Labour Market Flexibility, Wages and Incomes in Sub-Saharan Africa in the 1990s

Geeta Kingdon, Justin Sandefur and Francis Teal[*]

Abstract: This paper provides an overview of how African labour markets have performed in the 1990s. It is argued that the failure of African labour markets to create good paying jobs has resulted in excess labour supply in the form of either open unemployment or a growing self-employment sector. One explanation for this outcome is a lack of labour market 'flexibility' keeping formal sector wages above their equilibrium level and restricting job creation. We identify three attributes of labour market flexibility. First, whether real wages decline over time; secondly, the tendency for wages to adjust in the face of unemployment; and thirdly, the extent of wage differentials between sectors and/or firms of various size. Recent research shows that real wages in Africa during the 1990s may have been more downwardly flexible than previously thought and have been surprisingly responsive to unemployment rates, yet large wage differentials between formal and informal sector firms remain. This third sense of the term 'inflexibility' can explain a common factor across diverse African economies — the high income divide between those working in large firms and those not. Those working in the thriving self-employment sector in Ghana have something in common with the unemployed in South Africa — both have very low income opportunities relative to those in large firms.

1. Introduction

How flexible are African labour markets and does the degree of their flexibility affect outcomes for poverty and growth? Theories of dual labour markets in which rigid wages in one sector lead to either open unemployment

or a large informal sector have a long history in thinking about African development (Harris and Todaro, 1970). As we will show in this paper, the 1990s were a period when across many African economies there was a failure of labour markets to create good paying jobs with the result being either rising open unemployment or a rapid expansion of the informal sector. In this paper we ask what can explain these outcomes. We will argue that in doing so it will be useful to distinguish between several possible meanings to the term 'flexibility' or its converse 'rigidity'.

Labour markets may be inflexible in at least three different senses of the term. The first is that real wage may not adjust over time to excess supply of labour or to macroeconomic shocks. As stressed by Horton *et al*. (1994), the need for downward flexibility of real wages to achieve full employment in response to budget cuts and other demand reductions was seen as a crucial feature of structural adjustment programmes. The second sense in which labour markets may be inflexible is that, even without macroeconomic shocks, wages are unresponsive to high levels of unemployment. The third sense of the term is that there is a substantial differential across sectors distinguished either by whether or not the sector is unionized, or whether it is subject to minimum wage laws or whether the firms are simply large.

These various meanings of the term 'inflexibility' all have in common the notion that wages do not, for some reason, adjust to a market clearing rate. However, they differ both in the possible mechanisms by which wages may be inflexible and in their policy implications. If wages do not respond to unemployment then labour markets will not clear but there is no reason to think large firms will be disadvantaged by being made to pay higher wages than smaller ones. We will argue that understanding the nature of the inflexibility that does characterize African labour markets gives important insights into key similarities across economies which appear diverse in the structure of their labour markets.

In the next section we outline the overall trends that can be found in the development of labour markets across African economies. How the range of outcomes can be characterized using the framework originally due to Harris and Todaro (1970) is set out in Section 3. In Section 4 we consider which of the aspects of labour market flexibility summarized above are consistent with the existing evidence as to how labour markets work in Africa. In Section 5 we consider in detail the answer to one question related to this general issue of flexibility: why do large formal sector firms pay high wages? A final section provides a summary and conclusions.

2. Recent Macro Trends in Labour Markets

How is the African labour force distributed across sectors and which sectors, if any, have produced job growth in the 1990s? To answer these questions,

Figure 1: Trends in non-agricultural employment by sector (absolute no. of workers in thousands)
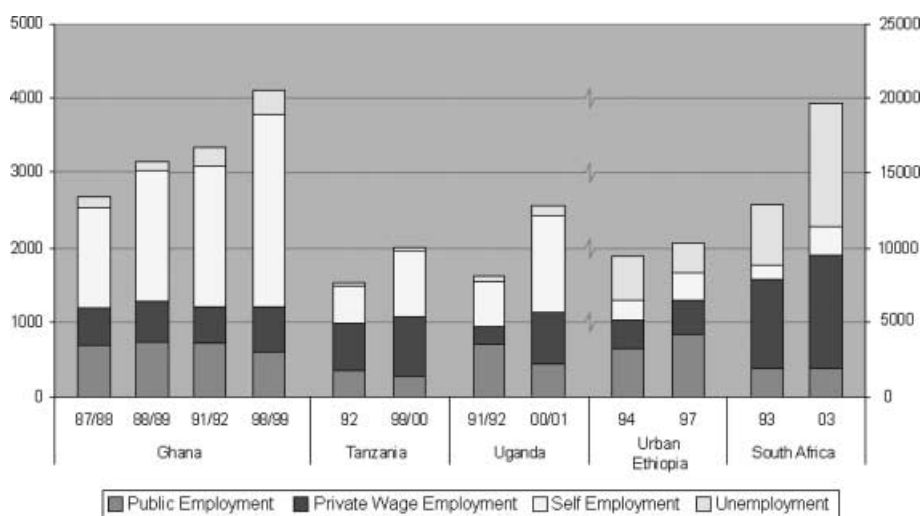
Sources: Table A1 in the Appendix, based on national household and labour surveys. The right-hand axis refers to Ethiopia and South Africa and the left-hand axis to the other countries.

Figure 1 summarizes a wide range of data from individual household and labour force surveys to provide an overview of the distribution of employment across sectors at two points in time for five African economies: Ghana, Tanzania, Uganda, Ethiopia and South Africa (details of the data sources are found in Table A1 of the appendix). These countries have been chosen as representative cases to illustrate the three part typology of labour market outcomes developed in the following section: structural unemployment in South Africa, search unemployment in Ethiopia, and a large informal sector serving as the employer of last resort in Ghana, Tanzania and Uganda. Looking across all of the countries some common patterns can be observed.

1. *The level of wage employment has increased in absolute terms, but failed to keep pace with a growing labour force.* Figure 1 shows that in all five countries formal wage employment has increased and that this very gradual trend in job creation has been driven primarily by the private sector, with the proportion of wage employees in the public sector declining in each country. However, expansion in the formal sector has not kept pace with population growth and/or growth in the size of the labour force, meaning that the relative proportion of workers in formal wage employment has either remained constant or declined in each country.

2. *The share of the informal sector in total employment has grown rapidly.* The failure of formal sector jobs to keep pace with labour force growth implies an excess supply of labour to be allocated to other sectors. In all five countries the absolute numbers of self-employed persons increased greatly during the time span documented here, and in contrast to formal sector growth, this indicates that the informal sector has increased as a proportion of the work force as well.[1] Thus for some African countries the informal sector has successfully absorbed excess labour during a period when formal wage openings have failed to expand with the labour force. This conforms with recent evidence presented by Calvès and Schoumaker (2004) for Burkina Faso, documenting a growing tendency for entry-level workers to turn to the informal sector.

3. *African economies with high unemployment rates have relatively small informal sectors*. Figure 1 illustrates the great disparity in unemployment rates and the size of the informal economy across countries within SSA. Ghana, Tanzania and Uganda display low unemployment rates, while Ethiopia and South Africa have among the highest unemployment rates in the world. In terms of the size of the informal sector, the pattern is essentially the mirror image. It will be argued in later sections that both of these outcomes — unemployment and informality — can be viewed as manifestations of excess labour supply, due at least in part to wage distortions in the formal sector. However, Figure 1 makes clear that in addition to understanding the causes of insufficient formal sector demand, it is also necessary to address the large divergence between economies dominated by unemployment and those dominated by the informal sector.

3. Labour Market Segmentation: How Are Workers Allocated between Employment, Unemployment and the Informal Sector?

The picture of African labour markets which emerged from the data in the previous section was of uniformly low formal sector labour demand, with job creation failing to keep pace with labour force growth. Beyond this general feature of insufficient demand and excess labour supply, however, there was very little uniformity in labour market outcomes across African economies. Specifically, the rate of non-agricultural self employment ranged from a low of 10 per cent of the workforce in South Africa in 1995 to over 27 per cent in Ghana in 1998/99. Meanwhile, measured unemployment in Tanzania and Uganda is below 1 per cent, while economies both richer and poorer reported rates at or above 30 per cent, as in the case of South Africa and Ethiopia.

What can account for this wide range of outcomes? This section presents a basic structure for understanding labour market segmentation and then

Figure 2: Wages and employment in a segmented labour market
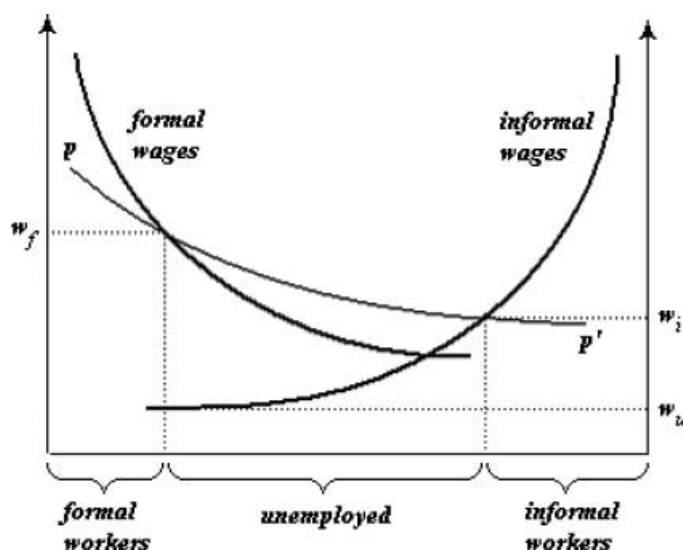
Note that the labour demand curves shown here are drawn for workers with a given
level of education and productivity, working in firms with a given level of capital stock
— three factors which may outweigh the wage rigidity concerns highlighted here in
the determination of labour demand.

proceeds to a more in-depth analysis of three emblematic cases: structural
unemployment in South Africa, search unemployment in Ethiopia, and
widespread informality in Ghana. One way of approaching this question
is through an adaptation of the familiar Harris–Todaro dual economy model.
Consider an urban economy which is divided between three classes of
workers: formal sector workers, informal or self-employed workers, and the
unemployed. Suppose that agents entering the labour market face the option
of queuing/searching for a formal sector job or pursuing self-employment
in the free-entry informal sector.[2] The number of workers falling into each
category is depicted on the horizontal axis of Figure 2, with their respective
wages on the vertical axes (formal sector employment and wages are read
from the left, the informal sector from the right).

