



The Twin Challenges of Child Labor and Youth Employment in Ethiopia

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Abstract: Ethiopia accounts for the largest youth population in Sub-Saharan Africa and the lack of employment opportunities for Ethiopian young people is among the critical developing challenges facing the country. The specific factors affecting youth employment in Ethiopia have received little research attention. There is therefore limited empirical basis for formulating policies and programs promoting youth employment and successful school to work transitions. This study is aimed at beginning to fill this gap by analyzing a set of youth employment indicators drawn primarily from the 2001 Ethiopia Labor Force Survey. The study looks specifically at the labor market outcomes of young people and key factors influencing these outcomes, including early labor market entry and human capital accumulation. It also examines the process of labor market entry, and, for those who attended school, the duration of the transition from school to work.



Child Labor and Youth Employment: Ethiopia Country Study

Introduction

Youth unemployment and underemployment represent growing concerns worldwide. According to International Labour Organization (ILO) estimates, youth in 2002 made up 41% of the world's unemployed, 88 million people in absolute terms. Young workers everywhere invariably have much higher rates of joblessness and much lower earnings than older workers. In many contexts, young people are also concentrated in low-skill informal work or in hazardous forms of work that are ill-suited to their age and experience. Employment outcomes are typically worst for former child laborers and other early school-leavers, groups with least opportunity to accumulate the human capital needed for gainful employment.

The challenge of youth employment in Africa is especially large. In Sub-Saharan Africa, young people aged 15–24 account for 36% of the working-age population. Due to population pressure, the number of young people looking for work is expected to increase by 28% in the next 15 years, equivalent to about 30 million people. Failure to address youth employment issues will have serious consequences for the economy and society. Without opportunities for young people to earn a living, intergenerational cycles of poverty will persist, further affecting societies already made vulnerable by HIV/AIDS, food insecurity, and violence.

¹As part of broader efforts toward durable solutions to child labor, the International Labour Organization (ILO), the United Nations Children's Fund (UNICEF), and the World Bank initiated the interagency Understanding Children's Work (UCW) project in December 2000. The project is guided by the Oslo Agenda for Action, which laid out the priorities for the international community in the fight against child labor. Through a variety of data collection, research, and assessment activities, the UCW project is broadly directed toward improving understanding of child labor, its causes and effects, how it can be measured, and effective policies for addressing it. For further information, see the project website at www.ucw-project.org.

This is particularly the case for Ethiopia, home to one of the largest youth populations in Sub-Saharan Africa. The lack of employment opportunities for Ethiopian young people is among the critical development challenges facing the country, and a key barrier to national efforts toward the Millennium Development Goals. Only about 40% of Ethiopian children complete primary education and just 13% are enrolled in secondary education, meaning that most young people entering the labor market bring with them very low levels of human capital (World Bank 2004).

While these general facts are clear, the specific factors affecting youth employment in Ethiopia have received little research attention. There is therefore limited empirical basis for formulating policies and programs promoting youth employment and successful school to work transitions in the Ethiopian context.

This study is aimed at beginning to fill this gap by analyzing a set of youth employment indicators drawn primarily from the 2001 Ethiopia Labor Force Survey. The study looks specifically at the labor market outcomes of young people and key factors influencing these outcomes, including early labor market entry and human capital accumulation. It also examines the process of labor market entry, and, for those who attended school, the duration of the transition from school to work. The analytical approach adopted for the study will be conditioned by the lack of retrospective information and the consequent reliance on cross-sectional data.

In Ethiopia, as in several other Sub-Saharan Africa countries, a large number of individuals enter the labor market below the age of 15 and with little or no formal education. Children's work represents, for good or bad, an important avenue of access to the labor market. An analysis of the situation of youth in the labor market would therefore not be complete without considering early labor market entry and the consequences early entry on prospective labor market outcomes. For this reason, the study will encompass both children in the 10–14 age range and young people in the 15–24 age range.

National Context

Macroeconomic Trends

Ethiopia has witnessed high but erratic output growth in the period following the end of the civil war in 1991. Growth in these years has been among the fastest in Africa, averaging about 6% per year. Year-to year fluctuations in economic performance,

however, have been large. The year-to-year growth rate ranged from 10% to 1% in the period between 1991/92 and 1997/98 (Easterly 2002, as cited in World Bank 2005b). The main sources of growth have been nonagricultural, led by the services and industrial sectors, despite the government's commitment to agriculture-led development. Growth in the agriculture sector has averaged about 2.1% per annum since 1992, while services have grown at about 9% per year over the same period. Industry, though much smaller in size relative to agriculture, contributed as much as agriculture to growth between 1992 and 2000 (Easterly 2002, as cited in World Bank 2005b).

Table 1. Macroeconomic Indicators for Ethiopia, 1982–91

Sector/Indicator	1982-86	1987-91	1992-96	1997-2001
	<i>Average annual percentage change</i>			
Real GDP	-0.4	3.9	4.6	4.7
Real GDP per capita	-3.0	0.9	1.8	2.0
Agriculture ¹	-1.5	5.5	3.6	2.3
Industry ¹	6.2	-5.3	8.4	6.1
Manufacturing ²	4.4	-5.0	11.2	3.9
	<i>Percentage of GDP</i>			
Gross domestic investment	13.5	13.8	14.4	16.3
Gross domestic savings	5.7	7.1	5.8	3.1

Notes: (1) Data from ECA (2002) and MEDaC (1999a, 2000a); (2) Figures are for 1997-2000 only.
Source: World Bank (2002), as cited in Denu, Tekeste, and van der Deijl (2005).

Levels of poverty run very high in Ethiopia, even when viewed from within the context of the Sub-Saharan Africa region. Per capita income in 2003 stood at only \$US102 (approximately US\$800 in purchasing power parity) (MOFED 2002 as cited in Denu, Tekeste, and van der Deijl 2005). Almost one-half (44%) of the population lived below the poverty line in 1999 (the official poverty line in \$US1.50 in 1993 purchasing power parity) (World Development Indicators 2000 data, as cited in Getachew and Kallaur 2005). World Bank poverty assessments point to a rise in urban poverty over the last decade and to only a marginal decline in rural poverty over the same period (MOFED 2002, as cited in Getachew and Kallaur, 2005).

Demographic Trends

Ethiopia has witnessed rapid population growth in recent decades. The population was estimated at 73 million people in 2005, making Ethiopia the second most populous country in Sub-Saharan Africa after Nigeria. The Ethiopian population is heavily

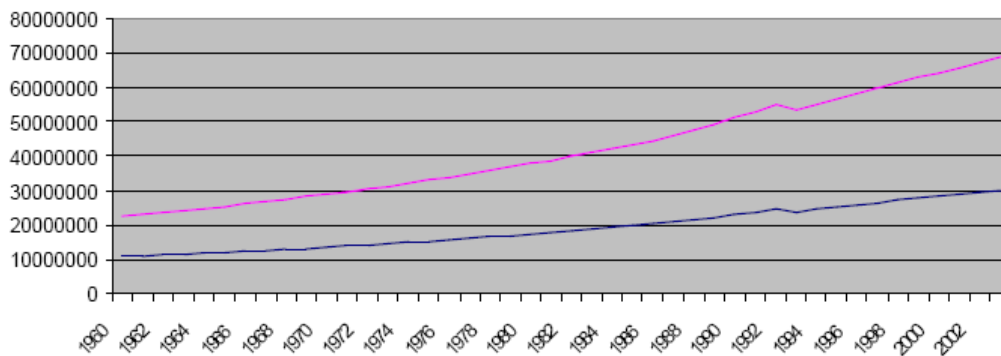
concentrated in the “young” age cohorts; child and young people (0 to 24 year-olds) make-up well over half of the total population. Persons aged 65 years and older, on the other hand, represent just 3% of the total population, owing to Ethiopia’s low life expectancy of just 44 years (UN population data 2001, as cited in Getachew and Kallaur 2005).

The proportion of young people in the overall population has gone up over the last two decades. The 15-24 years cohort represented about 14% of the population in 1984 and about 20% of the population currently. The youth population is projected to grow in absolute terms from about 15 million in 2005 to 26 million in 2030, but will remain at about one-fifth of the overall population during this period (Central Statistical Authority, as cited in Getachew and Kallaur 2005).

Labor Market Characteristics

Rapid population growth during recent decades has resulted in a large parallel growth in the labor force (figure 1). The absolute size of the national labor force was an estimated 32.2 million people in 2005, up from an estimated 12.9 million people in 1984. The total labor force is projected to double again in the next 25 years, which will place a huge strain on the labor market even under the most optimistic growth scenario. More than 80% of the labor force is employed in subsistence agriculture, with little difference in labor force composition between young people and adults (see the section on the transition to working life). Most employed persons cannot read or write, and most are informal sector casual workers (Central Statistical Authority, as cited in Denu, Tekeste, and van der Deijl 2005).

Figure 1. Growth of Population and Labor Force, 1960-2002



Source: Central Statistical Authority (various years), as cited in Denu, Tekeste, and van der Deijl (2005).

