

# Quality jobs or mass employment

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# Abstract

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The general objective of the study is to explain the apparent failure of employment in the Ghanaian labour market under SAP/ERP by evaluating changes in the qualitative distribution of labour demand, based on trends in advertised job vacancies from 1981 to 1995. The results indicate a significant (25%) increase in the demand for high-skill labour relative to low-skill labour in the ERP/SAP period, compared with pre-ERP/SAP period. Using decomposition techniques it is found that 51.2% of the increase in demand for high-skill labour is explained by changes in skill composition and 48.8% by changes in sectoral composition of jobs. The policy implication is that improvement in employment performance in Ghana will require additional investments in skill training and a keener effort to enhance occupational mobility.

# Introduction

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Prior to structural adjustment and the economic recovery program (1985–95), formal sector employment was high and stable in Ghana. In the 1970s and early 1980s the labour accommodation ratio, that is the number of job vacancies in the formal sector as a ratio of the number of new labour market entrants with secondary school education or better, was estimated to be 1.33 (Squire, 1981: 198 Table 59). Thus, there was a shortage of educated workers. Between 1980 and 1985, formal sector employment went up from 337,000 to 464,000, an average annual increase of 7.5%, while the average annual growth of the labour force was 2.3%. With the onset of ERP/SAP between 1986 and 1991, formal sector employment dropped from about 414,000 to 186,000, representing an average annual decrease of 9.2%.<sup>1</sup> The estimated growth of the labour force remained the same at 2.3% per annum.

A comparison of the performance of real (consumption) wages between the period before and the period during and after ERP/SAP shows that income security of workers changed significantly. During 1980–1985, while formal sector employment was increasing by an average of 7.5% per annum, real wages declined by 13.2%, an average of 2.6% per annum. By contrast, in 1986–1991, when employment growth was negative, real average monthly earnings per employee in the formal sector appreciated by 162% or an average of 27% per annum (Figure 1). We could therefore conclude that under ERP/SAP the Ghanaian labour market exchanged “mass employment” for “quality employment”.

The aim of this paper is to examine the sources and nature of this exchange, that is, which jobs are being substituted. The situation in which the level of employment increases with (not necessarily because of) declining real wages is described in this paper as a case of “mass employment”, reflecting a tendency within the economy to provide jobs for everybody but at a diminishing real wage. We describe as a case of “quality jobs” a situation where the labour market offers jobs for relatively fewer people but at higher real wages, perhaps because the available jobs have higher educational and skill requirements.<sup>2</sup>

## Hypothesis

The hypothesis of this study is that under structural adjustment—that is, a process that introduces market-based principles of efficiency and profitability to ensure “sustainable employment” in terms of productivity and ability to pay—there is a tendency to exchange “mass employment” for “quality jobs”.

**Figure 1. Annual percent change in real wage index and formal sector employment**

It is the view of this paper that in measuring the employment impact of adjustment policies in an economy, consideration should be given not only to the “quantum” (or mass) of employment but also to the “quality”. It is possible that the employment effects due to changes in relative prices among the sectors of the economy might come through greater demand for skilled labour (something that is usually scarce in a developing country like Ghana) rather than through demand for labour in general. It is also possible that a fall in the number employed in general may be compensated for by an increase in the demand for skilled labour in particular.<sup>3</sup>

To protect employment and the trade balance, Ghana appears to have followed what Rodrik (1993) calls “the conventional wisdom” of attempting to achieve macroeconomic stabilization prior to the removal of microeconomic distortions. That is, the “adjustment phase” —aimed at shifting the composition of national output toward the production of exportables and tradeables through the use of relative price instruments—was preceded by the “stabilization phase”, which intended to bring national expenditures in line with national output (Horton, Kanbur and Mazumdar, 1994). However, after a decade and a half the expected positive employment impacts of ERP/SAP are yet to be realized, at least in quantity terms.

Generally under neoclassical assumptions, the removal of price distortions is expected to increase the productive employment of all resources in the long run as a result of

improvements in efficiency. In the short run, however, the process of adjustment is likely to lead to lower employment as employers (including government) attempt to shed excess labour to become competitive. The central proposition of this paper is that if employment is measured in terms of “quality” rather than “quantity” it is possible to find that structural adjustment has led to some improvement in employment in Ghana.