  Agents base their choice of which sector to enter on two factors: the wages
available to them and their perceived probability of finding a job in each
sector. Individual characteristics may clearly influence both of these. In a
perfectly competitive market wages would be the same in both sectors for
an individual with given characteristics, with employment divided at the
crossing point of the formal and informal sector labour demand curves (read
from the left and right axes, respectively). In contrast, standard Harris–Todaro
analysis of African labour markets posits an institutionally rigid formal sector

wage, w_f in the figure, far in excess of the market clearing level. This high formal wage has two direct effects: first, it constrains formal sector labour demand; second, the prospect of securing lucrative formal sector work entices some share of workers who would otherwise enter the informal sector to remain unemployed and search for formal employment. The probability of finding such a job is assumed to decline with the number of people searching, creating an equilibrium level of job searchers depicted by the line pp'. The overall result is a segmented labour market with large earnings differentials and insufficient labour demand, stemming from institutional rigidities.

Turning to the analysis of individual case studies, Figure 2 suggests at least three broad factors to be considered in studying the segregation of a given labour market. First of all, earnings differentials between formal and informal employment remain central. These may include public sector wages or the wage premium garnered by unionized workers. They may also include considerations related to efficiency wages and more general bargaining issues that drive a wedge between wages for identical workers. Second, differences in individual characteristics might influence a worker's probability of finding formal sector workers, making the decision to risk open unemployment more or less attractive. For instance, more educated workers may see fit to forego the informal sector and queue for government jobs. Finally, the decision to queue for formal work is almost certainly affected by an individual's ability to support herself in unemployment.

The dominant view of unemployment in developing countries is that open unemployment is due to search. This indeed was the view underlying the initial presentation of the Harris–Todaro (1970) model. If search for a formal sector job from the unemployed state is more efficient than from informal employment, those able to afford unemployment remain openly unemployed and search. However, the poor cannot afford it. Thus, if most unemployment in the economy is of the voluntary search variety, the relationship between unemployment and household income is likely to be positive because the well-off will choose search unemployment but the poor will enter informal sector employment. Whether this is the case for South Africa is considered next.

3.1 Case 1: Unemployment and Self-employment in South Africa

Unemployment in South Africa, using the broad definition, rose from 31 per cent in 1993 to 42 per cent in 2003. On the 'narrow' definition, where the labour force is defined as the employed plus the searching unemployed, unemployment rose from 17 per cent in 1995 to 32 per cent in 2003 (see Tables A2 and notes to that table). This high and rising level of unemployed reflects in part the failure of either the formal or informal sector to provide new jobs and in part an unprecedented growth in the size of the labour

force. Labour force participation rates of women rose by a remarkable 15 percentage points in the 8 years between 1995 and 2003. They rose by 5 percentage points for men in that period. The increase in participation rates for both men and women is likely due to the lifting of apartheid restriction on movement to urban areas and the new possibilities of employment that this was perceived to open. Education levels have risen and participation rates typically increase with education level, particularly so for women. Lastly, the significantly higher increase in the female than male participation rate appears to be because of a decline in women's access to male income due to increased unemployment among males, the HIV epidemic, and increased female headship due to change in household structure (Casale and Posel, 2001).

Kingdon and Knight (2004) find little support for the idea that people choose to be unemployed, one interpretation of the unemployment outcome of the Harris–Todaro model set out in Figure 2. The unemployed are, on average, substantially worse off than the informally employed — both in terms of income and expenditure and in terms of a range of indicators of well-being. This contradicts the luxury or search unemployment interpretation, whereby higher income increases the incentive to remain searching and reduces the incentive to obtain informal employment.

It might be argued that, given the disutility of work, some people prefer to substitute leisure for higher monetary income, so that their apparent deprivation cannot be used to argue that they are constrained to be unemployed. However, in order to interpret unemployment as voluntary, such people should be happier (or, at least, not unhappier) than employed people. Data show that the unemployed are very substantially (and significantly) less happy than informally employed people, suggesting that their unemployment is not due to choice. Finally the average duration of uncompleted spells of unemployment (2.2 years) is too long to sustain a person in search unemployment. The fact that the unemployed are significantly poorer and unhappier than the informally employed suggests that jobless persons' lack of entry into self-employment is due to some impediments to entering the productive part of the informal work.

Kingdon and Knight (2004) show that despite recent growth in informal employment, South Africa is an international outlier in terms of the small size of its informal sector: the ratio of the non-agricultural informal sector employment to unemployment is 0.7 in South Africa but 4.7 in sub-Saharan Africa (SSA), 7.0 in Latin America and 11.9 in Asia. As defined by the South African statistical agency, the 'informal sector' absorbed only 15.7 per cent of the workforce in 1997 and 18.8 per cent in 2002.

What prevents or discourages the unemployed from entering the informal sector? In a survey of 500 informal sector operators in the Johannesburg area in 1999, respondents listed crime, lack of access to credit, lack of access to

infrastructure and services, and need for training as the top four constraints on their businesses. Chandra *et al*. (2002, pp. 26, 30) find that the informal sector operators had required substantial start-up capital (averaging over 2.5 times the average monthly earnings in the sample). New small businesses have to rely on their own financial resources: there was very little access to either formal or even informal credit. However, these problems exist in most developing countries and do not explain the smallness of the South African informal sector.

One thing that does distinguish South Africa is the observed effectiveness of enforcement of labour regulations. Labour market institutions such as Industrial Councils (now called Bargaining Councils) and Wage Boards set sectoral minimum wages and stipulate working conditions in many industries in South Africa. These minimum wages and stipulations are applied to all firms in the industry and region, irrespective of size, *via* the 'extension' provision. There are serious penalties for flouting the agreements of these institutions. Such provisions impose a burden of high labour costs on small firms and it is likely that they would seriously inhibit the entry and growth of such firms. This is one explanation for the large average size of firms in South Africa.

3.2 Case 2: Search Unemployment in Ethiopia

As of 1994, the unemployment rate among urban males in Ethiopia was approximately 50 per cent, one of the highest rates observed anywhere in the world. With per capita GDP at the time of only $520, Ethiopia provides a striking contrast to the folk wisdom that open unemployment is a rich country phenomenon and surplus labour is absorbed by the informal sector in poor countries. What do we know about the unemployed in Ethiopia and what affects their probability of finding work?

Examining the composition of the urban unemployed, Serneels (2004) finds that a majority are well educated and come from middle-class households. They are predominantly young, with the highest unemployment rates at 19 years of age, have a median duration in unemployment of nearly 4 years, and a majority have never held paid work in their lifetimes. It is important to note also that approximately half of young unemployed males in urban Ethiopia report that they are searching for a job in the public sector, implying job queues for this sector far in excess of the employment opportunities.

Turning to the factors which determine whether a young male becomes employed or unemployed, Serneels finds that education raises the probability of unemployment up to the tertiary level, which has an indeterminate effect. Given that returns to education are significantly higher for males in the

public versus private sector in Ethiopia (Krishnan *et al.*, 1998) this pattern is consistent with the basic framework described above: personal characteristics which increase an individual's potential earnings in the public or formal sector and/or increase their probability of securing such a job will likewise increase their probability of entering the unemployment pool vis-à-vis the informal sector. Similarly, young males with a father who is a civil servant are more likely to be unemployed — perhaps due to a networking or informational advantage in public sector job search — while those with a father who is self-employed are less so. However, while education and social capital appear to contribute to the likelihood of unemployment, one must be careful not to assume that it is purely a middle-class phenomenon, the familiar 'luxury unemployment'. Once unemployed, the probability of finding work is positively correlated with family wealth, with poorer job searchers exhibiting significantly longer unemployment duration.

Finally, although the precise causes and potential cures for high unemployment in Ethiopia require further research, the stylized facts reviewed here suggest that public–private and formal–informal wage differentials may play a central role. Wage data in Table A3 of the appendix show that while the public–private gap in the formal sector is small, the gap between formal employment and self-employment widened dramatically in the 1990s, reaching 85 per cent by 1997.

3.3 Case 3: High Informality and Low Unemployment

While South Africa and Ethiopia represent two important cases within SSA, most of the labour markets in SSA economies for which we have comparable data display a very different pattern of labour market outcomes. Ghana, Uganda and Tanzania all have a large self-employment sector which absorbs increases in the labour supply. The differences we observe are not due to differences in the rate of labour supply increase which has been rapid in all these countries. The inference would appear to be that the reason for the differential rates of growth of the informal sectors within these economies is a direct result of the rate of growth of formal sector employment. It is possible that for most African economies — we obviously exclude Ethiopia and South Africa — there is a competitive free-entry self-employment sector in which earnings are not significantly different from the lower part of the distribution among wage earners in firms. As we document below, wage dispersion within the firm sector is very large. In terms of our framework for African labour markets, this suggests that in these countries informal sector wages have fallen to clear the labour market. Rather than unemployment, the primary issue of policy concern is the low wages at which the informal market clears.

4. 'Flexibility' in African Labour Markets

How can the diversity of outcomes across Africa documented in the previous section be explained? In particular, which, if any, of the three dimensions of labour market inflexibility identified in the introduction can help to explain the patterns we observe in unemployment and the lack of formal sector employment growth? In this section we review the evidence for each of the three dimension of inflexibility.