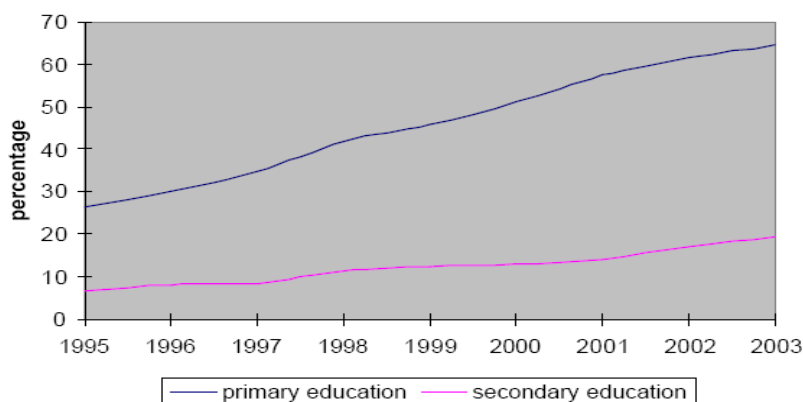
The activity rate of the working-age population was 72% in 1999, one of the highest in the world. Underemployment is prevalent, as economic necessity dictates that individuals secure some form of work even if no full-time jobs are available. Informal sector work is therefore increasingly important; some 4.8 million people were employed in the informal sector in 1999 (Denu, Tekeste, and van der Deijil 2005). Open unemployment is largely confined to the middle-class; persons awaiting positions in the public sector account for much of the openly unemployed (Woldehanna, Guta, and Ferede 2005, as cited in Denu, Tekeste, and van der Deijil 2005) .

Education Trends

Education attainment in Ethiopia is very low; the average male adult has completed 1.8 grades, the average female just 0.88 grades, and only 5% of the population has secondary or higher education (World Bank Poverty Assessment, as cited in Getachew and Kallaur 2005).

But a major government effort in recent years has led to significant progress in terms of expanding education coverage (figure 2). During the period from 1995 to 2003, the primary gross enrollment ratio more than doubled, from 26% to 64%, while secondary gross enrollment almost tripled, from 7% to 19%. In absolute terms, primary school enrollment rose from 2.64 million students in 1994 to 8.74 million students in 2003. Likewise, enrollment in secondary school increased from about 357,000 students in 1994 to more than 586,000 in 2003 (MOE 1999 and 2003, as cited in Denu, Tekeste, and van der Deijil 2005).

Figure 2. Gross Enrollment Rates, 1995–2003



Source: MOE (2003), as cited in Denu, Tekeste, and van der Deijl (2005).

Despite such improvement, reaching universal primary enrollment remains a distant target. This is especially the case in rural areas, where primary enrollment is less than half that of cities and towns. Disparities between girls and boys are also significant. The primary and secondary gross enrollment ratios of males in 2003 were 75% and 24% respectively, while the corresponding figures for females were 54% and 14% for the same year. Rural girls are particularly disadvantaged in terms of education opportunities (MOE 2003, as cited in Denu, Tekeste, and van der Deijil 2005).

Child Labor

Child Involvement in Economic Activity

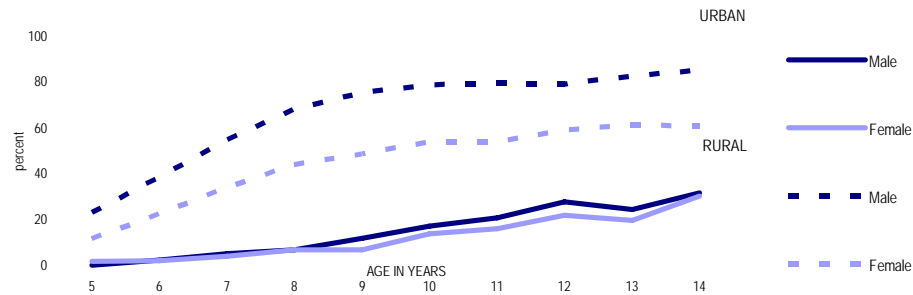
Ethiopia has one of the highest rates of child labor in the world. One-half of all 5- to 14-year-olds, more than 7.5 million children in absolute terms, were at work in economic activity in the 2001 reference year.¹ Child labor is of course closely related to youth labor market outcomes. Early experiences in the labor market can significantly influence lifetime patterns of employment, pay and unemployment. With low levels of human capital, former child laborers are at a particular disadvantage in terms of finding and maintaining a place in the adult labor force. Links between child labor and youth employment taken up in Section 6 of this report.

Child economic activity rises sharply with age (Figure 3), but 40% of even the youngest (5-9 year-old) group children are involved in economic activity. Rural children and male children face the greatest risk of involvement in child labor. Fifty-four% of rural 5-14 year-old, is involved in economic activity against only 15% of their urban counterparts (Table 3). The economic activity rate of male children exceeds that of female children by 20 percentage points, although this difference does not take into account the

¹ For the purposes of this paper, child economic activity, or "children's work," is used as a proxy for child labor. Technically, however, child labor is a narrower concept than child economic activity, referring only to those forms of work and that are injurious, negative or undesirable to children and that should be targeted for elimination in accordance with ILO Conventions 138 (Minimum Age) and 182 (Worst Forms). Economically active children include all children performing at least one hour of economic activity during the reference week. Economic activity is defined in the sense of the System of National Accounts (SNA 1993) and corresponds to the international definition of employment adopted by the Thirteenth International Conference of Labor Statisticians (Geneva, 1982). It covers all market production (paid work) and certain types of nonmarket production (unpaid work), including production of goods for own use. It excludes household chores performed by children in their own household.

performance of household chores such as water and fuel wood collection, typically the domain of female children.

Figure 3. Children’s Involvement in Work, by Age, Sex, and Residence



Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Table 2. Child Activity Breakdown, by Age Group

Group	(1) Only in Work	(2) Only in school	(3) Combining work and school	(4) Neither in school nor in work	Total	in work (1)+(3)	in school (2)+(3)
5-9 years	30,3	15,9	9,1	44,7	100	39,4	25
10-14 years	36,3	25,5	27,1	11,1	100	63,4	52,6
5-14 years	32,9	20,0	16,8	30,3	100	49,7	36,8

Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Table 3. Child Activity Breakdown, by Age Group, Sex and Residence

Age group	Sex and residence	(1) Only in work	(2) Only in school	(3) Combining work and school	(4) Neither in school nor in work	Total	in work (1)+(3)	in school (2)+(3)
5-9 years	Male	36,2	15,0	12,4	36,4	100	48,6	27,4
	Female	24,3	16,8	5,7	53,3	100	30	22,5
	Urban	2,0	67,4	3,1	27,5	100	5,1	70,5
	Rural	33,4	10,2	9,7	46,6	100	43,1	19,9
10-14 years	Male	37,6	22,0	36,2	4,2	100	73,8	58,2
	Female	34,8	29,1	17,5	18,5	100	52,4	46,7
	Urban	5,7	72,9	17,2	4,2	100	22,9	90,1
	Rural	41,5	17,3	28,8	12,4	100	70,4	46,1
5-14 years	Male	36,8	18,1	22,7	22,4	100	59,5	40,8
	Female	28,8	22,0	10,8	38,5	100	39,5	32,8
	Urban	3,9	70,3	10,6	15,2	100	14,5	80,9
	Rural	36,8	13,2	17,7	32,3	100	54,5	30,9

Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Household demand for labor has been identified as the most important reason for not sending children to school in Ethiopia (Takashi 2000). Indeed, children's productivity often constitutes a vital component of household survival strategies. Each working child has been shown to contribute from 4% to 7% of household's income in rural areas, though in some cases the contribution reaches 50%, and a child worker's marginal productivity is about one third to one half that of a working male adult (Cockburn 2002).

Very high levels of child labor not surprisingly translate into very low levels of school enrollment. Only 28% of 6- to 9-year-olds, and a little over half of 10- to 14-year-olds, are enrolled in school. Nonentrance and late entrance in school are both important concerns; 63% of children aged 10–14 have no formal schooling at all, and many more from this age group enter school after the official starting age of 6. Those managing to enroll in school, however, tend to remain there well into their teens. Indeed, children entering school do not leave, on average, until after their 19th birthday (see the section on labor market outcomes).

The problem of low enrollment is primarily a rural one: enrollment for 6- to 14-year-olds in urban areas exceeds 80% but only 30% for similarly aged rural children. Some 71% of rural 10- to 14-year-olds have never entered school compared with only

17% of their urban counterparts. Girls are disadvantaged educationally with respect to boys; rural girls are least likely to benefit from schooling opportunities.

Composition of Children's Work

The agriculture sector accounts for by far the largest portion of children in economic activity. Four of five economically active children are in this sector compared with only 12% in services and 4% in manufacturing. Children work overwhelmingly (over 90%) for their families without wages; very few children work outside the family for wages (2%) (Table 4). The composition of children's work changes somewhat, as they grow older and are able to take on more complex tasks. Older children are slightly less likely to be in agriculture and more likely to be in manufacturing and services, than their younger counterparts. They are also slightly more likely to take on wage work and self-employment outside the family unit.

Table 4. Children's Job Characteristics by Age Group

	Work modality ^(a)						Sector ^(b)					
	Domestic employee	Wage employee	Self employed	Unpaid family worker	Other employment	Total	Agri culture	Manufact.	Services ^(c)	Other ^(d)	Total	
5-9 years	0,2	1,2	0,7	97,7	0,3	100	97,9	0,4	1,3	0,5	100	36,0
10-14 years	0,9	3,2	2,6	92,6	0,6	100	90,8	2,0	5,6	1,6	100	31,3
5-14 years	0,6	2,3	1,8	94,9	0,4	100	94,0	1,2	3,6	1,1	100	33,5

Notes: (a) Percentage distribution of employed population in each age group. (b) Percentage distribution of employed population in each age group. Sector breakdown based on ISIC Rev.3 if the information is available; (c) Services include: wholesale and retail trade; hotels and restaurants; transport; financial intermediation; real estate; public administration; education; health and social work; other community services; private household ; (d) Other includes: mining and quarrying; electricity, gas and water; construction; extra territorial organization.

Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Table 5. Children's Job Characteristics by Age Group, Sex, and Residence

Age group	Sex and residence	Work modality ^(a)						Sector ^(b)					Ave. weekly working hours
		Domestic employee	Wage employee	Self employed	Unpaid family worker	Other employment	Total	Agriculture	Manufact.	Services ^(c)	Other ^(d)	Total	
5-9 years	Male	0,1	1,6	0,7	97,4	0,2	100	99,0	0,2	0,7	0,2	100	38,4
	Female	0,2	0,3	0,8	98,2	0,4	100	96,0	0,7	2,3	1,0	100	32,1
	Urban	5,0	1,7	7,8	76,9	8,6	100	56,1	5,5	26,2	12,2	100	26,0
	Rural	0,1	1,1	0,6	98,0	0,2	100	98,4	0,3	1,0	0,3	100	36,2
10-14 years	Male	0,5	4,6	2,0	92,5	0,5	100	94,9	0,6	3,7	0,8	100	34,1
	Female	1,6	1,3	3,6	92,9	0,7	100	84,6	4,0	8,4	3,0	100	27,1
	Urban	10,5	6,0	15,8	61,4	6,2	100	25,3	11,4	45,4	17,9	100	26,3
	Rural	0,4	3,1	1,9	94,3	0,3	100	94,4	1,5	3,4	0,8	100	31,6
5-14 years	Male	0,3	3,2	1,4	94,8	0,3	100	96,8	0,4	2,3	0,5	100	36,1
	Female	1,0	0,9	2,4	95,2	0,6	100	89,6	2,6	5,7	2,1	100	29,4
	Urban	9,6	5,3	14,5	63,9	6,6	100	30,2	10,5	42,3	17,0	100	26,7
	Rural	0,3	2,2	1,3	96,0	0,2	100	96,2	0,9	2,3	0,6	100	33,8

Source: UCW calculations based on Ethiopia Labor Force Survey 2001

The composition of children's work differs considerably between urban and rural places of residence, a reflection of underlying differences in the rural and urban labor markets (Table 5). While family-based agricultural accounts for virtually all rural child workers, the services sector is the most important source of child work in cities and towns, accounting for 42% of urban child workers, with agriculture ranking second (accounting for 30% of urban child workers). The construction² and manufacturing sectors are also important in urban contexts, accounting for 17% and 11% respectively of total urban working children. Children working in cities and towns are much more likely to be working outside the protective environment of the family; more than one-third of urban child laborers work outside the family compared with only 4% of their rural counterparts.

Labor Market Status of Ethiopian Young People

Youth Time use

Ethiopian young people aged 15–24 are primarily workers. Table 6, which breaks the youth population down into five unique activity categories (only in education, combining education and employment, only in employment, unemployed, and inactive³), indicates that almost three-fourths of all 15- to 24-year-olds are employed while less than one-fifth are involved in some form of education or training. An additional 5% of youth are actively seeking work but unable to find it. Some 13% of young people are "inactive," that is, neither in the labor force nor in education, a category which also includes discouraged workers and disabled people. Unfortunately, the survey does not allow us to clearly identify people with disability; even looking at the main reason for not attending

² Includes mining and quarrying; electricity, gas, and water; and extraterritorial organization.

³ The data do not allow us to unambiguously identify youth both working and attending school. An employed person is a one who fulfills any of the following: paid employment, at work, or with a job but not at work at present. This includes people waiting to rejoin employment and employers or people in self-employment. This category should include unpaid family laborers who hold a job in a market-oriented establishment irrespective of the number of hours worked during a reference period. However, some countries prefer for special reasons to set a minimum time criterion of the inclusion of unpaid family labor among the employed. Usually, if person works for more than seven hours a day, they are considered employed. An unemployed person is a person who fulfills any or all of the following criterion: without work, currently available for work, or seeking work by taking necessary steps to seek paid employment such as applying for jobs or registering with an agency. An inactive person is a person who is neither in the labor force (employed or unemployed) nor in education.

school, we could identify only 2% of idle children in the 15–24 age range as being ill or disabled.

These aggregates mask large variations in young people’s time use by age. This is not surprising, as the 15–24 age range is a period of transition from adolescence to adulthood and from education to working life. Comparing teenagers⁴ and young adults,⁵ there are large differences in involvement in education, with relatively few people continuing education beyond their teens into young adulthood. Young adults are more represented in the labor force (both employed and unemployed⁶), though the labor force participation rate of teenagers is also very high (over 70%). Young adults are more likely than teenagers to be inactive, owing in part to the fact that young adulthood coincides with the beginning of child-bearing for most women. The timing and characteristics of the transition to working life are discussed in more detail in the section on labor market outcomes.

⁴ “Teenagers” refers to the 15–19 age group.

⁵ “Young adults” refers to the 20–24 age group.

⁶ But as discussed in this section, the unemployment rate, that is, unemployment as a proportion of the total labor force in the same age group, is actually higher for teenagers. This is a reflection of the fact that teenagers are more likely to be in education and therefore outside of the labor force...

Table 6. Youth Unemployment, Inactivity, and Jobless Indicators, by Age Group, Sex, and Residence

Age Group	(1) Only in employment	(2) Only in education	(3) Combining education and employment	(4) Unemployed	(5) Inactive	Total	In labor force (1)+(3)+(4)	Employed (1)+(3)	In education (2)+(3)	Jobless (4)+(5)
15-17 years	42,4	20,8	26,1	2,2	8,5	100	70.7	68,4	46,9	10,7
18-19 years	68.1	12,1	--	5,8	14,0	--	73.9	68,1	12,1	19,8
20-24 years	74.6	4,3	--	6,0	15,1	--	80.6	74,7	4,3	21,0
15-24 years	63.7	11.02	7.4	4.9	13.0	100	76.0	71.2	18.46	17.8

Notes: (a) Information on 18-24 year-olds combining education and employment not collected by LFS 2001.

Source: UCW calculations based on Labor Force Survey 2001

The time use profiles of young people aged 15–24 in Ethiopia are also strongly affected by underlying differences in the rural and urban labor markets. Compared with rural youth, urban young people benefit from greater education opportunities, staying in school longer and joining the labor force at a later age. Involvement in education is more than three times higher for urban youth than for rural youth, while the employment rate of rural youth is almost twice that of their counterparts in cities and towns. Measured unemployment is much more common among urban youth, while evidence suggests that underemployment may be more of a problem among rural youth (see the next section).

Youth Unemployment

Unemployment is the most important measure of the labor market difficulties of young people. The effects of prolonged unemployment early in a person’s working life are well documented: it may permanently impair his or her productive potential and therefore employment opportunities and can lead to serious social adjustment difficulties. In the context of Sub-Saharan Africa, whether a young person has a job can often determine which side of the poverty line a household lies.⁷

⁷ Youth unemployment is included as an indicator for monitoring Millennium Development Goal to “develop and implement strategies for decent and productive work for youth.” See http://millenniumindicators.un.org/unsd/mi/mi_goals.asp.

Table 7. Youth Activity Breakdown, by Age Group, Sex, and Residence

Age group	Sex and residence	(1) Only in employment	(2) Only in education	(3) Combining education and employment	(4) Unemployed	(5) Inactive	Total	In labor force (1)+(3)+(4)	Employed (1)+(3)	In education (2)+(3)	Jobless (4)+(5)
15-17 years	Male	41,4	18,6	36,8	1,3	1,9	100	79,5	78,2	55,4	3,2
	Female	43,4	23,1	15,0	3,2	15,3	100	61,6	58,4	38,1	18,5
	Urban	13,5	59,2	21,4	1,5	4,5	100	36,4	34,8	80,5	6
	Rural	49,5	11,4	27,2	2,4	9,5	100	79,1	76,7	38,6	11,9
18-19 years	Male	--	14,9	--	4,0	3,3	--	81,7	77,7	14,9	7,4
	Female	--	9,9	--	7,2	22,8	--	67,4	60,2	9,9	29,9
	Urban	--	42,1	--	9,8	11,2	--	46,8	37	42,1	20,9
	Rural	--	4,7	--	4,8	14,7	--	80,6	75,8	4,7	19,5
20-24 years	Male	--	5,5	--	4,6	4,0	--	90,5	85,9	5,6	8,6
	Female	--	3,3	--	7,1	24,3	--	72,5	65,4	3,3	31,4
	Urban	--	16,4	--	15,4	17,2	--	66,4	51	16,5	32,6
	Rural	--	1,8	--	4,0	14,6	--	83,6	79,6	1,8	18,6
15-24 years	Male	70,1	11,9	11,4	3,4	3,2	100	84,9	81,4	23,3	6,7
	Female	58,2	10,2	4,0	6,1	21,5	100	68,3	62,2	14,2	27,6
	Urban	35,8	36,4	6,5	9,7	11,7	100	51,9	42,3	42,9	21,4
	Rural	70,1	5,2	7,7	3,8	13,2	100	81,5	77,8	12,9	17,0

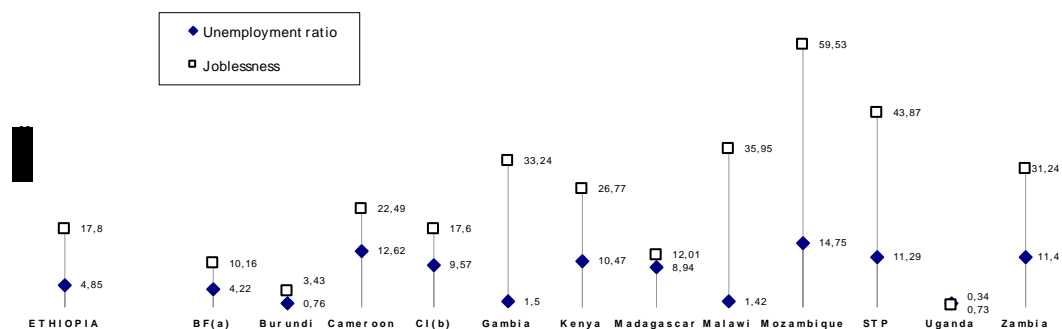
Notes: (a) Information on 18-24 year-olds combining education and employment not collected by LFS 2001.

