A NOTE ON TRENDS IN THE ZAMBIAN LABOUR MARKET 

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Abu-Ghaida & Connolly (2003) report an increase in both the wages and the supply of wage 
employees with secondary education relative to those with primary education in Zambia between 
1991 and 1998 and interprets this as evidence that the relative demand for workers with secondary 
education has grown over this period. In an attempt to explain the trends described in their paper, 
this note interprets these movements within the context of the structure and the changes in the 
structure of Zambia’s economy.

A PROFILE OF THE ZAMBIAN LABOUR MARKET DURING THE NINETIES

Zambia is a poor and severely indebted country. Despite the strong growth in the share of non-
metal exports in the nineties, the economy has remained reliant on copper and other metals for its 
export earnings. However, in terms of its contribution to local employment and production, both 
the agricultural and the manufacturing sector now employ more workers than the mining sector and 
their shares of GDP dwarf that of the mining sector.

According to household surveys about two-thirds of the population aged 12 and above participates 
in the labour force.\(^1\) According to the Living Conditions Monitoring Survey 15% and 13% of the 
labour force were unemployed in 1996 and 1998 respectively.\(^2\) Seventy to eighty percent of the 
labour market is informal workers, with this group consisting mostly of self-employed subsistence 
farmers and their unpaid family workers.\(^3\)

The formal labour market constitutes a relatively small fraction of the total labour market, with its 
share oscillating between 15% and 25% in the nineties. Wage employment is almost exclusively 
confined to urban areas\(^4\) and more than half of the wage employees work for government or a 
government-owned company. There is strong evidence that public sector wage setting is distinct 
from that in the private sector and does not operate according to market principles.\(^5\) The public 
sector pays an average wage premium of 15% and has considerably less wage inequality: in 1991 
the 90/10 percentile ratio was 5.81 compared to 9.97 in the private sector.\(^6\)

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\(^1\) Labour force participation rates are 68% and 62% in the 1996 and 1998 Living Conditions Monitoring 
Survey respectively. These are not comparable with the 1991 and 1993 Zambian Social Dimensions of 
Adjustment Priority Survey’s respective estimates of 52% and 56% as these ratios use the population over 7 
as its denominator.

\(^2\) According to the household surveys unemployment declined from 22% in 1991 to 13% in 1998, but this 
trend appears to be partially an artifact resulting from the removal of the 7-11 age group from the labour 
force. In the 1991 survey this group had an unemployment rate of 57% and represented 6% of the total labour 
force.

\(^3\) Own calculations based on 1991 and 1993 Zambian Social Dimensions of Adjustment Priority Survey and 
the 1996 and 1998 Living Conditions Monitoring Survey. The proportion that is classified as “not stated” and 
employers or partners make up the missing percentage of the employed


\(^5\) Nielsen & Westergård-Nielsen (2001) also report evidence that points to non-competitive hiring practices.

\(^6\) Nielsen & Rosholm (2001)
Analysis of the Zambian labour market is further complicated by its fragmentation. Productive characteristics are rewarded differently in the rural and urban areas. Also, within rural areas there are substantial differences in the returns to education from self-employment and other employment and in urban areas there are noticeable discrepancies between the returns to education in formal and informal employment and within formal employment between the public and private sector. It has been demonstrated that in urban areas returns to primary schooling is virtually non-existent, with higher returns for secondary and tertiary education. In rural areas, returns to primary schooling are positive and similar to returns on secondary and tertiary education. Returns to education for rural residents are higher for employment than for self-employment and urban residents working in the informal sector earn a bigger return on their education than formal sector workers. Public sector employees with less than completed secondary education earn more than their private sector counterparts, but government employees with completed secondary education earn a zero premium, while government employees with tertiary education earn less than private sector workers with similar qualifications.

Being male continues to earn a return in the labour market: females with no education earn 65% of their male equivalents. This gap narrows with education attainment so that females with tertiary education earn 95% of males with the same level of education.