## The objectives of the study

The general objective of the study is to attempt to explain the apparent failure of employment in the Ghanaian labour market under SAP/ERP. Two possible causes are investigated:

- Changes in the structure of labour demand, in particular the qualitative distribution of labour demand, based on trends in advertised job vacancies.
- The macroeconomic environment, notably the policy regime under SAP/ERP, and the institutional environment, notably the extent of wage rigidity among the various segments of the Ghanaian labour market.

In many industrialized countries there has been evidence of significant changes in the relative demand for skills due to product demand shifts and skill upgrading within firms, resulting from both domestic and global changes in technology and trade. Machin (1994) observed significant changes in the employment structure in the U.K. economy and used an approach formalized by Behrman et al. (1993) to disaggregate these changes in the structure of employment into within industry and between industry components. A similar approach is used in this study to analyse the change in the pattern of skill demand in Ghana.

It is expected that the findings of this study will be useful in the process of employment policy formulation and in the evaluation of the appropriate policy and institutional strategies required to deal with factors that inhibit labour mobility and employment maximisation in Ghana.



## **II. Structural adjustment and employment performance: A theoretical framework**

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In general macroeconomic theory does not provide a precise framework for analysing the employment impacts of macroeconomic adjustment policies based on the distinction between various skill components of labour demand. Thus, the discussion of the impact of structural adjustment on developing countries' employment performance has so far been limited to aggregate or sectoral employment shifts without any consideration of the type of employment.

In fact, the discussion of employment impacts in terms of types of labour can be done at both the micro level and at the macro level. This study is based on micro level observations. Before we look at the micro level changes, however, let us briefly outline the possible employment impact of ERP/SAP at the macro level.

Within the general macroeconomic framework, the effect of structural adjustment on aggregate employment has been shown to depend on a number of factors, including the nature of the adjustment process, the macroeconomic environment and the proper functioning of the labour market.<sup>4</sup> Basic neo-classical models of employment determination link employment levels with output (GDP) growth. On the basis of the assumption of constant productivity of labour (and real wages), these models conclude that the rate of employment growth will be associated positively with the rate of output growth. Therefore, the prediction is that if SAP/ERP is able to generate growth, employment levels will improve, all other things remaining the same.

In reality all things do not remain the same as adjustment takes place. First and foremost, structural adjustment revolves around the (relative) price instrument, which in the long run affects the sectoral composition of output. Thus, to the extent that labour absorption differs among sectors of the economy, changes in relative prices will cause changes in the employment rate, even with no change in aggregate output. We may distinguish two sources of change in employment levels as structural adjustment proceeds: that due to the change in aggregate output and that due to the change in sectoral composition of aggregate output.

The effect of a change in aggregate output on employment depends on substitution possibilities available to the economy. As employment expands, firms may substitute capital for labour or substitute skilled (high-productivity) labour for unskilled (low-productivity) labour. If this happens, employment levels may fall in spite of substantial output growth.

In contrast, the employment effect of a change in the composition of aggregate output will depend on flexibility in the labour market. The process of labour reallocation that is

at the heart of any adjustment may be limited by the following factors, according to Horton et al. (1994):

- wage rigidities resulting from existing institutional practices
- rigidities in labour supply
- rigidities in the economy as a whole

In a typical developing country the employment level is likely to suffer under structural adjustment policies because of the existence of these rigidities in the economy. However, as argued by Rodrik (1993), employment need not suffer if trade liberalization is combined with a credible exchange rate policy. Rodrik provides a framework for ascertaining the likely employment impact of trade liberalization and exchange rate policy under structural adjustment and derives an aggregate labour demand function, which he expressed as:

$$L = L^* + \rho(e - w) + \rho\lambda t$$

where  $L$  is the level of employment;  $L^*$  denotes the employment goals of the government;  $e$  denotes the nominal exchange rate;  $t$  is the tariff level;  $\lambda$  is the share of employment in the import-competing sector; and  $\rho$  is the elasticity of labour demand with respect to the (inverse) product wage  $w$ . From this equation we could predict that the impacts on employment of exchange rate depreciation and tariff reduction are both positive, if the product wage is assumed constant. Since the product wage is not constant in the real world, we could say that the effect of adjustment will depend on the determination of nominal wages in the economy, notably the role of inflationary expectations of workers—which in turn will depend on government commitment to disinflation. According to the framework provided by Rodrik, then, employment performance will be better if nominal wages are not affected by perverse inflationary expectations—in short if nominal wages are rigid with respect to inflation.