Source: UCW calculations based on Labor Force Survey 2001

Levels of measured unemployment are relatively low among Ethiopian young people; 5% of the total population aged 15–24 and 6% of 15- to 24-year-olds in the labor force are unemployed (table 8). Levels of joblessness (defined as the sum of unemployed and inactive), arguably a better measure of youth employment disadvantage because it also captures discouraged workers, are higher.⁸ Some 18% of 15- to 24-year-olds and 28% of 15- to 24-year-old females are jobless. Observe that unemployment and joblessness are lower for the 10–17 age group than for the rest of youth. This might indicate that as youth enter the labor market with higher levels of human capital, they face more difficulties in finding employment.

These levels place Ethiopia in the middle range of countries in Sub-Saharan Africa in terms of youth unemployment and joblessness (figure 4).

Figure 4. Unemployment and Joblessness among Young People Aged 15–24, Ethiopia and other Selected Countries in the Sub-Saharan Africa Region

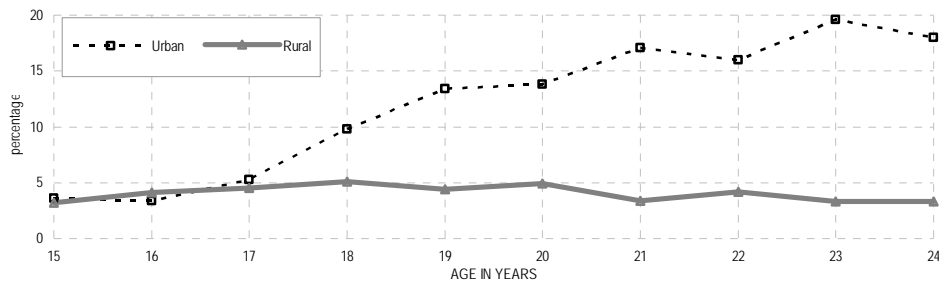


Notes: (a) Burkina Faso; ; (b) Côte d'Ivoire; (c) Sao Tome and Principe

Source: UCW calculations based on World Bank Standard Files and Standard Indicators (SFSI) datasets.

⁸ Joblessness, unlike unemployment, has the advantage of reflecting both unemployed and discouraged workers who have left or not entered the workforce.

Figure 5. Unemployment Ratio, by Age and Residence



Source: UCW calculations based on Ethiopia Labor Force Survey 2001

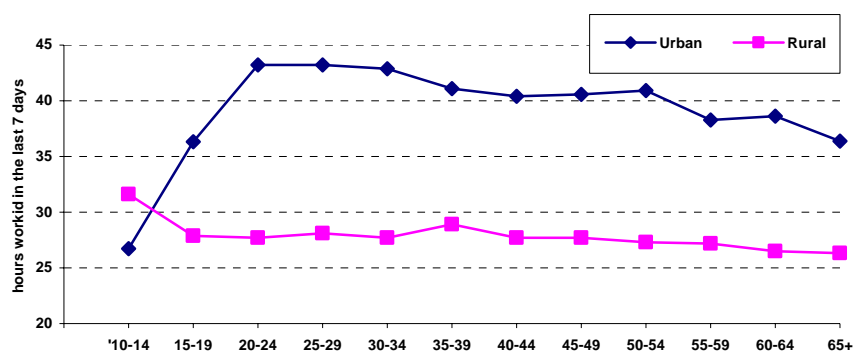
Ethiopian young people living in cities and towns are much more likely to be unemployed than rural young people, again underscoring the different nature of the urban and rural economies, and in particular the important role that the agriculture sector plays in absorbing young rural workers. High public sector wages are a possible cause of unemployment among urban young people. Differences in urban unemployment levels begin to emerge at age 17 and peak at age 23, when 20% of urban youth are unable to find work compared with 3% of their rural counterparts (figure 5). For the 15–24 age group as a whole, urban youth face a three times greater risk of unemployment (table 8).

While measured youth unemployment appears to be primarily an urban phenomenon, data on hours worked suggest that youth underemployment may be more prevalent in rural areas.⁹ As shown in figure 7, the number of hours worked per week by the currently employed population is much higher in urban ones than in rural areas for all age cohorts beyond age 15 (though seasonality may explain some of the difference).¹⁰

⁹ According to the very broad definition of employment used in generating estimates of employment, anyone who is undertaking economic activity for an hour or more during the reference week is considered employed even if he or she is actively looking for additional work.

¹⁰ In the 1999 Labor Force Survey, however, rural youth respondents did not indicate a greater willingness or availability to work extra hours than their urban counterparts, raising the possibility that the working hours of rural youth are actually greater than reported.

Figure 6. Average Weekly Hours Worked, by Age Group and Residence



Source: UCW calculations based on Ethiopia Labor Force Survey 2001

The risk of unemployment faced by Ethiopian young people also differs by sex. Female youth across all ages are more likely to be unemployed and are much more likely to be jobless than male youth (table 8). Females are also significantly overrepresented among inactive young people, a category that includes household chores and other forms of noneconomic work typically assigned to females.¹¹

Table 8. Youth Unemployment, Inactivity, and Jobless Indicators, by Age Group, Sex, and Residence

Background characteristics		Unemployment ratio	Unemployment rate	Inactivity ⁽¹⁾	Joblessness ⁽¹⁾
Age	10-14	1.2	1.9	9.9	11.2
	15-17	2.2	3.1	8.5	10.7
	18-19	5.8	7.8	14.0	19.8
	20-24	6.0	7.4	15.1	21.0
	15-24	4.9	6.4	13.0	17.8
Sex	Male	3.4	4.0	3.2	6.7
	Female	6.1	8.9	21.5	27.6
Residence	Urban	9.7	18.6	11.7	21.4
	Rural	3.7	4.6	13.2	17.0

Notes: (a) Unemployment ratio refers to total unemployed expressed as a proportion of total population in same age range; (b) Unemployment rate refers to total unemployed as a proportion of total workforce in the same age range; (c) Joblessness refers to total jobless expressed as a proportion of total population in same age range.

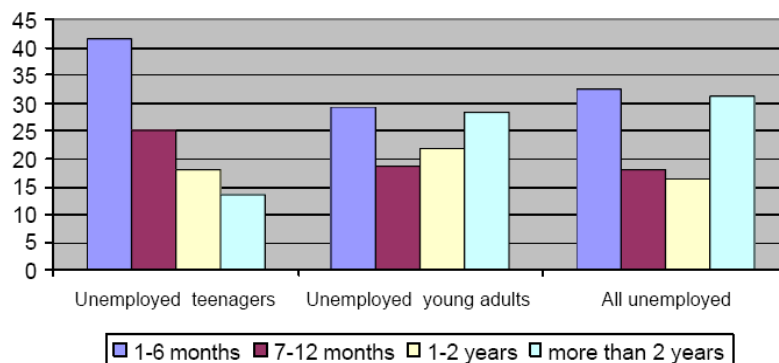
Source: UCW calculations based on Ethiopia Labor Force Survey 2001

¹¹ Some forms of economic work, for example, water fetching, are also included in this category.

The correlation between age and employment appears to depend on residence. In cities and towns the risk of unemployment rises sharply as youth grow older, while in rural areas unemployment varies little by age (figure 5).

While data on unemployment duration were not available in the 2001 Ethiopia Labor Force Survey, evidence from the 2003 Urban Biannual Employment Unemployment Survey suggests that much of urban youth unemployment is structural rather than transitory in nature. As shown in figure 8, about one-third of unemployed teenagers and almost one-half of unemployed young adults had been without a job for at least one year at the time of the 2003 survey. Even more worrying is the fact that the share of youth with very long (more than two years) spells of unemployment increases with age.

Figure 7. Duration of urban unemployment, by age group



Source: 2003 Urban Biannual Employment Unemployment Survey (UBEUS), as cited in Denu, Tekeste, van der Deijl (2005).

Before leaving the discussion of youth unemployment, it is important to note that unemployment and jobless rates do not fully capture youth difficulties in the labor market. In fact, in countries such as Ethiopia with widespread poverty, looking at the unemployment rate might be misleading, since many youth are simply too poor to be unemployed and must take up work regardless of its quality, decency, or level of remuneration. Obtaining employment per se is therefore an insufficient condition for a successful entry into the labor market. Indicators reflecting the conditions of the employed are also critical to assessing the labor market success of young people. The composition and characteristics of youth employment are taken up in the next section.