Due to these discrepancies in returns to education, children’s choices remain determined by their location and gender, resulting in distinct patterns in school attendance, drop out rates and labour force participation. The absolute number as well as the relative rates of labour participation are considerably higher in rural areas. Male participation rates are consistently above that of females, although the difference is not as stark as the gap between rural and urban residents.

Unemployment is more prevalent among females and urban residents and unemployment spells have been reported to last longer in urban areas. Also, according to the 1998 Living Conditions Monitoring Survey there were sizeable differences between unemployment rates for females and males in urban areas, but not in rural areas. Also, unemployment among young people in the 12 to 29 age category is considerably higher than for older age cohorts. This cohort’s average educational attainment levels are superior to that of other cohorts, indicating that unemployment is not an unskilled worker problem. Even many university graduates count among the unemployed.

DEMAND FOR SKILL: CHANGES IN ZAMBIA’s MACROECONOMIC STRUCTURE DURING THE 1990s

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7 Nielsen & Westergård-Nielsen (2001)
8 Nielsen & Westergård-Nielsen (2001)
9 Nielsen & Westergård-Nielsen (2001): p. 377. They note that uneducated informal sector workers earn less than their formal sector counterparts, but their earning rise faster with each additional education level.
10 The reported findings about the public-private wage gap is from Nielsen & Rosholm (2001). Note that the wage premium is for 1991 and is a conservative estimate for this period as they calculated that the wage gap rose to 45% in 1996
11 Fontana (2002)
13 Nielsen & Westergård-Nielsen (2001)
15 1998 Zambian Living Conditions Monitoring Survey
The ambitious government-initiated reform programme was arguably the most important force at work in the Zambian economy between 1991 and 1998. At the end of the eighties Zambia’s economy was suffering from low levels of investment and high inflation and had seen a decade of virtually uninterrupted negative growth. Kenneth Kaunda’s interventionist government struggled to fund its bloated civil service, sustain unprofitable parastatals, placate its urban electorate via food subsidies and service the country’s external debt.\[^{17}\] The Movement for Multiparty Democracy’s election campaign was a response to the economic turmoil of the eighties, propagating the virtues of a “small public sector” and a “private enterprise economy”.\[^{18}\]

Shortly after their election victory in 1991 - ending Kaunda’s marathon reign that started at independence in 1964 - the Movement for Multiparty Democracy launched a dramatic set of reforms aimed at correcting misalignments in local prices and exchange rates and liberating the Zambian economy from government regulation and controls on imports and exports. Agricultural prices were deregulated and subsidies on maize and fertilizer were eliminated. In 1992 interest rates were liberalized. The government focused on containing inflation by controlling money supply and succeeded in bringing inflation down from 107% in 1990 to 25% in 1998.\[^{19}\] By 1993 the majority of foreign exchange controls on current transactions had been eliminated. By 1996 all licensing restrictions and quotas had been abolished, the maximum tariff cut from 100% to 25% and the number of tariff bands reduced from 11 to 4.\[^{20}\] Imports’ share of GDP has been reasonably stable in the upper thirties throughout this period while exports’ share of GDP has decreased from 35% in 1990 to just under 30% in 1998.\[^{21}\] By the end of the nineties there was still no investment response to Zambia’s financial liberalization, possibly because the reforms lacked credibility due to past policy reversals.\[^{22}\] The government committed itself to fiscal restraint by agreeing to operate according to a cash budget where it can only spend available funds and is not allowed to finance a deficit.\[^{23}\] This put considerable strain on expenditure, demanding a reduction in capital and social spending.