To what extent could it be said that wages and labour supply are rigid in Ghana? Jebuni, Oduro and Tutu (1996) have shown that in Ghana both nominal wages and real wages have been flexible with respect to the exchange rate, though the flexibility of real wages was statistically weak. However, they found relative wages (among sectors of the economy) and real wage with respect to unemployment to be strongly rigid. This result could be explained by the nature of wage contracts in Ghana. In the supplementary data for this study, we observed that as many as 37% of the firms have wages indexed to inflation or the exchange rate while 32% reviewed wages every year or as and when government sector wages changed. Thus, following the framework provided by Rodrik, the findings of Jebuni et al. suggest that employment growth will be relatively slow under SAP in Ghana. This stems from the adverse effect of rising real wage on labour demand as well as labour immobility resulting from relative wage rigidity among sectors of the economy.

### III. Data base

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Data on employment from official or other published sources are very hard to find. In some countries a study of labour demand patterns could be done using labour market surveys, industrial or establishment surveys, or population census data. In Ghana the last population census was in 1984, the last industrial survey was in 1974, and the first labour force survey is yet to take place. For this study, therefore, data were obtained from job vacancy advertisements published in the country's most widely circulated daily newspaper (The Daily Graphic) between 1981 and 1995.

Job advertisements in The Daily Graphic usually include the following information:

- Name and address of the organization advertising the position, or the name and address of the employment agency.
- Principal activity of the organization, job location, etc.
- Job title and description.
- Academic qualifications, experience, age, and special skills and abilities required.
- Remuneration levels.

We classified jobs into two broad categories, high-skill jobs (or quality jobs)<sup>5</sup> and low-skill jobs. A “quality job” is generally defined as a job offering high and stable income as well as reasonable security of tenure (Leckie, 1988). We defined quality simply in terms of the skill requirements of the particular job, where skill requirement is defined empirically to include the educational, occupational and experience requirements of that job. That is, a “high-skill job” is one that belongs to the middle or upper class of occupations generally referred to as professional, semi-professional or management. Such jobs usually require at least some post-secondary education, and some specific skills or a reasonable number of years of experience.<sup>6</sup>

The reason for using education, occupation and experience requirements as the measure of “quality job” is their implications of security of both income and tenure. In general, higher educational and experience requirements of a job imply higher pay, and higher levels of education required imply longer tenure. Normally upper or middle class occupations are more stable and attract higher pay than lower class occupations.

Another reason for the classification is that data on educational and experience requirements for a job could be easily assembled since these are explicitly attached to most jobs. By contrast, actual income and length of service may be imperfect guides to the “quality of a job” in an environment of imperfect markets where social and political factors could be crucial determinants of earnings and tenure.

Trends in the demand for a particular type of labour are measured simply by the number of advertised vacancies.<sup>7</sup> (In following up on the establishments that advertised positions in 1995, we found that over 75% of firms advertise both high-skill and low-skill jobs.) Each advertised job is analysed in terms of its characteristics, such as job title and description; minimum education required, type of experience and special skills required, remuneration, etc. The sectoral distribution of advertised jobs is also examined. To avoid double counting we used the Daily Graphic as the sole source of data on advertised job vacancies, noting that the Daily Graphic is the most widely circulated newspaper and, therefore, the medium in which most rational employers will place their advertisements.

From this list of information we constructed variables that helped in defining sectors and occupations, and ultimately “high-skill” and “low-skill” jobs. The two components of labour, “high-skill” and “low-skill”, were generated from the data as follows:

- 1) If the occupational status of the advertised position (classified according to job title and job descriptions using the ILO standards for occupational classification) is professional, semi-professional or management, we assign a value of 2, otherwise value equals 1.
- 2) If the minimum educational requirement for the job is a post-graduate, graduate or professional degree, we assign a value of 2; otherwise value equals 1.
- 3) If the number of years of experience required for the job is 0–2, we assign a value of 1; if 3–4, a value of 2; if 5–9, a value of 3; if 10 or more, a value of 4.
- 4) If the sum of re-coded values of occupation, education and experience of an advertised job is greater than or equal to 4, the job is classified as high-skill; otherwise it is classified as low-skill.

To examine the role of institutional factors in the determination of employment, we collected supplementary data from establishments that advertised vacancies in 1995. Ninety-five establishments or firms were surveyed out of a total of 238. The selection of establishments was based on regional, sectoral and size distribution of formal employment in Ghana. The civil service was excluded in order to minimize selectivity bias in the results, because of the large retrenchment programme aimed mainly at “low-skill” workers in the civil service.