Composition of Youth Employment

Nonwage labor performed within the household is by far the most important form of youth work. Table 9, which breaks down the employed youth population by broad youth work. Table 9, which breaks down the employed youth population by broad occupational category (that is, domestic employee, wage employee,¹² self-employed,¹³ and unpaid family worker) indicates that more than two of three employed young people work without monetary wages for their families. Of the remaining working youth, 21% are self-employed while just 8% work for wages. Hence, the majority of youth seem to be engaged in non- (or low-) paying activities. But these aggregates mask large differences between the rural and urban youth labor markets. Unpaid family work is preponderate in rural areas, while domestic employment, wage employment, self-employment, and unpaid family work are all important in cities and towns.

¹² Wage employees are all people in paid employment and remunerated by wages and salaries. Another form of payment may be commission from sales, price-rates, bonuses, or in-kind payments. Basic remuneration is not directly dependent on revenue of the unit one works for but on the explicit (written or oral) or implicit employment contract. A wage employee may also be a regular employee with or without a fixed-term contract or a casual worker without a contract.

¹³ A self-employed person is one who performs some work for profit or family gain either in-cash or in-kind. The remuneration is dependent on profits derived from the goods and services produced (own consumption from enterprise is considered part of profits). The incumbent makes operational decisions affecting the enterprise or may delegate decisions while retaining the responsibility for the welfare of the enterprise. This is a one-person business and may include contributing family workers.

Table 9. Youth Job Characteristics by Age Group, Sex and Residence

Age group	Work modality ^(a)						Sector ^(b)					Ave. weekly working hours
	Domestic employee	Wage employee	Self employed	Unpaid family worker	Other employment	Total	Agriculture	Manufact.	Services ^(c)	Other ^(d)	Total	
15-19 years	2.5	6.5	10.3	79.8	0.9	100	82.0	3.9	10.7	3.4	100	<u>28.6</u>
20-24 years	1.6	9.2	31.6	57.3	0.4	100	80.6	3.8	12.7	2.9	100	<u>29.3</u>
15-24 years	2.1	7.8	20.5	69.1	0.7	100	81.4	3.8	11.7	3.1	100	<u>29.0</u>

Notes: (a) Percentage distribution of employed population in each age group. (b) Percentage distribution of employed population in each age group. Sector breakdown based on ISIC Rev.3 if the information is available; (c) Services include: wholesale and retail trade; hotels and restaurants; transport; financial intermediation; real estate; public administration; education; health and social work; other community services; private household ; (d) Other includes: mining and quarrying; electricity, gas and water; construction; extra territorial organization.

Source: UCW calculations based on Labor Force Survey 2001

The agriculture sector absorbs most of Ethiopia's labor force, including those members of the labor force in the 15–24 age group. About 81% of the employed youth population is engaged in agriculture, followed by 12% in services and 4% in manufacturing. Again, however, differences by residence are large. While agriculture not surprisingly predominates in rural areas, the services sector is the most important source of youth employment in cities and towns, accounting for one of every two employed youth. The construction and manufacturing sectors are also important in urban contexts, accounting for 20% and 16% respectively of total employed youth.

The modality and composition of employment vary somewhat by the age and sex of the worker. There is a shift away from family-based nonwage work and toward wage work and self-employment outside the family as young people grow older. Nonwage family work nonetheless still accounts for over half of total employment for the 20–24 age group. The sectoral composition of work changes little moving across the 15–24 age spectrum. There appears to be a significant degree of employment specialization by sex. Compared with male youth, female youth are less likely to be in wage work and more likely to be in unpaid family work; they are less concentrated in the agriculture sector and more concentrated in the services and manufacturing sectors.

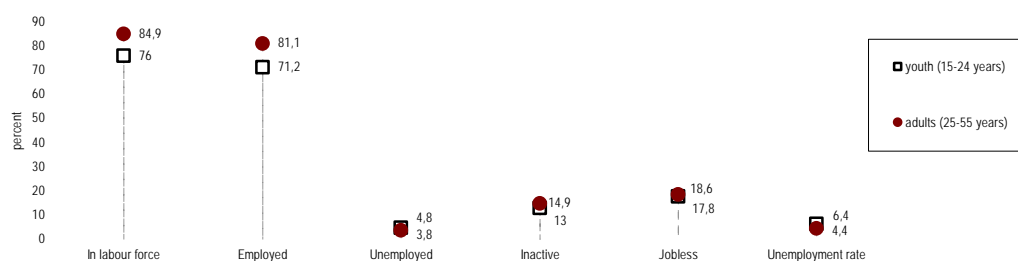
What do these breakdowns by employment modality and composition say about employment quality? The generally low level of wage employment is significant given that wage employment is typically the most sought-after form of work among young people and is most likely to offer a measure of job stability and some form of benefits coverage. Informal farm work, by contrast, is typically low paid and seasonal, and studies indicate that this work does not constitute a reliable route out of poverty. In urban settings informal work frequently means insecure, nonfamily work in settings where labor and safety regulations do not apply, leaving workers susceptible to workplace exploitation. According to the 2003 Urban Biannual Employment Unemployment Survey, over half of employed urban youth are in the informal sector.¹⁴

¹⁴ The Ethiopia Labor Force Survey 2001 did not collect information on informal sector work.

Youth Labor Market Disadvantage

Comparing youth and adult unemployment rates provides some indication of the extent to which young workers are disadvantaged in relation to their adult counterparts in securing jobs. As shown in figure 8, young people are more likely than adults to be confronted with unemployment, but unemployment (expressed either as a percentage of the population or of the labor force) is relatively low for both groups. The difference between youth and adult unemployment levels is not large in comparison to other countries in Sub-Saharan Africa (table 11).

Figure 8. Differences in Youth and Adult Labor Market Status



Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Table 10. Youth Job Characteristics by Age Group, Sex and Residence

Age group	Sex and residence	Work modality ^(a)						Sector ^(b)					Ave. weekly working hours
		Domestic employee	Wage employee	Self employed	Unpaid family worker	Other employment	Total	Agriculture	Manufact.	Services ^(c)	Other ^(d)	Total	
15-19 years	Male	0,7	8,7	8,6	81,0	0,9	100	89,9	1,7	6,6	1,7	100	31,6
	Female	4,6	3,8	12,5	78,2	0,9	100	72,4	6,6	15,7	5,4	100	25,0
	Urban	17,8	15,8	26,9	34,7	4,7	100	15,4	15,4	46,4	22,7	100	36,0
	Rural	0,7	5,4	8,4	85,0	0,5	100	89,8	2,6	6,5	1,1	100	27,8
20-24 years	Male	0,5	11,7	38,9	48,4	0,4	100	86,5	2,2	9,0	2,3	100	32,6
	Female	2,7	6,3	23,6	67,0	0,4	100	74,1	5,6	16,8	3,5	100	25,8
	Urban	11,4	35,2	35,8	16,0	1,6	100	8,9	16,8	56,8	17,5	100	27,6
	Rural	0,3	5,7	31,0	62,8	0,2	100	90,3	2,1	6,8	0,9	100	43,0
5-14	Male	0,3	3,2	1,4	94,8	0,3	100	96,8	0,4	2,3	0,5	100	36,1
	Female	1,0	0,9	2,4	95,2	0,6	100	89,6	2,6	5,7	2,1	100	29,4
	Urban	9,6	5,3	14,5	63,9	6,6	100	30,2	10,5	42,3	17,0	100	26,7
	Rural	0,3	2,2	1,3	96,0	0,2	100	96,2	0,9	2,3	0,6	100	33,8
15-24 years	Male	0,6	10,1	22,7	65,9	0,7	100	88,3	1,9	7,7	2,0	100	32,0
	Female	3,7	5,0	17,9	72,7	0,6	100	73,3	6,1	16,2	4,4	100	25,4
	Urban	14,6	25,7	31,4	25,1	3,1	100	12,0	16,1	51,8	20,1	100	39,5
	Rural	0,5	5,5	19,1	74,5	0,3	100	90,0	2,3	6,7	1,0	100	27,7

Notes: See Table 8. above.

Source: UCW calculations based on Labor Force Survey 2001

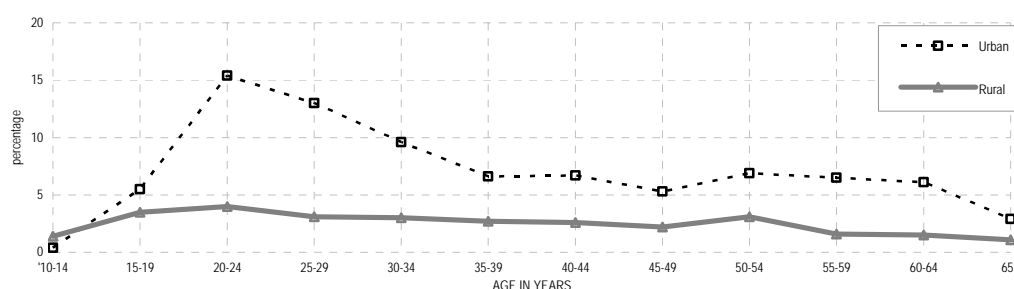
Table 11. Ratio of youth to adult unemployment rates, Ethiopia and other selected Sub-Saharan Africa countries, by residence

<u>Country</u>	<u>Total</u>	<u>Urban</u>	<u>Rural</u>
ETHIOPIA	1,4	1,7	1,4
Burkina Faso	2,5	3,4	1,9
Burundi	0,9	3,3	0,3
Cameroon	5,1	4,0	15,7
Cote d'Ivoire	1,9	1,6	4,6
Gambia	0,4	0,7	0,5
Kenya	3,9	3,7	3,9
Madagascar	1,5	2,2	1,3
Malawi	2,3	5,0	2,1
Mozambique	3,0	2,4	3,6
STP	5,9	5,0	6,9
Uganda	1,1	2,2	2,1
Zambia	2,9	3,7	2,5

Source: UCW calculations based on Ethiopia Labor Force Survey 2001 and World Bank Standard Files and Standard Indicators (SFSI) datasets.