The MMD’s reform plans also included an initiative to slim down the oversized government administration and privatize government-owned companies. After an initial retrenchment of 15 000 government employees in 1992, the government halted the initiative claiming that the social cost was too high. By 1996 the government service had swelled beyond its size in 1991. The government also dragged its feet with privatization. Under donor pressure it finally sold Zambia Airways in 1994. It also sold Chilanga Cement and Zambia Breweries in 1994, Zambian Sugar in 1995 and in 1999 finally the copper giant, Zambian Consolidated Copper Mines.\[^{24}\] By 1999 the government had sold 208 of the 280 state-owned companies.\[^{25}\] According to survey estimates almost two-thirds of wage employees worked for the public sector in 1993, but by 1998 this figure had dropped to 53%, due to the sale of parastatals in 1994 and 1995.\[^{26}\] Despite the privatization

\[^{20}\] Bigsten & Kayazzi-Mugerwa (2000)
\[^{21}\] IMF (1999): p. 4
\[^{26}\] Own calculations from the 1993 Zambian Social Dimensions of Adjustment Priority Survey and the 1998 Living Conditions Monitoring Survey, defining wage employees as the sum of the public and private sector plus parastatals. This definition is used throughout this note. The share of employees working for the government is calculated using the sum of parastatal and public sector workers.
efforts, the state still retained a substantial stake in the economy in 1998, including ownership of an
electricity provider, a telephone operator, an oil company and a large bank.\textsuperscript{27}

The short-term costs of the government reforms were severe. Between 1991 and 1998 GDP
contracted by 7\%.\textsuperscript{28} Per capita growth rates were positive for only two of these eight years. This
contraction was not uniformly distributed between sectors. The manufacturing sector was hit
hardest. The sector was unable to cope with the simultaneous lowering of protective import tariffs
and the withdrawal of subsidised credit.\textsuperscript{29} Its share of GDP shrank dramatically from 33\% in 1991
to 11\% in 1998, resulting in a 40\% drop in formal employment.\textsuperscript{30} The textile industry suffered
most: by 1993 8 500 textile workers had lost their jobs and 47 clothing manufacturers in
Livingstone had been forced to close down. Simutanyi (1996) blames competition from imports for
the liquidations.

The mining and quarrying sector fell from 8\% of GDP to 6\%. Copper mining’s share in the
economy has been shrinking gradually since the 1970s due to the steady decline in the price of
copper and this trend continued during the 1990s. The Zambia Congress of Trade Unions claims
that workers employed in the mining sector fell from 54 000 in 1991 to 20 700 in 2001.\textsuperscript{31}

The large gains in GDP share by the wholesale and retail sector, the financial and real estate sector
and the utilities sector signal a shift towards a more skill-intensive and service-oriented economy.\textsuperscript{32}
The growth in the financial and real estate sector is largely due to the expansion in banking: the
number of commercial banks increased from fewer than 10 to more than 30 between 1989 and
1994.\textsuperscript{33}

The agriculture, forestry and fishing sector, the public sector and the construction sector showed
modest increases in their share of GDP. During this period Zambia suffered several droughts,
without which agricultural growth would presumably have been even larger.

Formal sector employment growth has been disappointing. National Accounts data show a
contraction of formal employment of 15\% between 1991 and 1998.\textsuperscript{34} Table 1 below shows that the
public sector was the only sector with growing employment levels. According to the records of the
Ministry of Labour and Social Security, the number of job-seekers reporting at employment offices
rose from 19 244 in 1990 to 34 104 by 1995 while the number of vacancies dropped from 24 291 to
11 947.\textsuperscript{35} Statistics from the Ministry of Labour and Social Security indicate that between 1996 and
1998 there had been almost 30 000 retrenchments and redundancies. This reflects only reported
retrenchments and redundancies and is thus likely to be an underestimate.