4.1 Wage Adjustments Over Time

The most commonly noted aspect of labour market flexibility is the ability of aggregate real wages to decline over time. Based on country studies there are differences of view as to whether African labour markets can be considered flexible in this sense of the term.
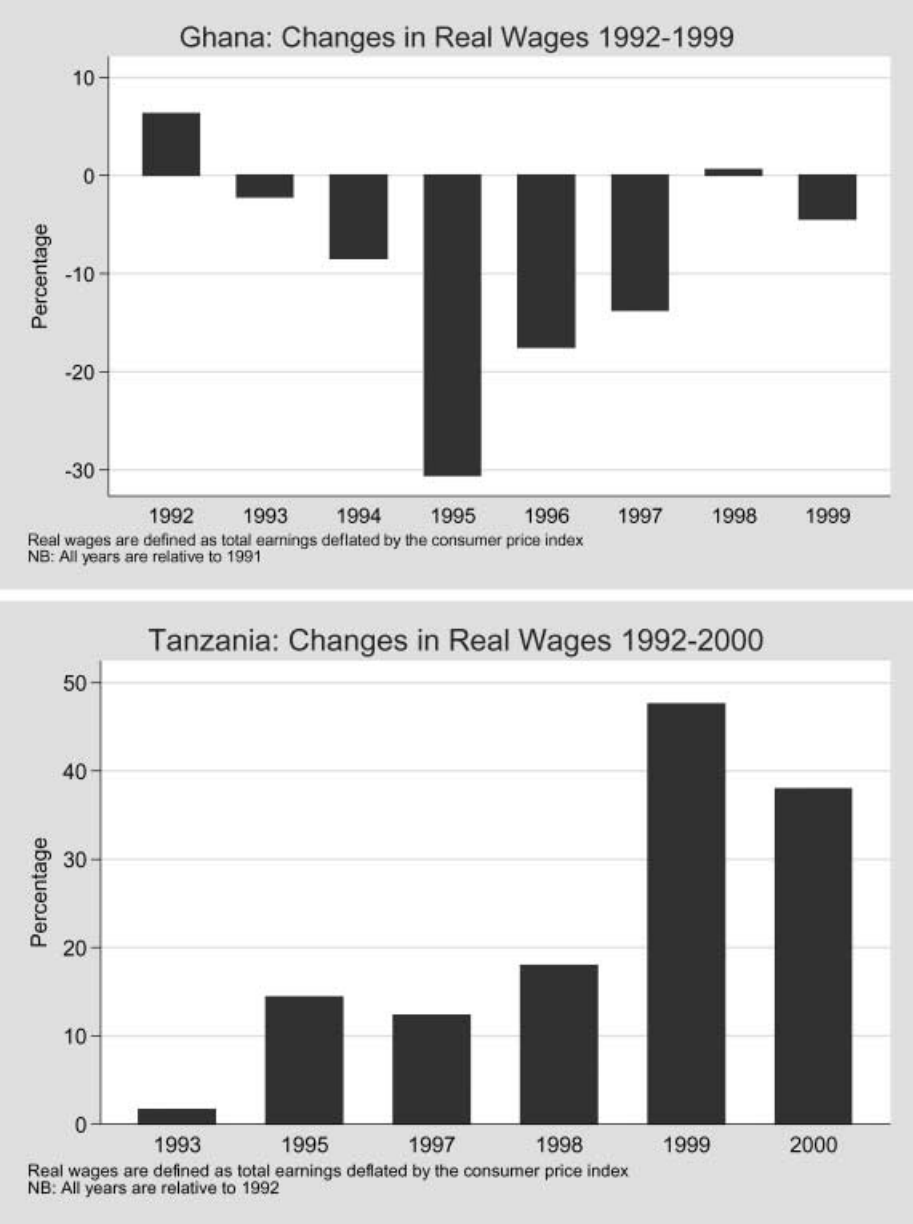
Reviewing the Kenyan experience through the two oil shocks, a severe drought in 1984 and subsequent stabilization programmes, Milne and Neizert (1994) conclude modern wages were quite flexible: 'Through the adjustment phase, real wages in all modern sectors fell, although the drop in the public sector was more pronounced. Indeed, real wage rates seem to have provided the major part of the adjustment as there do not appear to have been major changes in the urban unemployment rate' (p. 454).

Writing on Ghana in the same volume, Beaudry and Sowa (1994) note that wages differentials between sectors were fairly quick to respond to demand shifts (toward agriculture and industry, away from services) brought about by structural adjustment and that 'a flexible labour market probably helped achieve the macroeconomic improvements observed in Ghana during the 1980s' (p. 402).

Even in South Africa where, as will be discussed below, unions are an important part of the wage setting process, real wages for Africans have fallen over the period from 1995 to 2003 according to the data presented in Casale *et al*. (2004).

Despite this evidence for flexibility, a detailed assessment of wage misalignment for CFA franc economies by Rama (2000) concluded that wages in these countries showed some evidence of real rigidity in that they closely tracked public sector wages and consumer price indices. In an international comparison, Rama found that wages in CFA countries from 1985–93 remained considerably higher than could be explained by their level of development, urbanization, industrialization or human capital intensity. Similarly, evidence presented by Krishnan *et al*. (1998) shows that real wages in the urban Ethiopian labour market have been surprisingly unresponsive to downward pressure from economic reforms, even amidst high rates of open unemployment.

Figure 3: Real wage changes over time

Ghana: Changes in Real Wages 1992-1999

Real wages are defined as total earnings deflated by the consumer price index
NB: All years are relative to 1991

Tanzania: Changes in Real Wages 1992-2000

Real wages are defined as total earnings deflated by the consumer price index
NB: All years are relative to 1992

For two countries more detail of real wage changes in the manufacturing sector can be given. Figure 3 presents data from the World Bank's Africa Regional Program on Enterprise Development (RPED) and follow-up work at the Centre for the Study of African Economies (CSAE) which enables real

Figure 4: Monthly US$ wages for unskilled occupations
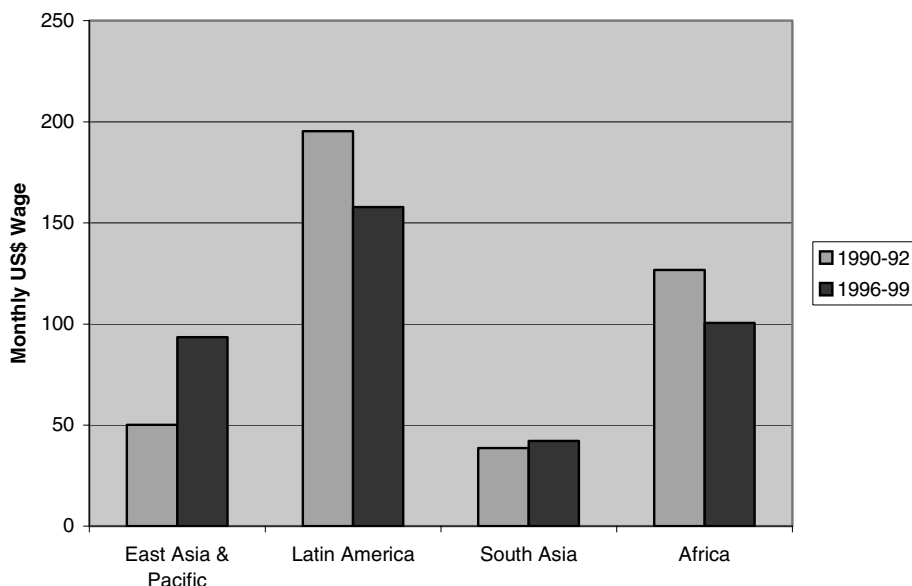
Source: Freeman and Oostendorp (2000), OWW Database.

wage changes to be measured over the 1990s in which there are controls for the human capital characteristics of the worker and the size of the firm in which they work. As discussed in later sections, firm level variables such as unionization, capital stock, formal sector registration, and firm size itself are highly correlated with wages even after allowing for differences based on human capital. Controlling for firm size is a means of providing a more comparable picture of wages over time for workers in firms of a given size.

The first point to be drawn from Figure 3 is that real wages in these manufacturing sectors have experienced quite erratic fluctuations over the 1990s. For both countries the figure shows the percentage change in real wage relative to the base year of 1992. Thus Ghanaian manufacturing wages experienced a 30 per cent drop from 1990 to 1995 and then a substantial rise such that by the end of the decade they were only modestly below their level of 1992. Clearly, explaining this roller-coaster ride in real wages is a very important research question and at present we have little idea how these changes over time are to be explained. The contrast with Tanzania is striking in that over the decade real wages in the Tanzanian manufacturing sector grew quite rapidly. By 2000 they were some 40 per cent above their 1992 level.

Does this more detailed evidence from the manufacturing sector suggest flexibility of wages over time? It certainly suggests that any notion of a fixed

real wage is not a useful way of modelling outcomes — very substantial changes in real wages within the sector have been observed. However, it does not rule out the possibility that workers within a firm can in the long run resist pressures for declines in wages. The declines in Ghana occurred in the context of a highly variable rate of inflation. It is possible — we need longer runs of data to know — that the changes in real wages reflect not the flexibility that comes from excess supply pushing down prices but from mistakes being made by workers in setting their nominal wages when they cannot accurately predict the rate of inflation.

So far we have considered country-based data. What of comparison across countries and between Africa and other regions? Figure 4 shows average US dollar wages across selected regions at the beginning and end of the 1990s (Freeman and Oostendorp, 2000; OWW database). What appears striking is that while average wages in Africa have fallen during the 1990s they remain above the level for East Asia. The data presented in the figure are based on population weighted means which ensures that the data for East Asia for the 1990s is dominated by China. The contrasts between East Asia and SSA which have been a prominent aspect of relative international growth rates for a long period have, if anything increased in the 1990s. Certainly the macro data we have suggest that wages in SSA remain, on average, high relative to their East Asian competitors.