The supplementary data were collected structured questionnaires and interviews of human resource managers of the selected firms. The questionnaires aimed at generating the following types of information, among others:

- The type of jobs advertised, and the agency often used, e.g., public employment centre, newspapers, internal bulletin boards.
- Changes in establishment structures since structural adjustment, e.g., ownership, machinery, workforce, organization, marketing and product mix, and the degree of external and local competition firms faced.
- The average level of employment in the 1980s, 1990 and 1995, changes in the structure of the workforce, constraints to labour demand and the perceived causes, etc.

The main and the supplementary data collection exercises were undertaken by the author with the help of field personnel between May and July 1996. The characteristics of the main data base containing 21,030 observations (advertised job vacancies) and those of the supplementary data are shown in the Appendix (tables A1 and A2, respectively).

## IV. Empirical analyses

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New employment can take several forms. It may mean work for additional people, in which case there is an increase in the numbers employed and a reduction in the numbers unemployed, other things, such as the size of the labour force, remaining the same. New employment may also mean more hours of work and/or higher pay for the same old hands, without new hiring. In this case the number employed will remain the same but the wage bill may increase; with the labour force increasing (due to population growth, etc.) this could lead to an increase in the incidence and duration of unemployment, particularly among new labour market entrants. Finally, new employment may mean more work for fewer hands than previously, as new job requirements arise due, for example, to substitution of technologies and changes in markets and production systems. In this case, obviously, more unemployment is created in the short run, particularly among low-skill workers through lay-offs and retrenchment.<sup>8</sup>

It is believed, for example, that in the mining sector newly established mining companies are more skill intensive than older companies. As the new companies expand and overtake the old under SAP/ERP, the number of high-skill jobs increases and laid-off workers from the old companies find it more difficult to get jobs as their old skills are no longer needed.

For all these reasons we need to look beyond aggregate employment figures to evaluate the employment impact of SAP correctly. We require a detailed study of the educational, occupational and skill distribution of new employment.

We can thus finetune the objective stated earlier as:

- To examine changes in the pattern of labour demand in terms of skill requirements, to ascertain the type of jobs that are being created and the limitations on labour demand (if any),<sup>9</sup> using trends in advertised job vacancies,<sup>10</sup>
- To examine the policy and institutional environment that might have enhanced or undermined the employment impact of ERP/SAP, in particular the inter-relationships among the various segments of the labour market and their effect on labour mobility.

The basic assumptions of the empirical analysis include the following:

- That advertised job vacancies reflect adequately the pattern of skill demand in the Ghanaian formal labour market.

- That the occupational, educational and experience characteristics of a job adequately describe the quality of that job.

The maintained hypothesis is that Structural adjustment policies (or macroeconomic policies in general) affect employment and skill demand patterns and they do so with a lag.

To evaluate changes in the pattern of skill demand, three types of trend were measured:

- T1, the trend in the proportion of jobs requiring high skills,  $H_i$ , to the total number of jobs advertised,  $T_i$ , and the proportion of low-skill jobs,  $L_i$ , over the period 1981—1995 (Table 1).
- T2, the trend in the sectoral distribution of advertised jobs by skill levels (Table 2, columns 1 and 2).
- T3, the trend in the skill composition of advertised jobs by sector (Table 2, column 3).

T1 shows whether jobs are becoming increasingly high skilled, while T2 and T3 indicate the sources of changes in skill demand. From T1 we calculated the index of dissimilarity between the level of skill demand in the ERP/SAP period and the pre-ERP/SAP period, using the following formula:

$$\Delta D = \sum (H_i / T_i - L_i / T_i)_p - \sum (H_i / T_i - L_i / T_i)_b \leq 0$$

where  $i$  is year (= 1981 to 1995); subscripts  $p$  and  $b$  stand for ERP/SAP period and pre-ERP/SAP period, respectively; ( $\Delta D > 0$  means an increase in high-skill demand relative to low-skill demand; and ( $\Delta D < 0$  indicates a decrease in the relative demand for high-skill labour, between the pre-ERP/SAP years and the ERP/SAP years. Based on our assumption of the lagged effect of ERP/SAP we have selected the pre-ERP/SAP years to be 1981–1985 and the ERP/SAP years to be 1986–1995.<sup>11</sup>

A change in the relative demand for high-skill labour may be attributed to several sources. First, skill demand may change as a result of a change in the skill composition of jobs; that is, within each sector relatively higher skills are being demanded. For example, typing jobs previously done by commercial school leavers (using manual typewriters) may now require university or at least secondary school graduates with computer or foreign language skills.