<table>
<thead>
<tr>
<th>Table 1: Paid employment by sector ( in ‘000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
</tr>
</tbody>
</table>

\textsuperscript{27} IMF & IDA (2000)
\textsuperscript{28} IMF (1999)
\textsuperscript{29} McCulloch, Baulch & Cherel-Robson (2000): p.7
\textsuperscript{31} As quoted by Fashoyin (2002): p. 5
\textsuperscript{32} The wholesale and retail trade grew from 12\% to represent 17\% of GDP while the financial and real estate
sector expanded their share of GDP from 9.1 to 19\% and the utilities sector raised their share of GDP from
6\% to 10\%.
\textsuperscript{33} Seshamani & Kaunga (1999): p. 176
\textsuperscript{34} Bigsten & Kayazzi-Mugerwa (2000): p.10
\textsuperscript{35} Fashoyin (2002): p. 5
Table 2 outlines the composition of the Zambian labour force between 1991 and 1998. The self-employed increased their share of the employed at the cost of workers in parastatals, which can be ascribed to privatization and the resulting job losses compelling workers to look for alternative income generating options, such as self-employment. The higher share of informal sector employment could also be a coping strategy, pushing less employable household members into the labour market. A final possibility is causalisation: some of the shifts from formal to informal employment in the construction sector have been attributed to more workers being employed on a temporary or contract basis that is more difficult to capture in household surveys. The narrowing gender unemployment rate and widening rural-urban unemployment may be associated with self-employment’s growing share. It is a category where the difference between females and males employment shares is the smallest, but it constitutes a substantially bigger share of rural than urban employment.

<table>
<thead>
<tr>
<th>Industry</th>
<th>142</th>
<th>140</th>
<th>136</th>
<th>126</th>
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<th>108</th>
<th>95</th>
<th>92</th>
<th>83</th>
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<td>Agriculture</td>
<td>80</td>
<td>78</td>
<td>82</td>
<td>83</td>
<td>79</td>
<td>69</td>
<td>68</td>
<td>59</td>
<td>57</td>
</tr>
<tr>
<td>Other</td>
<td>162</td>
<td>164</td>
<td>158</td>
<td>143</td>
<td>136</td>
<td>135</td>
<td>140</td>
<td>155</td>
<td>157</td>
</tr>
<tr>
<td>Total</td>
<td>543</td>
<td>544</td>
<td>546</td>
<td>520</td>
<td>484</td>
<td>484</td>
<td>479</td>
<td>475</td>
<td>465</td>
</tr>
</tbody>
</table>

Source: Central Statistical Office, Quarterly Statistics

| Table 2: Changes in employment and employer type in Zambia, 1991 – 1998 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Labour force participation  | 57%  | 58%  | 69%  | 52%  |
| Unemployed as % of labour force | 22% | 20% | 15% | 12% |
| Employed as % of labour force | 78% | 80% | 85% | 88% |
| Formal labour market as % of employed | 26% | 19% | 22% | 17% |
| Central/Local government employee | 9% | 6% | 7% | 7% |
| Parastatal                   | 9%  | 6%  | 4%  | 2%  |
| Private sector employer/Employer | 8% | 7% | 11% | 9% |
| Informal labour market as % of the employed | 74% | 81% | 78% | 83% |
| Self-employment              | 43%  | 45%  | 51%  | 53%  |
| Unpaid family worker         | 31%  | 36%  | 28%  | 29%  |

Source: Own calculations from 1991 and 1993 Zambian Social Dimensions of Adjustment Priority Survey and the 1996 and 1998 Living Conditions Monitoring Survey. Proportion that is classified as not stated make up the missing
Note: Totals may not add up to 100% due to rounding.

The shifts illustrated in the figures below are consistent self-employment being a coping strategy. From 1991 to 1998 there has been substantial growth in the share of workers with no education or incomplete primary education employed in the informal labour market.

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36 Fashoyin (2002): p. 6
37 Seshamani & Kaunga (1999): P. 177
Figure 1: Unemployed by education level, 1991 - 1998

Figure 2: No or incomplete primary education
Table 3 compares the educational attainment of workers by type of employer. In accordance with the coping strategy explanation, one would expect to see a growing percentage of self-employed with no education or primary education. Instead, the share has declined. This could reflect the impact of formal labour market retrenchments and redundancies. Average educational attainment is higher in the formal labour market and migration is thus likely to lead to increase education levels in the informal labour market. Figure 3 provides more evidence in this regard.