4.2 Wage Adjustments in Response to Unemployment

Another aspect of flexibility stressed in recent empirical work on developed country labour markets is the responsiveness of wages to local unemployment rates, a relationship which Blanchflower and Oswald (1995) have termed the 'wage curve'. Tests of this relationship in urban African labour markets by Hoddinott (1996) for Côte d'Ivoire and Kingdon and Knight (2006) for South Africa have yielded results strikingly similar to those for the United States and Canada: a wage-unemployment elasticity of approximately -0.1. The finding of a wage curve of this form, particularly for South Africa, is both a surprising and important result.

It is surprising because it has often been assumed that the South African labour market is particularly inflexible. Trade unions play an important role in wage determination in South Africa, as will be discussed below. It is important for two reasons. First, it suggests strong similarities in labour markets across economies with very different levels of per capita income. The second implication of the finding is that the size of the wage fall is very large. Broadly, the evidence suggests that a rise in unemployment of 10 per cent lowers wages by 1 per cent and that this elasticity appears to be constant over the range of unemployment from 0 to 30 per cent. These figures imply

that a rise in regional unemployment in South Africa from 10 to 30 per cent reduces wages by 20 per cent. While the wage curve elasticity is low, the high levels of unemployment imply relatively large effects on wages.

4.3 Wage Differences between Formal and Informal Sectors

How important is the distinction between the formal and informal sector or between large and small firms for understanding the pattern of wage differentials in African labour markets? The term 'the informal sector' refers to a large range of activities from urban self-employment through household enterprises to wage employment in small firms. We first consider distinctions between the formal and informal sectors within wage employment before turning to the gap between self-employment and wage employment.

It could be objected that any differences between formal and informal sector wages simply reflect skill differences between workers in each sector. Thus comparisons across sectors need to use earnings regressions to examine differences between sectors while controlling for differences in personal characteristics including observable human capital. Lachaud (1995) uses this technique to compute formal sector earnings premia of 57.1 per cent for Burkina Faso, 60.3 per cent for Cameroon, 40.9 per cent for Côte d'Ivoire, and 9.6 per cent for Mali. Miller and Vallée (1995) and Thomas and Vallée (1996) confirm these orders of magnitude for Cameroon, as do Vijverberg and van der Gaag (1990) for Côte d'Ivoire. In South Africa, Kingdon and Knight (2004) find that 50–64 per cent of the large formal–informal earnings difference remains after controlling for characteristics, depending on whether OLS or selectivity-corrected earnings functions are used.

A closely related approach is to compare the wages of similar workers in establishments of varying size. Firm size can provide a clearer basis for comparison than the formal–informal distinction which is often inconsistently defined across studies. Examination of employer-size wage differentials also allows for direct comparison with developed country labour markets, where the positive relationship between size and wages has been the subject of an enormous amount of research.

To show how these size premiums translate into effects on wages across firms Figure 5 shows the wage differential between a firm with 20 versus 100 employees for a production worker in the manufacturing sector with a given set of human capital characteristics It seems safe to conclude from Figure 5 that wage differences between the large and small firm sectors are uniformly large across African countries, they significantly exceed those observed in developed economies and they cannot be explained by the observed skills of the workforce.

Recent work in this area has investigated if this size effect is due to the *unobserved* skills of the workforce. The collection of panel worker data,

Figure 5: Wage gap by firm size — percentage difference in wages between a firm with 20 versus 100 employees, controlling for workers' skills
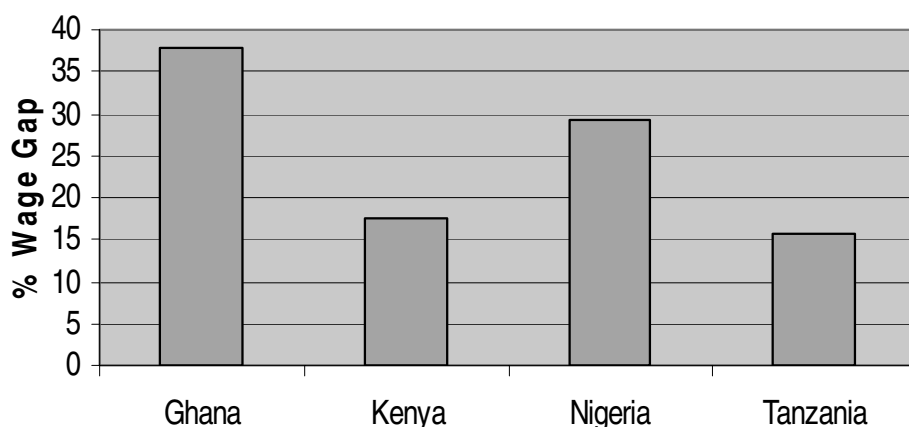
to match the panel data of the firm, has made this possible. Söderbom *et al.* (2002; 2005) show that this size effect is only in small part due to unobserved skills. Changes in the size of the firm, controlling for all time-invariant aspects of both the firm and the worker lead to increases in earnings. While this firm size effect on wages is not attributable to skills (observable or unobservable), it is consistent with a wide range of possible explanations including aspects of efficiency wages and bargaining. The section below examines a number of these potential explanations in greater detail.

4.4 Measuring Self-employment Incomes

Looking at the raw earnings data it appears that wage earners, and public sector employees in particular, have a distinct advantage over the self-employed. Table A3 in the appendix shows that in 1998/99, for instance, the differential for wage-employment over self-employment in urban Ghana was 17 per cent, while the public sector wage differential was over 50 per cent. For Ethiopia by 1997 these gaps had spread to nearly 100 and 150 per cent respectively. In South Africa in 1993 among Africans, the differential for wage employment over self-employment was 76 per cent, while the public sector over self-employment wage differential was 170 per cent.

However, for much the same set of reasons that we think larger firms may employ different quality labour from that found in small firms we might expect the self-employed to differ in many respects from those in wage employment. There is, in making these comparisons, a further problem in

that measuring self-employment incomes is far more difficult than measuring wage incomes.

In this sub-section we will use the Ghana data to investigate how the incomes of the self-employed can be measured and compared to incomes from wage employment. In the Ghana Living Standards Surveys (GLSS) which have been conducted over a long period from 1987/88 to 1998/99, questions were asked which sought to elicit the incomes of the self-employed. There are in fact at least two quite different methods for seeking to measure self-employment incomes. One is to directly seek information on net income, the second is to impute income from a production function.

Direct Measures

In GLSS4, the section on employment asked individuals in the households what they received in payment for their activities — whether the payment be from wage or self-employment. Clearly there is for the self-employed some ambiguity as to how these questions were interpreted. Did the answer refer to their gross revenues or net and, if net, which costs were deducted from revenues? If the answers do refer to net incomes (i.e. revenues less costs) then the income measure combines income from labour, human and physical capital. If we are interested in comparing the returns to labour across the wage and self-employment sectors we need some method of imputing the returns to capital (both human and physical).

What do the GLSS data imply for differences between wage and urban self-employment incomes using this direct method of measurement? Figure 6 shows the age-earning profiles for the self-employed and wage employees from all four waves of the GLSS data. Incomes are measured in US$ so Figure 6 shows that incomes for those aged 20 are virtually identical at US$245 per year (= exp(5.5)). The figure also shows that the earnings profile is steeper for the wage earner than the self-employed so that by age 45, the wage earner has an income nearly 30 per cent higher than the self employed. [The figure shows that the wage earner income is US$518 (=exp(6.25)) and that of the self employed is US$403 (exp(6.0))]. While this is a substantial difference, possibly the most striking aspect of the result is how close are measured incomes for the self-employed and wage employees over the age range from 20 to 30.

It might well be thought that the measures of income for the self-employed would be so poor as to offer little insight into their income opportunities. It is here that the advantage of having four independent surveys is relevant, for it is possible to see if a similar pattern emerges from all four cross-sections. Table A4 in the appendix shows the regressions for the four cross-sections available. What seems striking is how similar are the age earnings profiles

Figure 6: Age earnings profiles for the self-employed and wage employees
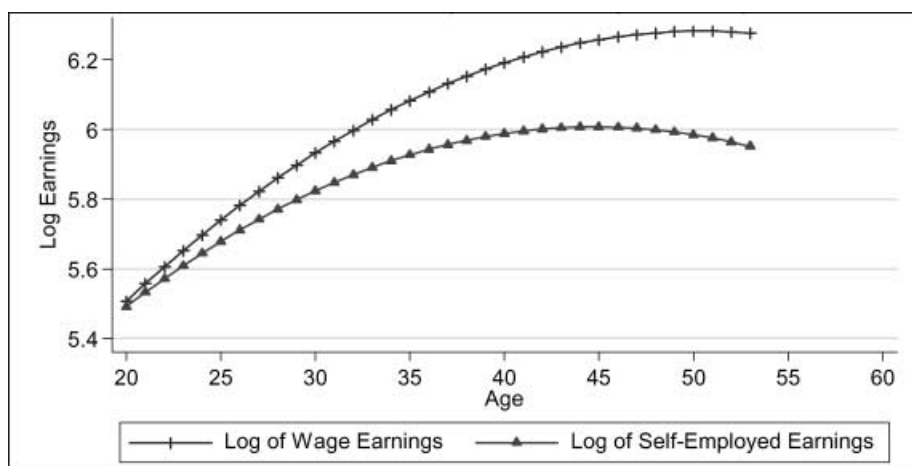
Note: The age earnings profiles are imputed from an earning function and use the average level of education for each type of employment.
Source: GLSS surveys.

across these four independent surveys. This method of measuring incomes does pick up some systematic variation of the incomes of the self-employed with age.

Indirect Measures

The second method for imputing income to the self-employed is through the calculation of the incomes from household enterprises. There is a section in the GLSS survey which allows for this. As far as we are aware, no comparison has been done between these two sources of information. What we do in this sub-section, is to compare the incomes that result from the direct methods from household surveys (in the previous sub-section) with the use of the firm level data which the CSAE has collected since 1992.

