give the following:

$$w = (a-s)/b + p \dots \dots \dots [3] **$$

The implication here is that a change in the price level induced by a nominal shock such as the quantity of money or devaluation of the currency will have no effect on employment but rather will result in changes in nominal wage. Keynes, however, disputed this argument and assumed that the wage rate is not determined by the equality of demand and supply but that the wage rate is determined exogenously as follows:

$$w = wk \dots \dots \dots [4]$$

So there is an "unemployment" equilibrium with the level of employment given as:

$$d = a + bp - bwk \dots \dots \dots [5]$$

In this case nominal shocks have positive effect on the demand for labor. In his later revision of this relationship Keynes admitted that nominal wages are not as rigid as equation [4] suggests and replaced it with a wage setting that is based on expectations as follows:

$$w - pe = c \dots \dots \dots [6]$$

where c is a constant and pe the price level expected by workers to prevail during the period for which w has been decided. Thus equation [5] becomes

$$d = n + b(p - pe) \dots \dots \dots [7]$$

Thus a change in p only has real effect if it involves a change in the expectation error $(p-pe)$. This unexpected expectation can come about through inflation. Thus Keynes' position was clear that nominal shocks could affect the level of employment.

The Phillips Curve - A Classical and Keynesian Compromise.

Phillips argues that there is no need for the expectations error in order to see the effect of nominal variable change on employment and that wages are not determined exogenously. Instead

the unemployment rate is a major determinant in the wage setting process. His wage setting rule, which is seen as a compromise between the classical theory and Keynesian view, may be written as follows:

$$w = c - g (s-d) \dots\dots\dots[8]$$

The nominal wage in this model moves up slowly in response to excess demand or declines slowly in response to excess supply or unemployment. When one substitutes this in equation [1] above one gets $d = x + zp$ where x and z are constants and nominal shocks shown by p have a strong positive effect on employment. The Phillips curve, however, suggests that workers suffer from a money illusion. They determine the wage rate without taking into account its purchasing power but only the level of unemployment. This money illusion was corrected by Friedman (1968) and Phelps (1968).

The Friedman and Phelps Correction- A Synthesis of Philips and Keynes

Friedman (1968) and Phelps (1968), building on Phillips and taking into consideration Keynes expectation error argument, developed a wage setting approach as follows:

$$-pe = c - g (s-d) \dots\dots\dots[10]$$

Again substituting [10] into [1] one gets:

$$d = x + z (pe-p) \dots\dots\dots[11]$$

In this “expectations augmented Phillips Curve” and just like Keynes’ conclusion, nominal shocks only have effects on employment if they are unexpected. The only difference between this correction and Keynes is that Friedman did not trust inflation to create the unexpected surprise which was left unexplained until Lucas (1972, 1973).

Lucas and the Rational Expectation

Lucas formalized Friedman’s mistrust of inflation as a means for effecting demand. Lucas arguments are based on the rational expectations hypothesis of Muth (1961). Lucas modeled agents rational expectation models as follow:

$$p = pe + e, \text{ with } E(e | I) = 0 \dots\dots\dots[12]$$

e is the expectation error, which is random, and $E(e | I)$ is the mathematical expectation of e given all available information. Using the demand for labor function [1], the Friedman wage setting (10) and the expectation formation equation [12] the level of employment and the real wage rate can be solved as:

$$d = x + ze \dots\dots\dots[13]$$

$$w - p = h - ke \dots\dots\dots[14]$$

Here any unexpected positive nominal shock such as inflation hike brought about by a money supply or unexpected devaluation will lead to a reduction in the real cost of labor and an increase in the level of employment and output. The randomness of e implies that only random policy shocks will have real effect. Systematic well announced policies will only have nominal effects and as such will leave employment and unemployment untouched. ***