The picture changes somewhat, however, when the rural and urban labor markets are looked at separately (figure 9). Rural youth appear to encounter little difficulty in securing employment; rural unemployment is very low and varies little across the whole 15–55 age spectrum. But this is not the case for youth living in cities and towns. The urban unemployment ratio peaks among 20- to 24-year-olds but remains very high among the next (aged 25–29) population cohort before falling sharply thereafter. This illustrates that in many cases the period required to settle into work extends well into adulthood.

Figure 9. Unemployment Ratio, by Age and Residence



Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Differences between youth and adults in terms of work characteristics also provide an indication of youth labor market disadvantage. As shown in table 13, the sectoral composition of youth and adult employment differs in cities and towns but not in rural areas. Compared with adult workers, employed urban youth are more likely to be in family farming and construction and less likely to be in services. Differences also exist in terms of the modality of youth and adult employment. In both rural and urban areas young workers are much more concentrated in unpaid work and less concentrated in self-employment than their adult counterparts. Urban young people are much less likely to succeed in securing wage employment than adults. The proportion of working youth and adults in informal work in urban contexts, however, differs little.¹⁵

The analysis of this section indicates that young people living in cities and towns face a significant labor market disadvantage. Their unemployment and jobless rates are much higher than those of adults, and they are only half as likely as adult workers to be in wage employment. The disadvantaged position of youth in the labor market can be associated with, or even due to, a difficult or inefficient transition from school to the labor market. The next section looks at this issue by constructing an indicator of the duration of the school to work transition. As will be apparent later, such a measure is not able to tell us where the problem lies per se, but it is a first and necessary step in order to understand the process by which young people transition to working life.

¹⁵ UBEUS 2003; LFS 2001 did not examine involvement in informal work.

Table 12. Differences In Youth and Adult Employment Characteristics

Residence	Age group	Work modality ^(a)						Sector ^(b)					Total
		Domestic employee	Wage employee	Self employed	Unpaid family worker	Other employment	Total	Agriculture	Manufact.	Services ^(c)	Other ^(d)		
Total	15-24 years	2.1	7.8	20.5	69.1	0.7	100	81.4	3.8	11.7	3.1	100	
	25-55 years	0.6	9.3	61.5	28.3	0.3	100	80.5	4.0	13.4	2.1	100	
Urban	15-24 years	14.6	25.7	31.4	25.1	3.1	100	12.0	16.1	51.8	20.1	100	
	25-55 years	3.2	43.1	47.0	5.9	0.9	100	7.0	16.6	63.7	12.7	100	
Rural	15-24 years	0.5	5.5	19.1	74.5	0.3	100	90.0	2.3	6.7	1.0	100	
	25-55 years	0.2	4.1	63.7	31.8	0.2	100	91.8	2.0	5.6	0.5	100	

Notes: (a) Percentage distribution of employed population in each age group. (b) Percentage distribution of employed population in each age group. Sector breakdown based on ISIC Rev.3 if information is available; (c) Services include: wholesale and retail trade; hotels and restaurants; transport; financial intermediation; real estate; public administration; education; health and social work; other community services; private household ; (d) Other includes: mining and quarrying; electricity, gas and water; construction; extra territorial organization.

Source: UCW calculations based on Labor Force Survey 2001

Transition to working life

The transition to work can take two routes, through the schooling system or from inactivity (or informal schooling) to the labor force. This section examines both routes, in order to identify vulnerable groups and targets for policies. It uses the synthetic indicator (see appendix 2) in providing an overview of the routes young people take from education to the labor force. For the group transitioning directly to the labor force, the average entry in the labor market is examined. We must also stress that a non-negligible number of children drop out very early from school. While they are formally included in the youth transitioning through school, their condition and the problems they face are likely to be closer to those of the children that never attended school.

School to Work Transitions

Table 13 presents information on the beginning and end of the transition from school to work, as well as the transition duration, disaggregated by sex and residence. The last column gives the average age of entry in labor market for those never attending school.

The average school-leaving age (that is, the starting point of the transition) is relatively high compared with other countries in Sub-Saharan Africa (figure 10). Most children entering school stay there well beyond the basic cycle. To the extent that schooling is an indicator of human capital levels and labor market preparedness, therefore, Ethiopian young people leave the schooling system seemingly well equipped for the transition to working life.¹⁶ But a number of caveats apply to this conclusion. First, as we emphasize below, not all young individuals transition through school, so this conclusion only applies to those who start school. Second, the same leaving age is likely to be associated with lower human capital accumulation in less developed countries. This happens because of frequent delayed entry, intermittent attendance, grade repetition, and school quality and relevance issues.

¹⁶ This, of course, is a strong assumption, as school quality, the relevance of schooling to labor market demands, student characteristics, among others, also affect labor market preparedness.

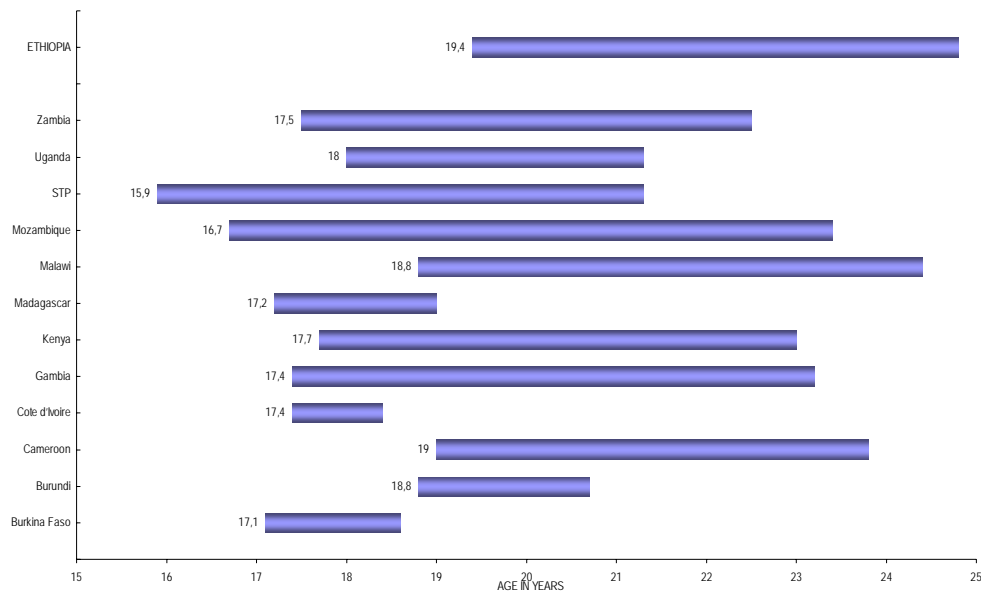
Table 13. School to Work Transition Points, by Sex and Residence

Background characteristic		Children ever in school			Children never in school *
		Beginning point of transition	End point of transition	Transition duration	
		average age of dropping out	Average age of entering into work for the first time		Average age of entering into work for the first time
Total		19,4	23,42	4,02	8.0
Sex	Male	19,6	23,9	4,3	8.1
	Female	19,1	21,5	2,4	7.5
Residence	Urban	19,3	23,4	4,1	9.5
	Rural	18,9	23,6	4,7	8.0
Residence, sex	Male, urban	20	23,8	3,8	9.5
	Female urban	18,8	23,8	5	9.5
	Male, rural	19	21,8	2,8	8.2
	Female, rural	17,5	19,5	2	7.0

Source: UCW calculations based Ethiopia Labor Force Survey 2000 and World Bank Standard Files and Standard Indicators (SFSI) datasets

* Source: UCW calculations based on Labor Force Survey 2001.

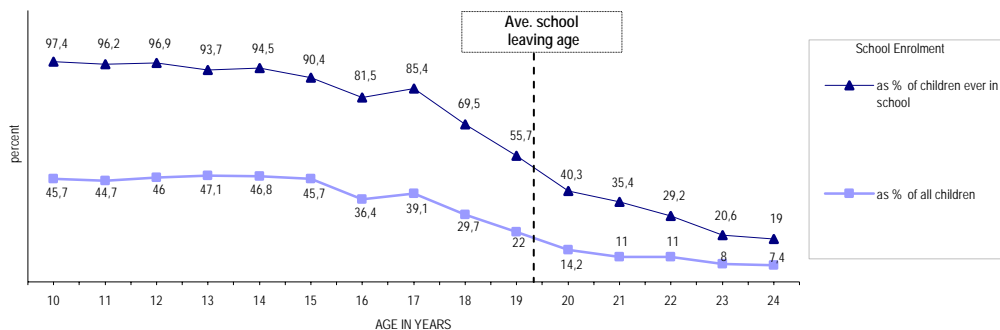
Figure 10. Length and Timing of Transition from School to Work, Ethiopia and Selected other Sub-Saharan Africa Countries



Notes: (a) BF=Burkina Faso; (b) CI=Côte D'Ivoire; (c) Sao Tome and Principe
 Source: UCW calculations based on Ethiopia Labor Force Survey 2001 and World Bank Standard Files and Standard Indicators (SFSI) datasets

The relatively high school-leaving age in Ethiopia is noteworthy particularly against a backdrop of a low overall school enrollment rate. At age 19.4 years, the average age of dropout, overall education involvement stands at only around 15% (Figure 11). The late average leaving age for school ever-entrants underscores the importance of the selection process associated with initial enrollment: those children with the opportunity to get into school in the first place tend to stay there almost to the end of their teens.