This indirect method infers the incomes that accrue to labour from a production function. In the simplest case, a production function shows the relationship between two inputs, capital and labour, and the value-added these inputs produce. In work at the CSAE, we have shown that a satisfactory way to represent this requires slightly more generality in that raw materials and indirect costs are other important inputs that need to be modelled (see Söderbom and Teal, 2004). In the simplest form of this production function, the marginal product of labour — the extra amount of output each person working in the firm produces — is proportional to the average product

which is simply output divided by labour input. Thus in assessing the income available to the self-employed, we ask what is the marginal product of labour in very small firms. In doing so, we assume that the self-employed whose incomes are measured in the household surveys are similar to those working in micro enterprises in the firm surveys.

To infer incomes for the self-employed by this indirect method, we need to know both the average product of labour in small firms and the relative importance of labour in producing output. How much does labour productivity differ by firm size? For micro enterprises (those employing less than five people) the median labour productivity is US$2,433. This compares with a median labour productivity of US$8,600 for firms with more than 100 employees. To convert this number for average productivity to the marginal product for labour, we need to know the relative importance of labour in producing output. Söderbom and Teal (2004, p. 380) gives a factor of 0.17 which implies a labour income to working in small enterprises of US$414 (0.17 × 2,433).

Thus this indirect method gives labour income to the self-employed of US$414. The direct method used above gave a figure of US$403 for a self-employed person aged 45. It would seem there is a remarkable similarity between the two methods in producing an estimate of labour income for the self-employed. Further the gap, at least for younger workers, between self-employment and wage earnings is small. We have evidence here that for the type of economy we have termed 'High informality and low unemployment' wages are sufficiently low to clear the labour market.

5. Why Do Large Formal Sector Firms Pay Wages Far in Excess of Workers' Apparent Alternatives?

In their analysis of wage gaps in Cameroon, Thomas and Vallée (1996) list six possible causes of labour market segmentation in Africa, i.e., high formal sector wages which are *not* explained by workers' skills and productivity.

- High formal sector wages may be due to the presence of trade unions in the formal sector.
- Minimum wages and other labour regulations, which are by definition only applicable in the formal sector, may dictate wage levels.
- Monopoly rents accrue to formal sector firms which are insulated from competition by the regulatory structure, and these rents may be shared with employees through a bargaining process.
- It may be worthwhile for only the most able managers to bear the expense of formal sector registration, contributing to higher productivity and, in turn, wages in this sector.

- Because larger size is often associated with higher turnover and monitoring costs, formal firms may pay efficiency wages to retain employees and increase productivity while informal firms do not.
- Finally, firms may discriminate on criteria not related to productivity, such as gender or ethnicity.

The source of wage differentials and labour market segmentation is a matter of contentious debate, precisely because the policy implications are so stark. If, on the one hand, high formal sector wages simply reflect the greater human capital and productivity of workers who secure these jobs then the lack of formal sector labour demand in many African economies can be directly attributed to a shortage of skilled labour. On the other hand, if high wages in the formal sector are attributable to unions and government regulations, stimulating labour demand will require not an increase in skills but rather reforms in labour market institutions. Thus the task of this section will be to assess the evidence on the role of labour market institutions in explaining wage setting behaviour in the formal sector.

The following paragraphs review the evidence on two categories of labour market institutions: unions and other bargaining mechanisms. The discussion draws heavily on several studies which have employed firm and worker data from Africa's manufacturing sector collected through the RPED, as well as numerous household surveys.

5.1 Trade Unions

It is useful to distinguish the possible effect of unions on two separate dimensions of labour flexibility outlined earlier: wage adjustments over time and labour segmentation between sectors. In his analysis of wage misalignment in CFA countries, Rama (2000) addressed the first of these questions, asking whether unions can explain the incomplete adjustment of wages in these countries during the 1990s. He concludes that 'private sector unions . . . seemed more instrumental in achieving wage moderation than wage drift. Their members usually had lower wages than similar, non-unionised workers, which probably reflects the "subordinate" nature of the labour movement.' This latter observation is based on a review of research findings measuring union wage premiums in which a number of studies report a *negative* union wage premium for CFA countries (see Table A5 in the Appendix, the relevant part reproduced from Rama, 2000).

A second question is whether unions can explain labour market segmentation between firms or sectors. While focusing on a different subset of countries, research on this topic has produced dramatically different findings on the size of the union wage premium in Africa. For the case of South Africa, Schultz and Mwabu (1998) find an average union wage premium for

African workers of 47 per cent.[3] In addition, they use a quantile regression approach to examine the effect of unionization on wages for workers in each segment of the income distribution. For African workers at the 10th percentile, unionization is estimated to increase wages by 145 per cent, while at the 90th percentile the effect is only 11 per cent. For white workers the numbers are significantly lower, at 21 per cent and negative 24 per cent respectively.

Work undertaken by CSAE updating the Schultz and Mwabu (1998) work suggest that this union premium has risen markedly in the period from 1995 to 1999. Even controlling for industry the union premium in 1999 was 53.8 per cent, massively higher than that observed in OECD countries (see Table A5). Controlling for firm size, Blunch and Verner (2004) perform a similar analysis for the Ghanaian manufacturing sector and are unable to find a significant wage effect from unionization when looking at workers as a whole, but find a 34 per cent premium at the 10th percentile.

Work to date emphasizes the remarkable divergence that has been observed for the union premium. More evidence is becoming available as a result of the firm surveys carried out in Africa's manufacturing sector. These surveys collected both labour market and firm information. It is thus possible to control for the human capital of the workers and for firm characteristics for similar types of firms over several countries. It may well be thought that the South African economy is an outlier within Africa as far as the importance of the union premium is concerned. Figure 7 draws from these labour and firm surveys for Ghana, Kenya, Nigeria and Tanzania to provide a comparison with the union premium for South Africa.

Figure 7 shows the union premium for the five countries for which we currently have comparable data. The first column shows the union wage

Figure 7: Union premia for production workers in manufacturing

©The Authors. Journal compilation © African Development Bank 2006
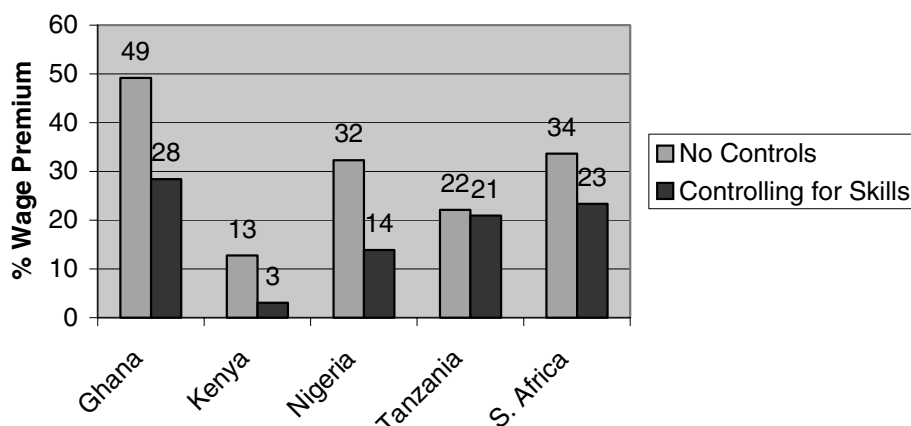
premium for a production worker in the manufacturing sector with no controls, while in the second column there are controls for gender and differences in skills measured by age, years of education, and job tenure (though none of the underlying regressions includes controls for other aspects of the firm, either sectors within manufacturing or size). While controlling for skills dramatically reduces the union effect, the remaining union premia are still very large by international standards. Indeed, premia of 49 and 32 per cent for Ghana and Nigeria respectively are as high or higher than the average union effects found for South Africa, suggesting this latter country may not be so idiosyncratic as sometimes assumed. Furthermore, the importance of differences across quantiles noted in the work discussed above suggests that these averages hide important differences that require investigation. As they stand, they suggest an important role for unions as part of the institutional structure that drives wages across workers with similar levels of human capital.

In conclusion, while there is an emerging body of evidence to suggest that unions play a central role in many African labour markets, systematic identification of their effects is complicated by the factor that unionization is highly correlated with other leading explanations for labour market distortions including the other regulations reviewed in this section, monopoly power of producers, and firm size more generally. The success of the quantile regression approach in identifying union premiums for low wage workers may relate precisely to their ability to compare these workers — concentrated in smaller firms — with a baseline of low-wage non-union workers for whom union contracts do not apply. Separating out such a control group within large formal sector firms is extremely difficult. Further research in this area should focus on disentangling such potentially correlated factors as union status, regulatory coverage, firm size, worker skills, and capital intensity.

5.2 Rent-seeking, Institutions and Efficiency Wages

So far we have focused on a model of the labour market where the large observed deviations from competitive wage levels (i.e., from wages based solely on individual human capital characteristics) are due to overt institutional or regulatory interventions. However, large formal sector firms may also pay high wages to increase labour efficiency, or as a result of rent-seeking behaviour by workers which may or may not occur in a union context.

In the case of efficiency wage models, a link between wages and effort or productivity may arise for a variety of reasons, including the increased fear of dismissal when wages are high (Shapiro and Stiglitz, 1984), a tendency

for better paid workers to be better nourished and in better health (Dasgupta and Ray, 1986), increased morale from above average earnings, and so on. Similarly, above market-clearing wages may reduce labour turnover, creating a necessary link between high wages and large formal firms (Stiglitz, 1974; Manning, 2003).