The second possible source of variation in skill demand is a change in sectoral composition of jobs. In this case, demand for labour by skill-intensive sectors increases relative to that in less skill-intensive sectors. Similarly, relative demand in skill-intensive sectors falls less than in less skill-intensive sectors, as structural adjustment takes place. For example, if banking and finance jobs usually require university graduates while construction jobs require technical school graduates, the shift of employment (in relative

terms) to banking and finance will lead to an increase in the relative demand for university graduates, all other things being equal.

**Table 1: Trends in advertised job vacancies by skill (1981–1995)**

	Total no	% High-skill	% Low-skill
1981	2,222	50.2	49.8
1982	1,701	64.4	35.6
1983	1,578	63.8	36.2
1984	1,475	52.5	47.5
1985	1,082	57.5	42.5
1986	667	74.2	25.8
1987	542	81.0	19.0
1988	1,196	75.6	24.4
1989	816	80.3	19.7
1990	1,256	82.7	17.3
1991	1,374	82.0	18.0
1992	3,053	49.3	50.7
1993	1,170	60.8	39.2
1994	886	80.2	19.8
1995	686	85.3	14.7

Source: Survey results.

The two sources of change in the demand for high-skill labour resulting from ERP/SAP can be analysed using decomposition techniques. Following Behrman and others, the decomposition formula may be expressed as:

$$\Delta D = \Delta D_{skill} + \Delta D_{sector} \pm (\Delta D_{skill} * \Delta D_{sector}) \tag{1}$$

where  $(\Delta D_{skill})$  is the change in the proportion of high-skill jobs due to the change in the skill composition of advertised job vacancies, controlling for the sectoral composition of jobs;  $(\Delta D_{sector})$  is the change in the proportion of high-skill jobs due to the change in the sectoral composition of advertised job vacancies, controlling for the skill composition of jobs; and  $(\Delta D_{skill} * \Delta D_{sector})$  is the change due to the effects of the interaction between changes in the skill composition and the sectoral composition of jobs. The full expression of Equation 1 can be written as:

$$\Delta D_{skill} = 1/2 \sum |((H_{ip} / T_{ip})T_{ib} / \sum (H_{ip} / T_{ip})T_{ib} - ((L_{ip} / T_{ip})T_{ib} / \sum (L_{ip} / T_{ip})T_{ib})| * 100$$



$$\Delta D_{sector} = 1/2 \sum_i |((H_{ib}/T_{ib})T_{ip} / \sum (H_{ib}/T_{ib})T_{ip} - ((L_{ib}/T_{ib})T_{ip} / \sum (L_{ib}/T_{ib})T_{ip})| * 100$$

**Table 2: Trends in structure of skill demand by sector (%)**

	1		2		3	
	Proportion of high-skill jobs in sector		Proportion of low-skill jobs in sector		Proportion of high-skill jobs to total jobs in sector	
	(Hi/H)		(Li/L)		(Hi/Ti)	
	Pre-SAP	SAP	Pre-SAP	SAP	Pre-SAP	SAP
Agriculture	5.7	3.7	4.8	3.3	62.6	72.9
Forestry	2.0	3.6	2.6	2.2	52.2	80.2
Mining	3.8	5.3	1.8	2.7	74.6	82.4
Manufacturing	13.0	10.6	14.3	11.4	56.1	69.3
Construction	2.8	2.5	3.3	2.7	55.0	69.4
Banking&Finance	5.7	6.0	2.3	3.6	77.6	80.2
Commerce	5.1	8.7	3.1	7.5	69.4	73.8
Public Admin.	9.5	12.5	5.1	6.6	72.3	82.1
Education	17.3	8.0	20.5	17.3	54.2	53.0
Other Services	35.1	39.1	42.2	42.7	53.9	68.9
All Sectors	100	100	100	100	58.4	70.8
N	4707	8246	3352	3400	8059	11646

Source: Survey results.

$$\Delta D_{skill} * \Delta D_{sector} = residual$$

where  $H_i$  is the number of high-skill jobs advertised in sector  $i$  ( $i=1, \dots, n$ ) of the economy;  $L_i$  is the total number of low-skill jobs advertised;  $T_i$  is the total number of jobs advertised in sector  $i$ ; and the subscripts  $p$  and  $b$  denote ERP/SAP period and pre-ERP/SAP period, respectively.