Overall, there is an increase in the ratio of secondary education compared to primary education. The self-employed and private sector employees expanded their share in total employment, thus amplifying the impact of the strong increase in educational attainment within these sectors on total employment trend. This effect outweighed the impact of the contraction in employment by the civil service and parastatals, which has the highest proportion of skilled workers, thus resulting in an overall increase in skilled workers as a share of formal labour market employees.

<table>
<thead>
<tr>
<th>Employer type</th>
<th>No education</th>
<th>Primary education</th>
<th>Secondary education</th>
<th>Tertiary education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-employed</td>
<td>37.3%</td>
<td>33.0%</td>
<td>53.7%</td>
<td>51.7%</td>
</tr>
<tr>
<td>Central/Local government</td>
<td>6.5%</td>
<td>5.9%</td>
<td>29.7%</td>
<td>21.5%</td>
</tr>
<tr>
<td>Parastatal</td>
<td>6.9%</td>
<td>1.8%</td>
<td>40.2%</td>
<td>29.7%</td>
</tr>
<tr>
<td>Private sector employer</td>
<td>16.9%</td>
<td>10.6%</td>
<td>50.3%</td>
<td>44.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28.6%</strong></td>
<td><strong>26.8%</strong></td>
<td><strong>49.3%</strong></td>
<td><strong>47.2%</strong></td>
</tr>
</tbody>
</table>

Source: Own calculations 1993 Zambian Social Dimensions of Adjustment Priority Survey and the 1998 Living Conditions Monitoring Survey

39 Workers are categorised as primary, secondary or tertiary equivalents, in the manner of Sanchez-Paramo and Schady (2003) and Abu-Ghaida and Connolly (2003).
Figure 3: Comparing average years of educational attainment for formal, informal and lost jobs


SUPPLY OF SKILL: THE EVOLUTION OF ZAMBIA’s EDUCATION SYSTEM SINCE INDEPENDENCE

Since independence the Zambian government has aimed to achieve universal basic education. Considerable progress has been made towards this goal. Figure 4 below shows that there has been strong initial growth in enrolment and educational attainment up to the 1970s (corresponding to the 1963 birth cohort). Fluitman and Alberts (2000) maintain that the substantial government investment in education from independence up to the early eighties has paid off. The percentage of the labour force with no schooling dropped from 24% in 1986 to 16% in 1993, while the percentage with secondary education rose from 18 to 24%.

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40 Kasonde-Ng’andu (2003)
There has, however, been a gradual decline in the education budget from 1980 to 2000 associated with the deterioration in economic conditions since the mid seventies and also the government’s commitment to fiscal restraint in the early nineties. In 1975 the public spending on education represented 6% of GDP, this shrunk to 4 to 5% in the first half of the eighties, then declined to 3 to 4% in the second half of the eighties and finally to 2% in the early nineties.  

Spending cuts have translated into a lower quality of education. In primary and secondary schools, pupil-teacher ratios are high due to shortages in trained teachers, poor working circumstances and inadequate salaries. Overcrowding of classrooms is worse in urban schools, but unmotivated and unqualified teachers are reported to be a more prevalent problem in rural areas. Schools also experience shortages in basic infrastructure and equipment and learning materials. Skills training programmes suffer from similar ills including unqualified staff, broken equipment and outdated curricula.

HIV/AIDS has contributed to this situation. At the end of the nineties it was estimated that the system was losing 1 000 teachers a year to the disease and that 600 000 children have been orphaned by the virus. Also, it is likely that the long illness associated with the disease helps to explain the recent increase in drop out rates: children may be required to look after the ill or otherwise afflicted households may not have sufficient funds to afford school related expenses or may need children to work to earn additional income.