One major piece of empirical evidence already described which is consistent with the idea of efficiency wage setting in Africa is the wage curve literature discussed in Section 3. The causal link from unemployment to lower wages found in this literature is inconsistent with purely competitive wages based on human capital alone, but can be readily explained in an efficiency wage model such as that of Shapiro and Stiglitz. Along these lines, Fafchamps and Söderbom (2006) use worker-firm matched data across 10 African countries from the RPED surveys to establish a connection between firm size and wages, and show that this prominent feature of the data is consistent with wage setting behaviour determined by labour management concerns. In support of this hypothesis, they show that worker effort and productivity increase with both the level of supervision and wages, two incentive mechanisms stressed in many efficiency wage models.

One implication of these findings is that labour management may be a more acute problem for African firms than their competitors elsewhere. Fafchamps and Söderbom find that the wage-elasticity of effort is around 0.45, compared with 0.74 in Morocco, which the authors posit as a control case. A second key implication of the whole class of efficiency wage models is that the high wages observed in larger, more productive formal sector firms need not depend on labour market institutions, but rather are a necessary result of the firms' organizational structure. As far as policy is concerned, the link from labour market 'flexibility' to job creation is effectively broken.

Rent-seeking models attribute wage differentials to a process of bargaining — implicit or explicit — that takes place between workers and the owners of capital over the rents or profits from production. Evidence of such 'rent-sharing' effects on wages has been found for a wide range of countries, including Ghana (Teal, 1996) and Zimbabwe (Velenchik, 1997) within Africa. Furthermore, as Blanchflower *et al*. (1996) note, these effects appear to be fairly consistent across countries with widely differing institutional structures and unionization rates, indicating a role for bargaining even in the absence of unions.

In conclusion, the evidence presented at the beginning of this section makes clear that a subset of African workers earn large wage premia which are inconsistent with competitive wage setting and cannot be explained by their skills alone. However, there are competing models to explain these wage differentials, and the relative importance of these different effects may produce very different policy conclusions.

6. Summary and Conclusions

This paper has sought to provide an overview of how African labour markets have performed in the 1990s and to ask how far these outcomes can be explained by the inflexibility of the labour market. In this section we summarize what we have found and draw conclusions for policy.

We began by drawing on a wide range of data sources to provide an overview of recent outcomes in African labour markets. We found that in all five countries formal wage employment has increased and that this very gradual trend in job creation has been driven primarily by the private sector, with the proportion of wage employees in the public sector declining in each country. However, expansion in the formal sector has not kept pace with growth in the size of the labour force, meaning that the relative proportion of workers in formal wage employment has either remained constant or declined in each country. Second, this common result of excess labour supply takes widely divergent forms across the continent delineated as either structural unemployment as in South Africa, search unemployment as in Ethiopia or the growth of the informal sector as in Ghana, Tanzania and Uganda.

South Africa, the largest economy in the region, suffers one of the highest unemployment rates in the world. Evidence suggests that individuals who are out of work are not unemployed voluntarily, in any meaningful sense of the word, thus the search for an explanation turns primarily to structural constraints preventing job creation. While at nearly the opposite income extreme within the region, urban Ethiopia records similarly high unemployment rates to South Africa. However, examining the profile of unemployed persons shows them to be disproportionately young, well-educated, and from affluent backgrounds (in contrast to South Africa). Evidence suggests high public sector wages may contribute to job queuing by the relatively educated. Finally, a majority of African economies lie somewhere in the income range between Ethiopia and South Africa, but report low or negligible levels of open unemployment. Instead, a large informal or self-employed sector dominates the economy. We have focused on diagnosing the causes of this labour market segmentation and the failure of large formal firms to absorb the pool of low-wage labour.

Labour market policy debates frequently invoke the concept of 'flexibility'. In this paper we have identified at least three distinct attributes of labour markets all related to the flexibility of wages and employment. The ability of real wages to decline over time; the tendency for wages to adjust in the face of unemployment; and the extent of wage differentials between sectors and/or firms of various size.

We have reviewed evidence showing that African labour markets may be surprisingly flexible in the first two senses — rising and falling erratically at points in the last decade, and exhibiting a 'wage curve' relationship with

respect to unemployment. However, there seems compelling evidence that 'rigidity', in the sense that we observe substantial wage differentials between firms and sectors, certainly characterizes African labour markets. This third sense of the term inflexibility can explain the common factor across African economies — the high income divide between those working in large firms and those not. Those working in the thriving self-employment sector in Ghana have something in common with the unemployed in South Africa — both have very low income opportunities relative to those in large firms.

In the case of Ghana this process of 'informalization' implies a shift within wage employment to lower paid jobs so average wage earnings may be falling even if wage rates for given types of jobs are not. In the case of South Africa the increase in unemployment lowers average incomes as the proportion of the labour force with wage jobs declines.

Notes

1. The category of non-agricultural self-employment is taken to be synonymous with the urban informal sector in interpreting these data. Clearly this is inaccurate for at least two categories of workers: entrepreneurs and business owners in the formal sector who constitute a very small share of the total, and high-income professionals such as attorneys, independent financial service providers or doctors. Inclusion of both groups implies that earnings data for self-employment will over-estimate earnings in the informal sector. Nevertheless, it should be stressed that the special attention given to wage employment in the following sections is targeted only at identifying sources of high-earnings opportunities, rather than at giving preference to wage employment over self-employment or informal activities *per se*.

2. This builds on the assumption, consistent with some evidence but open to debate, that agents cannot or do not simultaneously hold informal sector employment and search for a formal sector job.

3. Butcher and Rouse (2001) argue that a much lower figure for the union wage premium among Africans workers — around 20 per cent, obtained by controlling for industry — is the relevant statistic. This places the South African union premium in 1993 at more comparable levels to the US and UK.

References

Beaudry, P. and N. K. Sowa (1994), 'Ghana', in S. Horton *et al*. (eds.), *Labor Markets in an Era of Adjustment*, Vol. 2. EDI Development Studies, World Bank, Washington DC.

Blanchflower, D. and A. Oswald (1995), *The Wage Curve*, MIT Press, Cambridge.

Blanchflower, D., A. Oswald and P. Sanfey (1996), 'Wages, Profits, and Rent-Sharing', *Quarterly Journal of Economics*, Vol. 111, No. 1, pp. 227–51.

Blunch, N.-H. and D. Verner (2004), 'Asymmetries in the Union Wage Premium in Ghana', *World Bank Economic Review*, Vol. 18, No. 2, pp. 237–52.

Butcher, K. and C. Rouse (2001), 'Wage Effects of Unions and Industrial Councils in South Africa', *Industrial and Labor Relations Review*, Vol. 54, No. 2, pp. 349–74.

Calvès, A.-E. and B. Schoumaker (2004), 'Deteriorating Economic Context and Changing Patterns of Youth Employment in Urban Burkino Faso: 1980–2000', *World Development*, Vol. 32, No. 8, pp. 1341–54.

Casale, D. and D. Posel (2001), 'Why More Women are Looking for Work? A Study of Female Labor Supply in South Africa, 1995–1999', paper presented to the DPRU/FES conference, Johannesburg, 15–16 November.

Casale, D., C. Muller and D. Posel (2004), ' "Two Million Net New Jobs": A Reconsideration of the Rise in Employment in South Africa, 1995–2003', paper presented at the African Development and Poverty Reduction Conference: Lord Charles Hotel, Somerset West, South Africa, October 2004.

Chandra, V., J. Nganou and C. Noel (2002), 'Constraints to Growth in Johannesburg's Black Informal Sector: Evidence from the 1999 Informal Sector Survey', World Bank Report No. 24449-ZA, June.

Dasgupta, P. and D. Ray (1986), 'Inequality as a Determinant of Malnutrition and Unemployment: Theory', *Economic Journal*, Vol. 96, No. 384, pp. 1011–34.

Fafchamps, M. and M. Söderbom (2006), 'Wages and Labor Management in African Manufacturing', *Journal of Human Resources*, Vol. 41, No. 2, pp. 241–79.

Freeman, R. and R. Oostendorp (2000), 'Wages around the World: Pay across Occupations and Countries', NBER Working Paper No. 8058.

Ghana Statistical Service (1995), *The Pattern of Poverty in Ghana: 1988–1992*, Accra, November.

Ghana Statistical Service (2000), *Poverty Trends in Ghana in the 1990s*, Accra, October.

Glewwe, P. (1996), 'The Relevance of Standard Estimates of Rates of Return to Schooling for Education Policy: A Critical Assessment', *Journal of Development Economics*, Vol. 51, pp. 267–90.

Harris, J. and M. Todaro (1970), 'Migration, Unemployment and Development: A Two-Sector Analysis', *American Economic Review*, Vol. 60, No. 1, pp. 126–42.

Hoddinott, J. (1996), 'Wages and Unemployment in an Urban African Labor Market', *Economic Journal*, Vol. 106, pp. 1610–26.

Horton, S., D. Mazumdar and R. Kanbur (1994), 'Overview', in *Labor Markets in an Era of Adjustment*, Vol. 1, World Bank, Washington DC.

HSRC (2003), *HRD Review 2003*, Human Sciences Research Council, Pretoria.

Kingdon, G. and J. Knight (2001), 'Unemployment in South Africa: A Spatial Approach', Centre for the Study of African Economies, Working Paper 99-12, Oxford University.

Kingdon, G. and J. Knight (2004), 'Unemployment in South Africa: The Nature of the Beast', *World Development*, Vol. 32, No. 3, pp. 391–408.

Kingdon, G. and J. Knight (2006), 'How Flexible Are Wages in Response to Local Unemployment in South Africa', *Industrial and Labour Relations Review*, Vol. 59, No. 3, pp. 471–95.

Knight, J. (1997), 'Market Issues in Zimbabwe: Lessons for South Africa', *South African Journal of Economics*, Vol. 65, No. 1, pp. 69–98.

Krishnan, P., S. Dercon and T. Gebre Selassie (1998), 'The Urban Labor Market during Structural Adjustment: Ethiopia 1990–1997', Centre for the Study of African Economies, Working Paper 98-09, Oxford University.