An increase in economy-wide educational levels that affects hiring standards could be controlled for by standardizing the results from Equation 1 to account for changing educational levels, using for example enrolment rates. However, we assume that there was no significant change in general educational levels, particularly post-secondary, during 1981–1995.<sup>12</sup>

## V. Findings and conclusions

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The evidence shows a shift in advertised vacancies among the various sectors of the economy between the pre-ERP/SAP years and the ERP/SAP years. In particular we observe a shift into the primary sector (notably forestry and logging, and mining and quarrying) and the service sector (notably commerce and utilities) from manufacturing and construction. As shown in Appendix Table A1, the proportion of advertised jobs in forestry and logging, and mining and quarrying increased from 5.3% in the pre-SAP years to 7.7% in the SAP years, while that of manufacturing and construction fell from 16.5% to 13.4%. The share of the commercial and utilities sector rose to 8.4% from 4.3%.

These shifts were expected. With ERP/SAP, the importables sector (made up mainly of manufacturing establishments) encounter a decline in its share of GDP and hence in employment, as a result of exchange rate adjustment and import liberalization. Meanwhile, there is an improvement in the relative role of the exportable (such as logging and mining) and non-tradeables (such as banking and finance and services in general).

Between the pre-ERP/SAP years and the ERP/SAP years a significant increase in the demand for high skills occurred, particularly in terms of the number of years of experience. The percentage of advertised jobs requiring five or more years of experience increased from 22.2% in the pre-SAP period to 32.7% during the SAP period. The proportion of high-skill jobs in the total number of jobs advertised increased from 58.4% in the pre-ERP/SAP years to 70.8%, representing an increase of 24.8% in the relative demand for high skills. The demand for high skills increased in all sectors except education, as shown in Table 2 (column 3).

Estimates of the sources of this change based on the decomposition formula (Equation 1) indicate that the contribution of changes in skill composition to the change in skill demand and the contribution of changes in sectoral composition were roughly the same. The relative contribution of skill and sectoral composition to the overall change in skill demand are shown in Table 3. Skill composition appears to have contributed about 48.8% and sectoral composition 51.2% of the change in skill demand. The areas that were the largest sources of increase in the demand for higher skills due to skill-deepening within occupations were public administration, banking, services (including commerce and utilities) and mining.

**Table 3: Decomposition of changes in skill demand by sector (%)**

	Due to sectoral composition	Due to skill composition	Sub-total
Agriculture	0.27	0.31	0.58
Forestry	0.52	0.42	0.93
Mining	0.83	1.51	2.34
Manufacturing	0.49	0.51	1.00
Construction	0.10	0.18	0.28
Banking	0.97	2.89	3.06
Commerce/utilities	0.32	1.90	2.22
Public admin	2.09	3.08	5.17
Education	8.02	0.93	8.95
Other services	1.75	3.72	5.47
Total	15.36	14.64	29.99
Overall Change			24.80
Residual(negative)			(5.19)

Source: Author's calculations.

## Institutional factors and employment performance

It is observed from the supplementary data that on average employment levels declined during the period of structural adjustment. Between 1990 and 1995 the average employment level for the sample declined from 319 to 289, representing a decrease of 9.4%. However the impact of the shrinkage in employment differed among the various skill groups, as shown in Table 4. Between 1980 and 1995 average employment in top occupations (professionals, semi-professionals and management) almost doubled, and between 1990 and 1995 it increased by about a third. This increase was slightly higher among large firms as indicated by the higher percentage changes weighted by firm size. In contrast, employment of sales, service and clerical workers fell by 2.5% in 1980–1995, even though it improved by 15.2% in 1990–1995.

The worst performance was in the employment of technical and production workers, where between 1990 and 1995 employment fell by over 20%. Here again the size of the firm mattered. Giving weight to size as measured by the level of employment, we observe that the decline in the employment of technical and production workers between 1990 and 1995 was over 57% compared with the unweighted average decline of 20%.