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41 Word Development Indicators, World Bank
43 According to World Development Indicator data pupil-teacher ratios were around 44 during the nineties
45 USAID (2003)
In addition to the deteriorating quality, the implementation of cost-sharing education policies in the late eighties raised the private cost of educating children.\textsuperscript{48} Also, parents’ perception of the importance of education has decreased due to the decline in formal job market opportunities.\textsuperscript{49} Consequently, net primary enrolments have fallen from 77% in 1980 to around 68% in the nineties\textsuperscript{50} and drop out rates have increased.\textsuperscript{51}

According to recent estimates, a third of primary school leavers progress to secondary school\textsuperscript{52} Low secondary enrolments are partly blamed on a shortage of secondary schools in Zambia. Since the 1980s a number of basic schools have been set up, adding grade 8 and 9 to the existing primary school in an effort to compensate for the shortage of secondary schools, which is reported to be particularly acute in rural areas.\textsuperscript{53} Figure 5 below illustrates shifts in the allocation of the education budget on primary, secondary and tertiary education. Secondary education’s plummeting share of education expenditure is disconcerting.

![Zambia: Share of Education Expenditure by Education Level](image)

Source: World Development Indicators, World Bank

There are also limited places available at tertiary institutions for those who complete their secondary schooling: the University of Zambia and Copperbelt University have a combined student

\textsuperscript{48} Sikwibele (2003): p.1  
\textsuperscript{49} IMF & IDA (2000): p. 13  
\textsuperscript{50} According to World Development Indicators  
\textsuperscript{51} Fluitman & Alberts (2000): p. 419  
\textsuperscript{52} Fluitman & Alberts (2000): p.419  
\textsuperscript{53} Leinonen. (2000): p. 37
body of 6,000 and there were an additional 22,000 youths enrolled in two to three year skills training courses elsewhere.\textsuperscript{54}

Despite strong progress in total enrolment and education attainment, there are still considerable differences in enrolment and drop out rates of boys vs. girls and urban vs. rural residents and specifically also rural boys vs. rural girls.\textsuperscript{55} The two figures below illustrate the marked improvement in educational attainment over time, but also show the enduring differences in education attainment by gender and location. There has not been a substantial improvement in the proportion of rural residents completing secondary school, possibly due to the problems with rural access to secondary schools referred to earlier. Although the direction of causality is difficult to determine, it is likely that the persistence of the female-male gap in completed secondary education is associated with low female labour participation in urban areas, where the returns to secondary vs. primary education is more noticeable.

\textbf{Figure 6: Comparing rural and urban education attainment by broad age cohorts}

![Bar chart showing education attainment by age and location](chart.png)

Source: 1998 Living Conditions Monitoring Survey, own calculations

\textsuperscript{54} Fluitman (2002) The government regulates vocational training via the Technical Education, Vocational and Entrepreneurship Authority that is responsible for registering private training colleges and monitoring training standards and certification.

\textsuperscript{55} Nielsen & Rosholm (2001), USAID (2003)

The government’s liberalization efforts changed the structure of the labour market. Nielsen and Rosholm (2001) report a staggering 31% drop in the median real wages between 1991 and 1996 while the median wage gap between educated and less educated workers grew from 40% to 52%. Over the same period the average years of education for paid employees increased from 8.7 years to 9.6 years. Their analysis shows an increase in the wage gap between those with and those without secondary education, coinciding with a drop in inequality within each of the two groups.

During this period the public sector’s share of employment fell from two-thirds to 50%, which decreased the proportion of paid workers in urban areas due to the urban concentration of public sector jobs. The sharp decline in the average wage level is attributed to declining wages in the private and public sector as well as a shift of workers from better-paying public sector employment to lower-paying private sector employment due to the sale of parastatals. The decline in wages was sharper for the private sector – a decline of 34% versus 26% in the median real wage – thus inflating the average wage premium earned by public sector employees. The drop in wages was sharpest for the least educated private sector workers. These trends resulted in a widening public-

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56 The mean is influenced by outliers thus Nielsen & Rosholm prefer to report the median. The mean wage dropped by 47% between 1991 and 1996. They restrict their sample to workers of 18 or older reporting non-zero earnings.