Figure 11. Age-Specific School Enrollment, Expressed as a Percentage of all Children and of Children Ever in School

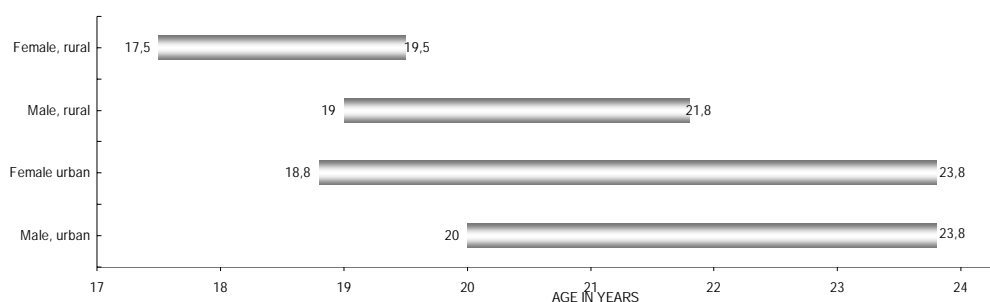


Source: UCW calculations based on Ethiopia Labor Force Survey 2001.

The beginning and the end of school to work transition disaggregated by area of residence and sex are presented in figure 12. The characteristics of the transition appear to depend significantly on both residence and sex and on the interaction between the two. Specifically, an examination of figure 12 reveals four overall patterns:

- Male youth stay longer in education (perhaps also reaching higher education attainment) than female youth. Hence, male youth start the transition to work at a later age than females in both urban and rural areas.
- The transition starts later in urban than in rural areas for both males and females, suggesting that urban youth are advantaged with respect to rural youth in terms of education attainment.
- Male and female youth in rural areas find employment more quickly than their counterparts in urban areas, suggesting labor entry problems are especially relevant in urban areas.
- Female youth find employment more quickly than male youth in rural areas, but in urban areas the opposite holds true.

Figure 12. Length and Timing of Transition from School to Work in Ethiopia, by Sex and Residence



Source: UCW calculations based on Ethiopia Labor Force Survey 2000.

As noted at the outset, our synthetic indicator does not permit conclusions to be drawn regarding the “efficiency” or “success” of the transition in specific country contexts. A better understanding of the transition period would require integrating the analysis of optimal school-leaving age with that of employment search and labor force participation. Nonetheless, the synthetic indicator does reveal two important features of

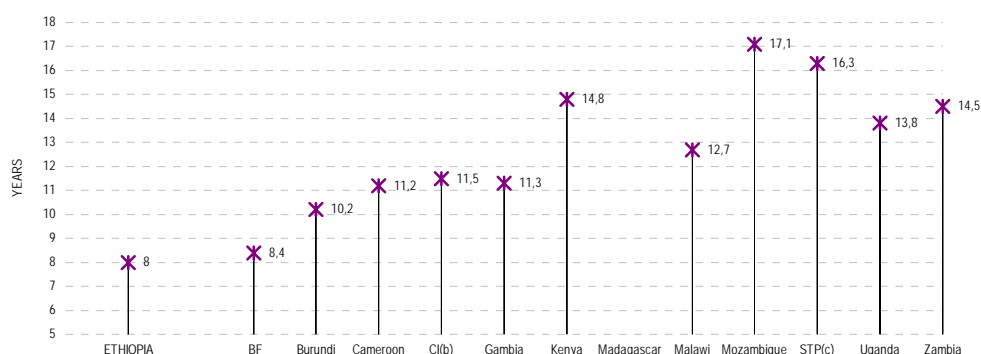
the transition in Ethiopia that fit within this more detailed analysis: the relatively late starting age of the transition and its typically long length (four years).

An initial period of unemployment following schooling is not unusual as young people spend time looking for the best job match, but the length of this jobless period in the Ethiopian context extends well beyond what could plausibly be considered “wait” unemployment. As noted above, long periods of initial joblessness can translate into permanently reduced productive potential and job prospects—and therefore constitute a particular policy concern.

Transitions Directly to Working Life

We have considered up to this point only the group of children that has spent at least some time in formal education. But youth entering the labor market do not necessarily transition through the schooling system. Indeed, the majority of Ethiopian 15-24-year-olds never enter school (see next section), transitioning instead directly from inactivity to the labor force.

Figure 13. Age at First Job, Children *never* Attending School, by Sex, Residence, and Country



Notes: (a) Burkina Faso; (b) Côte d’Ivoire; (c) Sao Tome and Principe

Source: UCW calculations based on World Bank Standard Files and Standard Indicators (SFSI) datasets.

There is no obvious benchmark that allows us to establish from what age these children begin to look for any form of employment. However, by looking at Figure 13 we can see that the average age at first job for children never attending school, at 8 years, is low relative to other Sub-Saharan Africa countries. Rural school nonentrants secure

employment at the earliest age, though differences by residence in starting age are not large (table 13).

Child labour, human capital and youth labour market outcomes

Education Attainment Levels of Ethiopian Young People

Most Ethiopian young people have had very little opportunity to acquire human capital. Over 8.3 million 15- to 24-year-olds (three-quarters of this age group) possess only a primary education or less, of which 6.6 million possess no formal education at all (table 14). Limited formal education is much more common in rural areas than in urban areas and is more common among young adults than among teenagers, which points to progress over time in expanding access to basic level schooling.

This group of school nonentrants and early-leavers is a particular policy concern, for with very little human capital they are especially vulnerable to undesirable transition outcomes. As children, school nonentrants are among the groups most vulnerable to child labor, underscoring the fact that the issue of finding satisfactory employment as adults cannot be separated from the issue of child labor.¹⁷ Links between low levels of human capital accumulation, on one hand, and youth labor market outcomes, on the other, are discussed below.

¹⁷ In the absence of retrospective information on work involvement, however, it is not possible to estimate the precise proportion of young people that were working as children.

Table 14. School Attainment Levels, by Residence and Age Group

Age group	Highest education level attained	Urban		Rural		Total	
		No.	%	No.	%	No.	%
10-14	no schooling	160,789	16.9	3967240	71.2	4128028	63.3
	primary or less	455,660	48.0	1439659	25.8	1895319	29.1
	not completed lower secondary	303,408	32.0	160,834	2.9	464,242	7.1
	completed lower secondary	29,121	3.1	2,239	0.04	31,360	0.5
	higher education	--	--	--	--	--	--
15-19	no schooling	160,093	13.8	3262559	69.4	3422652	58.4
	primary or less	166,543	14.4	936,378	19.9	1102921	18.8
	not completed lower secondary	323,108	27.9	427,670	9.1	750,778	12.8
	completed lower secondary	191,814	16.5	47,490	1.0	239,305	4.1
	higher education	317,642	27.4	27,481	0.6	345,123	5.9
20-24	no schooling	153,772	18.3	3015122	74.8	3168894	65.1
	primary or less	75,106	9.0	542,068	13.4	617,174	12.7
	not completed lower secondary	156,234	18.6	334,547	8.3	490,780	10.1
	completed lower secondary	73,752	8.8	56,863	1.4	130,616	2.7
	higher education	379,621	45.3	82,294	2.0	461,916	9.5
15-24	no schooling	313.865	15,7	6.277.681	71,9	6.591.546	61,4
	primary or less	241.649	12,1	1.478.446	16,9	1.720.095	16,0
	not completed lower secondary	479.342	24,0	762.217	8,7	1.241.558	11,6
	completed lower secondary	265.566	13,3	104.353	1,2	369.921	3,4
	higher education	697.263	34,9	109.775	1,3	807.039	7,5

Source: UCW calculations based on Labor Force Survey 2001

Human Capital Levels and Labor Force Status: Descriptive Evidence

The rate of unemployment increases with education level, peaking among those with higher education (figure 14). This is partially the product of the fact that less-educated young people by definition begin their transition to work at an earlier age and therefore have had a greater length of exposure to the labor market and more time to secure employment. In addition, as the reservation wage is likely to raise with skill level,

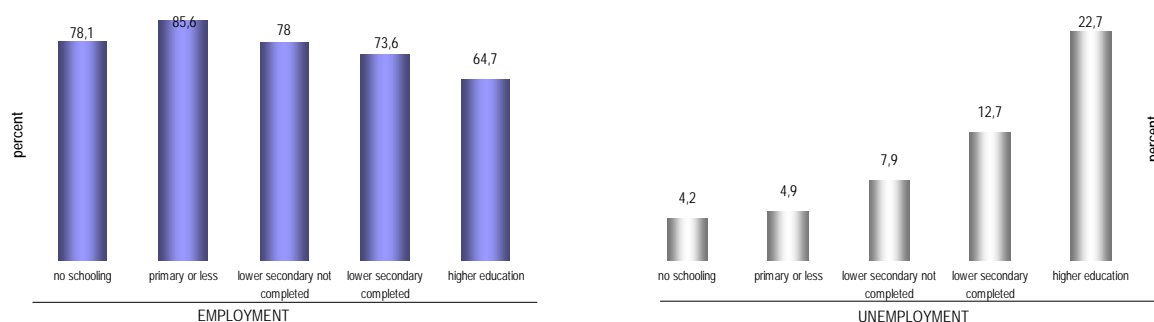
search time might increase with the level of human capital of the individual. This finding per se, therefore, says little about links between human capital levels and success in the labor market.