The decline in the employment of technical and production workers may be explained by the relative decline in the manufacturing sector, where technical and production workers are usually concentrated, particularly after the implementation of full-scale trade liberalization in 1989. Another reason may be that technical and production workers tend to be more unionized than the other groups. Generally in unionized situations, real wages tend to be more rigid downward but more flexible upward; hence the effect of a decline in output would be greater on employment than on wages.

**Table 4: Average employment in sample firms by occupation**

	Professional, semi-prof., & management	Technical & production workers	Sales, service & clerical workers
1980	8.7	203.3	112.5
1990	12.7	210.9	95.2
1995	16.9	162.1	109.7
% Change in employment level			
1980-90	46.0 (49.9)	3.7 (-35.4)	-15.4 (-37.4)
1990-95	33.1 (30.8)	-23.1 (-33.8)	15.2 (-17.4)
1980-95	94.1 (96.1)	-20.3 (-57.4)	- 2.5 (-48.3)

Values in parentheses ( ) are the percentage changes in the level of employment weighted by the size of firms.

Evidence from the supplementary data shows that the decline in employment was generally greater in firms that had collective bargaining agreements (that is, those that were unionized) in which national unions participated actively in the determination of collective bargaining agreements—the case of centralized union power—than among others, as shown in Table 5. In comparing Table 4 and Table 5, it can be observed that unionized firms tend to be larger in terms of employment. However, the decline in employment among unionized firms was greater than the overall average shown in Table 4. On the one hand, while the decrease in employment of technical and production workers between 1990 and 1995 among unionized firms was 26.3%, the overall average decrease for all firms was 23.1%. On the other hand, the improvement in employment of management workers and tertiary workers (sales, service and clerical) in 1990–1995 was slower among unionized firms, 29.0% and 11.6%, respectively, compared with 33.1% and 15.2% for the overall sample.

**Table 5: Average employment in unionized firms by occupation**

	Professional, semi-prof., & management	Technical & production workers	Sales, service & clerical workers
1980	12.5	302.1	168.1
1990	17.6	310.1	138.3
1995	22.7	228.5	154.4
% Change in employment level			
1980-90	40.8	2.6	-17.7
1990-95	29.0	-26.3	11.6
1980-95	81.6	-24.4	- 8.1

Unionization thus appears to have an asymmetric influence on trends in employment. Employment growth is slower but “dis-employment” is faster among unionized firms than among non-unionized firms. As stated earlier, one source of this difference may be the downward rigidity of real wages among unionized firms with strong centralized control. Another source is the collective bargaining agreement, which slows the employment process for the sake of protecting workers rights.

## Summary of conclusions and policy recommendations

The demand for high-skill labour increased by about 25% relative to low-skill labour between the pre-ERP/SAP years and the ERP/SAP years. This shift in labour demand is explained partly by changes in the skill composition of jobs and partly by changes in the sectoral composition of jobs. The percentage contributions of skill composition and of sectoral composition were roughly the same.

The implications of this finding for policy relating to the supply-side of the labour market are many. The most important is that an improvement in employment performance in quantity terms under structural adjustment will require substantial labour re-training to provide the labour force with not only new but also higher skills. Evidence from the job advertisements indicates that among non-managerial or professional jobs, especially in the service sector, the trend is towards the employment of individuals with computer and analytical skills.

Second, an improvement in employment will require easing labour mobility across sectors. The results show that employment performance in quality terms was satisfactory under SAP, as there was an average of 31% increase in the level of employment of professionals and management workers between 1990 and 1995. However, this conclusion has obvious social implications, particularly the concentration of the benefits of growth in a few hands. There is potential for polarization of the labour market to occur if policies are not initiated to retool the labour force and enhance occupational mobility in the country.

## Future research

We recognise that this paper is only an attempt to gauge movements in the formal labour market in Ghana. The limitations of the database may also be obvious: only advertised vacancies were considered, while we know that a lot of jobs are not advertised, and a lot of jobs created or destroyed by adjustment is in the informal sector. Hence, there is need for more research.

For further research, there is need to look at the fundamental issues of changes in skill demand. The most important areas are changes in relative wages for various skill levels and changes in the structure of enterprise-level operations as well as the role of the reforms in these changes. Moreover, the entire issue of human resource development in the country—the problem of labour market mismatch—has to be addressed. To what extent does the observed changes in job requirements reflect—real demand rather than a case of—educational deepening or credentialism?