57 Nielsen & Rosholm define the public sector to include parastatals. Looking at the changes in employment according to the household surveys it appears that much of the shift they are capturing over this time period is a mere reclassification of public sector workers as private sector workers due to the sale of parastatals. Between 1993 and 1996 we see a dramatic drop in the number of parastatal workers and a notable increase in the number of private sector workers. After 1996 there is a sudden sharp decrease in the number of private sector workers, likely to reflect retrenchments after privatization.
private sector wage gap between the less educated and an elimination of the public-private wage gap for the highly skilled.

Nielsen and Rosholm (2001) report that the gender wage gap has virtually disappeared by 1996, but that inequality within each of the gender groups grew between 1991 and 1996.

**Conclusion**

The decrease in formal sector jobs between 1991 and 1998 appears to be a reaction to Zambian liberalization and privatization. Between 1991 and 1998 retrenchments resulted in the reallocation of workers from the formal to the informal sector, contributing to the observed increase in the average skill levels in the formal sector. The widening gap between the wages of workers with secondary education and those with primary education can be attributed to the sharp drop in wage levels of the least educated private sector employees between 1991 and 1996. Educational output has not increased greatly because of fiscal constraints and perhaps limited perceived returns to education for many who remain constrained by geography and gender.

It is difficult to infer strong changes in the demand for skill from these patterns. Despite reforms, the Zambian labour market remains characterized by its fragmentation and the dominating influence of the public sector.
Addendum to:
A NOTE ON TRENDS IN THE ZAMBIAN LABOUR MARKET

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<table>
<thead>
<tr>
<th>Absorption of labour market participants into employment per education level</th>
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<th>1993</th>
<th>1996</th>
<th>1998</th>
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<tbody>
<tr>
<td>No or incomplete primary schooling</td>
<td>0.73</td>
<td>0.82</td>
<td>0.88</td>
<td>0.91</td>
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<tr>
<td>Completed primary schooling</td>
<td>0.78</td>
<td>0.74</td>
<td>0.81</td>
<td>0.85</td>
</tr>
<tr>
<td>Completed secondary schooling</td>
<td>0.87</td>
<td>0.81</td>
<td>0.81</td>
<td>0.82</td>
</tr>
<tr>
<td>Completed tertiary schooling</td>
<td>0.92</td>
<td>0.96</td>
<td>0.95</td>
<td>0.94</td>
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<tr>
<td>Total</td>
<td><strong>0.75</strong></td>
<td><strong>0.80</strong></td>
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<tr>
<td>No or incomplete primary schooling</td>
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<tr>
<td>Completed primary schooling</td>
<td>0.27</td>
<td>0.18</td>
<td>0.19</td>
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<tr>
<td>Completed secondary schooling</td>
<td>0.71</td>
<td>0.62</td>
<td>0.61</td>
<td>0.52</td>
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<tr>
<td>Completed tertiary schooling</td>
<td>0.73</td>
<td>0.85</td>
<td>0.77</td>
<td>0.66</td>
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<tr>
<td>Total</td>
<td><strong>0.19</strong></td>
<td><strong>0.15</strong></td>
<td><strong>0.18</strong></td>
<td><strong>0.15</strong></td>
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</table>
Additional information to Figure 1:

![Graph showing unemployment rate by educational attainment from 1991 to 1998.](image-url)

- No education or incomplete primary education
- Completed primary education
- Completed secondary education
- Completed tertiary education
Composition of the Employed
1991 - 1998

- No education or incomplete primary education
- Completed primary education
- Completed secondary education
- Completed tertiary education
Additional information to Figure 2:

Completed primary education


Formal employment Informal employment Unemployed

Completed secondary education


Formal employment Informal employment Unemployed
Completed tertiary education

<table>
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<th></th>
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<tbody>
<tr>
<td>Formal employment</td>
<td>80%</td>
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<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Informal employment</td>
<td>0%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>20%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Bibliography


AERC collaborative research program in regional integration and trade liberalization in sub-Saharan Africa.