Lachaud, J. P. (1995), 'Public-Private Wage Differentials in French-Speaking Africa: A Comparative Analysis', *Labor*, Vol. 9, No. 2, pp. 295–341.

Manning, A. (2003), *Monopsony in Motion*, Princeton University Press, Princeton, NJ.

Miller, V. and L. Vallée (1995), 'Labor Regulation and Segmentation in Cameroon', in B. Gauthier (ed.), *Economic Reform and the Development of the Manufacturing Sector in Cameroon*, RPED Country Study Series, World Bank, Washington DC.

Milne, W. and M. Neitzert (1994), 'Kenya', in S. Horton *et al*. (eds.), *Labor Markets in an Era of Adjustment*, Vol. 2. EDI Development Studies, World Bank, Washington DC.

National Bureau of Statistics, Tanzania, Household Budget Survey 2000/1, Dar-es-Salaam, July 2002.

Rama, M. (2000), 'Wage Misalignment in CFA Countries: Are Labor Market Policies to Blame?' *Journal of African Economies*, Vol. 9, No. 4, pp. 475–511.

Schultz, P. (2004), 'Evidence of Returns to Schooling in Africa from Household Surveys: Monitoring and Restructuring the Market for Education', *Journal of African Economies*, Vol. 13, AERC Supplement. 2, pp. ii95–ii148.

Schultz, P. and G. Mwabu (1998), 'Labor Unions and the Distribution of Wages and Employment in South Africa', *Industrial and Labor Relations Review*, Vol. 51, No. 4, pp. 680–703.

Serneels, P. (2004), 'The Nature of Unemployment in Urban Ethiopia', Centre for the Study of African Economies, Working Paper 04-01, Oxford University.

Shapiro, C. and J. E. Stiglitz (1984), 'Equilibrium Unemployment as a Worker Discipline Device', *American Economic Review*, Vol. 74, pp. 433–44.

Söderbom, M. and F. Teal (2000), 'Skills, Investment and Exports from Manufacturing Firms in Africa', *Journal of Development Studies*, Vol. 37, No. 2, pp. 13–43.

Söderbom, M. and F. Teal (2003), 'Openness and Human Capital as Sources of Productivity Growth: An Empirical Investigation', CSAE Working Paper 2003-06.

Söderbom, M. and F. Teal (2004), 'Size and Efficiency in African Manufacturing Firms: Evidence from Firm-level Panel Data', *Journal of Development Economics*, Vol. 73, pp. 369–94.

Söderbom, M., F. Teal and A. Wambugu (2002), 'Does Firm Size Really Affect Earnings?' CSAE Working Paper WPS/2002-08.

Söderbom, M., F. Teal, and A. Wambugu (2005), 'Unobserved Heterogeneity and the Relation between Earnings and Firm Size: Evidence from Two Developing Countries' *Economic Letters*, Vol. 87, pp. 153–59.

Söderbom, M., F. Teal A. Wambugu and G. Kahyarara (2006), 'The Dynamics of Returns to Education in Kenyan and Tanzanian Manufacturing', *Oxford Bulletin of Economics and Statistics*, Vol. 68, No. 3, pp. 261–88.

Stiglitz, J. (1974), 'Alternative Theories of Wage Determination and Unemployment in LDCs: The Labor Turnover Model', *Quarterly Journal of Economics*, Vol. 88, No. 2, pp. 194–227.

Teal, F. (1996), 'The Size and Sources of Economic Rents in a Developing Country Manufacturing Labor Market', *Economic Journal*, Vol. 106, pp. 963–76.

Teal, F. (2000), 'Real Wages and the Demand for Skilled and Unskilled Male Labor in Ghana's Manufacturing Sector: 1991–1995', *Journal of Development Economics*, Vol. 61, pp. 447–61.

Teal, F. (2001), 'Education, Incomes, Poverty and Inequality in Ghana in the 1990s', Centre for the Study of African Economies, Working Paper 01-21, Oxford University.

Terrel, K. and J. Svejnar (1990), 'How Industry-labor Relations and Government Policies After Senegal's Economic Performance', Policy Research Working Paper Series 271, World Bank.

Thomas, M. and L. Vallée (1996), 'Labor Market Segmentation in Cameroonian Manufacturing', *Journal of Development Studies*, Vol. 32, No. 6, pp. 876–98.

United States International Trade Commission (USITC) (2004), *Textiles and Apparel: Assessment of the Competitiveness of Certain Foreign Suppliers to the U.S. Market*, Publication 3671, USITC, Washington DC.

Velenchik, A. (1997), 'Market Power, Firm Performance and Real Wage Growth in Zimbabwean Manufacturing', *World Development*, Vol. 25, No. 5, pp. 749–62.

Vijverberg, W. and J. van der Gaag (1990), 'Testing for Labor Market Duality: The Private Sector Wage in Côte d'Ivoire', LSMS Working Paper No. 66, World Bank, Washington DC.

Wood, A. and J. Mayer (1998), 'Africa's Export Structure in a Comparative Perspective', Study No. 4, African Development in a Comparative Perspective, UNCTAD, Geneva.

World Bank (1993), *Kenya: Growth and Structural Change*.

World Bank (1994), *Adjustment in Africa: Reforms, Results and the Road Ahead*, Oxford University Press.

World Bank (1995), *World Development Report 1995: Workers in an Integrating World*, Oxford University Press.

Appendix

Table A1: Employment by sector for selected countries

Ghana	1987/88		1988/89		1991/92		1998/99	
	%	000s	%	000s	%	000s	%	000s
Wage employees	17.3	1,121	18.1	1,215	15.4	1,143	13.2	1,166
Government	8	518	7.9	530	7.8	579	5.9	521
State enterprise	1.9	123	2.3	154	1.2	89	0.6	53
Private	7.4	480	7.9	530	6.4	475	6.7	592
Self-employment	19.5	1,264	24.2	1,624	23.5	1,744	27.3	2,411
Unpaid family	2.2	143	1.1	74	1.3	96	0.3	26
Agriculture	58.7	3,804	54.6	3,664	56.7	4,207	55.7	4,918
Unemployed	2.2	143	1.9	127	3.2	237	3.5	309
Total labour force	100	6,480	100	6,710	100	7,420	100	8,830

Uganda	1992						1999/2000					
	Total		M		F		Total		M		F	
	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s
Wage employment	15.3	968	24.2	772	6.3	196	13.3	1,050	21.3	807	5.9	243
Public	5.4	343	8	254	2.9	90	3.4	265	5.3	201	1.6	65
Private	9.9	625	16.2	518	3.4	106	9.9	785	16	607	4.3	178
Self-employment	7.6	482	9.5	302	5.7	180	10.3	815	11.8	447	8.9	367
Agriculture	76.2	4,819	65.3	2,083	87.4	2,736	75.5	5,959	65.5	2,477	84.7	3,481
Unemployed	0.9	55	1.1	34	0.7	21	0.9	68	1.3	50	0.4	18
Total labour force	100	6,324	100	3,191	100	3,133	100	7,892	100	3,782	100	4,110

Tanzania	1991/92		2000/01	
	%	000s	%	000s
Wage employment	7.93	899	7.40	1,071
Government	3.79	430	2.17	314
State enterprise	1.95	221	0.72	104
Private	2.19	248	4.51	653
Self-employed	5.23	593	8.44	1,221
Unpaid family	5.65	640	9.38	1,358
Agriculture	80.41	9,114	69.04	9,992
Unemployed	0.79	89	1.20	173
Total labour force	100.00	11,335	100.00	14,473
Total population		24,522		31,878

Table A1: Continued

South Africa (%)[1]	1993 (Saldru)			1995 (OHS)			2003 (LFS)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Wage employment	60.9	66.4	54.5	60.2	70.8	47.0	47.7	52.9	42.3
Public	15.0	15.7	14.2				9.4	9.5	9.2
Private	45.9	50.7	40.3				38.3	43.4	33.1
Self-employment	7.9	6.6	9.3	10.4	6.7	15.0	10.6	11.3	9.8
Agriculture	0.4	0.5	0.3				1.3	1.5	1.2
Other	7.5	6.2	9.0				9.2	9.8	8.6
Employment	68.8	73.1	63.8	70.6	77.5	62.0	58.2	64.3	52.2
Unemployment	31.2	26.9	36.2	29.4	22.5	38.0	41.8	35.7	47.8
Labour force	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Participation rate				56.4	65.9	47.8	66.7	71.1	62.8

South Africa ('000s)	1993 (Saldru)			1995 (OHS)			2003 (LFS)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Wage employment	7849	4657	3202	8231	5379	2852	9509	5302	4207
Public	1933	1101	834				1869	949	920
Private	5916	3556	2368				7640	4353	3287
Self-employment	1018	463	546	1421	513	908	2111	1134	977
Agriculture	52	35	18				269	148	121
Other	967	435	529				1842	986	856
Employment	8868	5127	3748	9652	5892	3760	11622	6436	5187
Unemployment	4021	1887	2127	4015	1710	2305	8332	3579	4753
Labour force	12889	7014	5875	13667	7602	6065	19954	10015	9939

Ethiopia (Urban areas)	1994			1997		
	%			%		
	Total	M	F	Total	M	F
Wage employees	42.9	47.4	37	47.8	54.3	40.2
Public	25	26.4	23.2	26.7	29.3	23.7
Private	17.9	21	13.8	21.1	25	16.5
Self-employment	17.6	18.8	16	22.3	18	27.4
Unemployed	39	33.8	47.8	29.9	27.7	32.4
Labour force	100	100	100	100	100	100
Participation rate	55.8	68.3	42	57.2	62.7	51.9

Table A1: Continued

Kenya (Urban areas)	1986		1998/99	
	%	Millions	%	Millions
Wage employees	66.2			
Self-employment	16.5			
Unemployed	16.9			
Participation	70.4			
Population				
Modern			38.0	1.56
Informal			29.3	1.20
Agriculture			3.7	0.15
Not-stated			3.7	0.15
Unemployed			25.1	1.03
Participation			86.4	4.10
Population				4.74