## Notes

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1. Official statistics for more recent years are not available.
2. Mass employment could include jobs with high skill requirements and high pay, especially during a period of rapid economic growth based on labour-intensive technology. The distinction is therefore not meant to be sacrosanct.
3. We do not assume by this proposition that there are direct substitution possibilities between skilled and unskilled labour. However, the proposition implies at least some indirect substitution; firms may under SAP adopt technologies or organizational structures that require fewer hands at the lower ranks and multiple skills everywhere.
4. See, for example, Horton et al., 1994; Rodrik, 1993. Agenor, 1995.
5. The term "quality job" and "high-skill job" will be used interchangeably, in line with current developments in the literature (see, for example, Leckie, 1988).
6. The phenomenon of educational deepening that occurs in the midst of severe unemployment, when employers demand higher qualifications for the same old jobs, is not assumed away.
7. We acknowledge that not all advertised jobs are "new jobs".
8. In a recent World Bank sponsored study undertaken by Boateng and Milne on behalf of *London Economics*, it was observed among the majority of recently privatized firms that a significant amount of labour was shed after privatization. As output increased, however, the responsibilities, hours and effort of existing workers were increased. Prior to privatization, increased output would normally have been met with additional employment or more overtime. (*London Economics*, 1996).
9. The concept of labour "demand" used here is a loose one. It simply represents the number of advertised job vacancies rather than the relationship between price (wage-rental ratio), technology, etc., on one hand, and the quantity of a particular type of labour demanded, on the other.
10. A major advantage in using advertised vacancies is that advertisements normally indicate the desired characteristics (requirements) of the job while actual employment categories indicate the characteristics of the incumbents, which may be different from the desired characteristics.
11. The results in general remain the same when the end of the pre-ERP period is shifted to 1984 from 1985.
12. Between 1965 and 1990 enrolment rates for the age group 20–24 years (that is, those likely to be in tertiary institutions) increased only from 1% to 2%.

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# Appendix: Characteristics of the data base

**Table A1. Distribution of advertised job vacancies (%)**

	Total	Pre-SAP	SAP
By sector			
Agriculture	4.3	5.3	3.6
Forestry/logging	2.8	2.3	3.2
Mining/quarrying	3.9	3.0	4.5
Manufacturing	11.9	13.5	10.8
Construction	2.7	3.0	2.6
Banking/finance	4.9	4.3	5.3
Commerce	6.7	4.3	8.4
Public admin	9.5	7.7	10.8
Education	14.0	18.6	10.7
Other services	39.3	38.1	40.2
By occupation			
Professional	25.7	22.9	27.7
Semi-professional	27.1	34.0	22.1
Management	22.8	17.6	26.5
Technical/production	7.7	7.0	8.2
Clerical	8.8	9.8	8.1
Service	7.9	8.6	7.4
By education			
Postgraduate	3.8	2.6	4.5
Graduate	41.7	33.2	46.9
Professional	24.2	25.9	23.1
Technical/vocational	10.5	12.9	9.0
Secondary or lower	19.8	25.4	16.4
By experience (Number of years)			
1-2	55.0	58.8	52.3
3-4	16.7	19.1	15.0
5-9	22.1	18.8	24.5
10 +	6.2	3.4	8.2
Mean	1.8	1.7	1.9
(Standard dev.)	(0.99)	(0.89)	(1.0)
No. of observations	21,030	8,629	12,401

Source: Survey results.



**Table A2: Distribution of the sample of enterprises surveyed (%)**


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Sector		
Agriculture		5.4
Forestry/logging		7.6
Mining/quarrying		1.1
Manufacturing		22.8
Construction		2.2
Commerce/utilities		10.8
Banking/finance		12.0
Education (& research)		12.0
Public administration		6.5
Other services		19.6
Type of establishment		
Sole proprietorship		5.4
Cooperative/partnership		2.2
Limited liability (private)		56.5
Limited liability (100% state)		7.6
Limited liability (partly state)		3.3
Public institution		23.9
Others, e.g., NGOs		1.1
Location		
Accra-Tema		62.0
Kumasi		21.7
Sekondi-Takoradi		14.1
Cape Coast		2.2
Size of employment		
	<b>1990</b>	<b>1996</b>
1-10 persons	6.0	2.2
11-99	32.1	36.3
100-499	41.7	42.8
500 or more	20.2	18.7
Mean (number of workers)	545.0	490.0
Age of firms		
10 years or below		23.9
11-19 years		16.3
20 years or above		59.8
Mean (years)		25.3

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Source: Survey results.