Burkina Faso (Ouagadougou & Bobo Dioulasso)	1955–64		1965–74		1975–84	
	M	F	M	F	M	F
Formal sector	23.2	7.5	15.4	3.9	8.3	3.7
Private	13.4	1.8	7.9	0.5	3.3	0.8
Public	9.8	5.7	7.5	3.4	5	2.9
Informal sector	76.8	92.5	84.6	96.1	91.7	96.3
Agriculture	11.9	5.5	9.9	5.4	7.1	2
Craft	8.5	13.4	16.5	8	15.2	4
Petty trade — food	8	61.6	5.3	54.8	11	52.6
Petty trade — other	8.5	8	26.7	13.6	26.1	14.3
Services	39.9	4	26.2	14.3	32.3	23.4

[1] See note below explaining the issues involved in comparing data sources across time in South Africa.
[2] Years represent birth cohorts. All numbers represent percentages from a 2000 survey who recalled finding their first paid employment in a given sector.
Sources: Ghana: Teal (2001), based on Ghana Statistical Office surveys; Uganda: HIS 1992 and UNHS 1999/2000, courtesy Simon Appleton; Tanzania: Household Budget Survey, courtesy Trudy Owens; South Africa: South African Labor and Development Research Unit (SALDRU) (1994) 'South Africans Rich and Poor', SALDRU, University of Cape Town, August; Statistics South Africa (StatsSA) (1996) 'October Household Survey 1995', Statistical Release P0317.10, StatsSA, Pretoria; and StatsSA (2004) 'Labor Force Survey, September 2003', Statistical Release P0210, StatSA, Pretoria; Ethiopia: Krishnan *et al.* (1998), based on first and third rounds of the Ethiopian Urban Household Survey; Kenya: Urban Labor Force Survey, 1986; Labor Force Survey, 1998/99; Burkina Faso: Calvès & Schoumaker (2004), *World Development*, Table 1.

Table A2: The total labour force and unemployment in South Africa: 1995–2003

	OHS 1995	OHS 1997	OHS 1999	LFS 2000:2	LFS 2001:2	LFS 2002:2	LFS 2003:1
Strict labour force (employed + searching unemployed)							
Total labour force	11,603,100	11,793,200	14,068,700	15,970,500	15,531,400	16,034,000	16,933,700
Total unemployed	1,971,900	2,688,700	3,671,200	4,231,900	4,687,600	4,986,900	5,354,200
Unemployment rate	17.0	22.8	26.1	26.5	30.2	31.1	31.6
Broad labour force (employed + searching and non-searching unemployed)							
Total labour force	13,648,000	14,468,000	17,169,800	18,250,200	18,556,000	19,276,700	20,259,600
Total unemployed	4,017,800	5,363,500	6,772,300	6,511,600	7,712,200	8,229,600	8,680,100
Unemployment rate	29.4	37.1	39.4	35.7	41.6	42.7	42.8

Notes: Estimates are for all labour force participants aged between 15 and 65 years. The searching unemployed were identified as those who were willing to accept work and had actively searched for work in the four weeks prior to being interviewed.
Source: Table 2 from Casale *et al.* (2004).

Table A3: Wages for selected countries — annual US$ and PPP$

Ghana	1987/88		1988/89		1991/92		1998/99	
	US$	PPP$	US$	PPP$	US$	PPP$	US$	PPP$
Public wage job	1103.17	1545.55	1056.60	1664.10	1232.84	1940.25	1277.80	3250.69
Private wage job	1106.78	1156.48	980.33	1161.00	1118.43	1423.07	1260.94	2093.57
Self-employment	1129.27	1156.48	1001.20	1208.38	1227.62	1212.66	1224.81	1766.27
Farmer	736.25	288.05	669.21	232.07	727.02	403.66	712.16	491.09
% gap between private and self employment	0.0		−3.9		17.4		18.5	

*Income from principal job.
Source: Teal (2000), Ghana Statistical Office surveys.

Ethiopia	1994		1997	
	US$	PPP$	US$	PPP$
Public wage job	1,281	3,696	1,664	4,248
Private wage job	1,206	3,479	1,426	3,496
Self-employment*	1,496	4,315	655	1,890
% gap between private and self employment		−19.4		85.0

*Median revenues per family worker.
Source: Urban Labor Force Survey, 1986; Labor Force Survey, 1998/99.

Table A3: Continued

South Africa	1993		Premium over self-employed persons (%)
	US$	PPP$	
African wage workers	2,958	5,800	76.3
African public wage workers	4,530	8,883	170.1
African private wage workers	2,488	4,878	48.3
African self-employed workers	1,677	3,289	–

Source: Calculations from SALDRU survey, 1993. Note that these are arithmetic averages.

Table A4: Log annual income in US$ for the urban self-employed in Ghana

	1987/88	1988/89	1991/92	1998/99
Education in years	−0.045	−0.004	−0.035	−0.010
	(1.76)	(0.18)	(1.98)*	(0.63)
(Education in years)^2	0.005	0.004	0.006	0.005
	(2.48)*	(1.92)	(4.25)**	(3.78)**
Age in years	0.061	0.091	0.068	0.075
	(4.18)**	(7.56)**	(6.64)**	(8.55)**
(Age in years)^2	−0.001	−0.001	−0.001	−0.001
	(4.65)**	(7.90)**	(6.48)**	(8.47)**
Constant	4.971	4.122	4.659	4.322
	(15.96)**	(15.62)**	(21.22)**	(22.68)**
Observations	1181	1511	1865	2871
R-squared	0.03	0.06	0.05	0.07

Notes: Absolute value of *t* statistics in parentheses.
* significant at 5%; ** significant at 1%.
Source: GLSS Surveys and author calculations. Each column shows the results of the earnings function for the survey year shown at the top of the column.

Table A5 (a): Wage premia for union jobs

Study	Estimation technique	Country	Earnings differential
Miller & Vallée (1995)	OLS with dummy variable for union members	Cameroon	−8.1%
Thomas & Vallée (1996)	OLS for formal sector jobs plus Logit for self-selection	Cameroon	−10.7%
Terrel & Svejnar (1990)	OLS with dummy variable for union members	Senegal	−12.5%
Schultz & Mwabu (1998)	Quantile regression with dummy for union members, *no industry controls*	South Africa (Africans)	145% at 10th percentile 11% at 90th percentile
Blunch & Verner (2004)	Quantile regression with dummy for union members, control for firm size	Ghana (manufacturing)	34% at 10th percentile −9% at 90th percentile

Table A5 (b): Union wage premium in South Africa

	African		White	
	1993	1999	1993	1999
Without controlling industry				
Coefficient on union dummy	0.468	0.561	−0.051	0.030
t-value	(14.7)	(24.7)	(0.8)	(0.6)
Union premium (%)	59.7	75.2	−5.0	3.0
Controlling industry				
Coefficient on union dummy	0.191	0.430	−0.097	−0.022
t-value	(5.9)	(17.9)	(1.4)	(0.4)
Union premium (%)	21.0	53.8	−9.2	−2.2

Note: Dependent variable is log of hourly wage and independent variables were education in years, its square, urban dummy and union status dummy.
Source: Schultz and Mwabu (1998) for 1993 figures and own calculations from October Household Survey of 1999.

Table A6: Ln (real earnings in domestic prices) production workers in the manufacturing sector

		Ghana	Kenya	Nigeria	Tanzania
[1]	Union dummy	0.401	0.120	0.367	0.214
	(no controls)	(6.91)**	(1.91)	(3.18)**	(3.85)**
[2]	Union dummy	0.258	0.030	0.238	0.177
	(controls for skills))	(4.90)**	(0.52)	(2.38)*	(3.49)**
[3]	Union dummy	0.063	−0.072	0.065	0.070
	(controls for skills and size)	(1.05)	(1.23)	(0.60)	(1.35)
[4]	Ln (employment)	0.127	0.071	0.126	0.093
		(5.19)**	(3.40)**	(2.24)*	(4.12)**
	Observations	3973	1312	295	2403

Notes: All equations have time dummies. Robust *t*-statistics in parentheses.
* significant at 5%; ** significant at 1%.
Row [1] is the raw union premium with no controls.
Row [2] is the union premium with controls for gender, age, age squared, education in years (linear and squared) and tenure.
Row [3] is the union premium with controls for skills as in Row [2] and the log of firm employment.
Row [4] is the coefficient on the log of employment in the regression reported in Row [3].

		Ghana	Kenya	Nigeria	Tanzania	South Africa
[1]	Union dummy	0.397	0.125	0.284	0.221	0.284
	(no controls)	(6.80)**	(2.02)*	(2.65)**	(4.04)**	(9.33)**
[2]	Union dummy	0.258	0.039	0.155	0.181	0.200
	(controls for skills)	(4.92)**	(0.68)	(1.73)	(3.63)**	(7.06)**
	Observations	4012	1333	500	2668	2246

Notes: All equations have time dummies.
In there regression we do not use controls for firm size as this variable was not available for the South African data. The sample sizes are therefore larger than those in the top parts of this table.
Row [1] is the raw union premium with no controls.
Row [2] is the union premium with controls for gender, age, age squared, and education in years (linear and squared).
There are nine years of Ghana data covering the period 1992 to 2000; five years of Kenyan data covering the years 1993, 1994, 1995, 1999 and 2000; six years of Tanzanian data covering the years 1992, 1993, 1995, 1997, 1999 and 2000; two years of Nigerian data covering the years 2000 and 2001. For all these countries the data is based on firm surveys of workers in the manufacturing sector, within the workers surveyed the regression confines the data to production workers. There are four years of South African household data taken from the OHS for 1993, 1995, 1997 and 1999. For these individuals the sample is again confined to production workers in manufacturing.