Table 15. Non student Employment Status and Employment Modality, by Education Attainment Level and Age Group

Age group	Highest education level attained	Employment status			Employment modality					
		Employed	Unemployed	Inactive	Domestic employee	Wage employee	Self employed	Unpaid family worker	Other	Total
20-24 years	No schooling	78,1	4,2	17,7	1,4	5,1	30,1	63,2	0,2	100
	primary or less	85,6	4,9	9,5	2,1	7,8	36,3	53,3	0,5	100
	lower secondary not completed	78,0	7,9	14,0	2,2	10,0	38,5	49,0	0,3	100
	lower secondary completed	73,6	12,7	13,7	1,4	18,9	34,8	43,2	1,7	100
	higher education	64,7	22,7	12,6	1,5	51,8	25,6	19,2	1,9	100
25-55 years	No schooling	79,6	3,3	17,1	0,5	4,0	60,4	35,0	0,2	100
	primary or less	89,4	2,3	8,2	0,8	7,7	77,8	13,4	0,4	100
	lower secondary not completed	86,0	4,6	9,5	1,0	13,5	73,8	11,1	0,6	100
	lower secondary completed	83,8	6,6	9,6	0,7	16,4	67,7	14,4	0,9	100
	higher education	82,5	9,5	8,0	0,9	61,3	32,2	5,1	0,6	100

Source: UCW calculations based on Labor Force Survey 2001

Figure 14. Employment and Unemployment Rate, 20–24 Age Group, by Level of Education Attainment

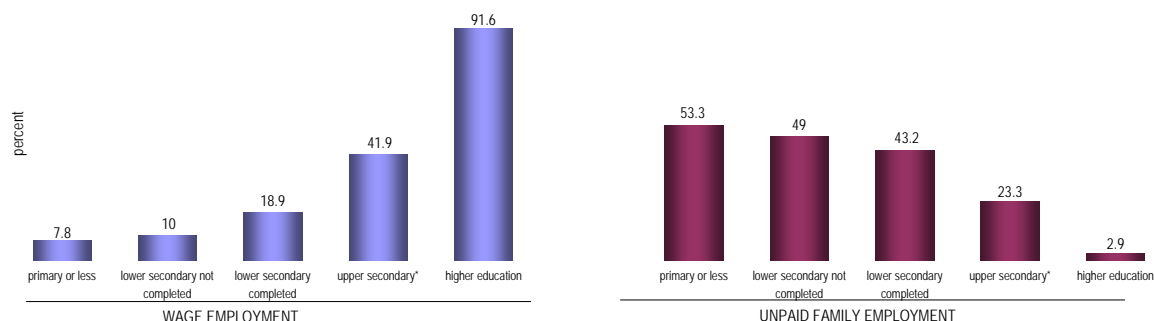


Notes: (a) Expressed as a proportion of total population

Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Education attainment appears to have a positive influence on occupational type. More-educated workers are much more likely to be in wage employment and much less likely to be in unpaid work than their less-educated counterparts (figure 15).

Figure 15. Wage and Unpaid Family Employment as a Proportion of Total Employment, 20–24 Age Group, by Level of Education Attainment



Source: UCW calculations based on Ethiopia Labor Force Survey 2001

Human Capital Levels and Labor Force Status: Econometric Analysis

In this section we look at the determinants of youth employment, paying special attention to the role of the stock of human capital with which youth enter the labor market and to the conditions of the local labor market. The lack of information on the data at

which a youth left school makes it impossible to distinguish directly between the effect of human capital accumulation on the employment probability per se and that due to the duration of exposure. For example, we observe that youth that entered the labor market with little or no education are more likely to be employed than youth with more education. As we do not know when each individual left school, we cannot distinguish between an employability effect due to human capital and the effect due to an earlier entry in the labor market.

We have then decided to follow a different route and see if it is possible to identify whether the effects of the explanatory variables considered are different according to the level of education reached by the individual. While this approach does not directly answer the question of the possible effect of human capital on employability, it might offer us some indirect evidence.

We have, hence, divided the sample of youth according to the level of education achieved. In particular, we have considered five groups: never attended school, individuals, primary or less, not completed lower secondary, completed lower secondary, and at least some higher education (including higher secondary). For each of these sub samples we have run a separate regression on the employment probability using the explanatory variables described below. There is an obvious problem of sample selection that in our case is made more complex by the fact that the choice subsuming the selection is not generated by a bivariate normal. One possibility to deal with this issue would be to estimate a selection model and follow a generalized procedure (for example, Heckman). However, there is growing evidence (consistent with the current empirical practice) that once major observable characteristics are taken into account, estimates of interest often do not change much when the selection model is estimated compared with the naive model. Moreover, there are two potential costs to estimating the selection model. Sometimes, the bias in the coefficients can be worse than in the naive model, and the coefficients in the selection model can be much less precisely estimated, especially if the instruments are weak.

For these reasons, we have estimated both simple probit equations and selections model. The data sets do not offer a wide choice of instruments, so we have used the household structure (number of adults and of siblings) to identify the selection (school grade) equation. We use the method suggested in Bourguignon and others (2001), who generalize the approach originally proposed by Lee (1983). We focus the discussion on

the probit estimates for reasons mentioned above and because the selection terms in the generalized Heckman are not significant.

The 2000 survey does not contain large amount of information.¹⁸ In fact, only a few variables relevant to the analysis of employment are available. In particular we have used (besides information on age and sex) the level of expenditure of the household, the household size, and home ownership as proxy for the household wealth. As the data for household expenditures are available only in categories and do not allow us to compute per capita expenditures, we employ the household size to control for the number of household members. The information is obviously very scant, so our results are to be interpreted with caution.

Finally, in order to eliminate possible biases in the results due to the fact that part of youth does not co-reside with its parent (or extended family), we have estimated models including and excluding non-co-residing youth. The results do not show any significant difference.

To better reflect the large differences between rural and urban setting in Ethiopia, we have estimated all the equations separately for rural and urban areas. The effects of local labor market conditions on the employment probability have been proxied with two variables that should be related to the supply and demand side of the market. In particular, as an indicator of the condition of demand we have used the adult's (aged 25–55) employment-to-population ratio, while the supply side has been proxied by the share of youth to working-age population.

The definition of the relevant local labor market is very difficult empirically, and we have followed different approaches. First, we have identified local labor market as defined at the administrative regional level, so we have computed the above mentioned indicators for the 11 regions of Ethiopia. Anecdotal evidence of migration and labor market flows and discussion with labor market experts have, in fact, led to the conclusion that the smaller administrative unit, that is, the zone covers too limited an area to define a local labor market. However, if it is reasonable to assume that flows of work can occur within the rural and urban areas of the same region, it is also true that the integration of rural and urban labor markets might be far from perfect, especially in the short-medium run (cost of migration, difficulties of commuting, lack of information, and the like). For

¹⁸ The information from the regular labor force surveys are even more scant.

this reason we have also computed the indicators of local labor market stance separately for the rural and urban areas of each region.

Finally, we have tried to exploit the information available on internal migration to identify local labor markets. Obviously administrative boundaries are not adequate confines for an area's economy. A local economy and its labor market should be defined on the basis of the interrelationships between buyers and sellers of labor. The only information available in this respect is the flow of migrations across the administrative zones. On this basis we have built a two ways flow matrix that has been normalized and made symmetric. Each cell of the normalized, symmetric matrix reflects the gross flow of migration to and from a couple of zones.¹⁹ The application to this matrix of a hierarchical cluster analysis helped to identify groups of zones that are clustered together and hence can be defined as constituting a local labor market. Obviously such a methodology involves a substantial degree of value judgment, as there are no general criteria for fixing the threshold for the intensity of exchanges that define the local labor markets.

Estimation Results

The following tables present the results for the probit estimates of the probability of employment by level of education with the standard errors corrected for clustering (the selection models are presented in appendix 3). Table 17 presents the estimates for urban and rural areas using the regionwide definition of local labor market, while table 18 refers to the results obtained with indicators of local labor market separated for rural and urban areas. The estimates for urban and rural area obtained applying as indicator of local labor market the results of the cluster analysis do not show any significant difference from the estimate reported in the following table (see appendix 4).

As expected, the results show large differences by area of residence and across level of education. In urban areas the probability of being employed increases with age but only for youth with no education or less than primary education. This seems to indicate that less-educated youth face more difficulties to find employment, but the result might be biased by the fact that we might not observe enough variation in exposure for youth with more than primary education.

Gender effects are large: the probability of a girl being in employment is 14%–22% lower than that of a boy. It is interesting to observe that the gender bias in

¹⁹ For a detailed description of the methodology followed see, for example, Tolbert and Killian (1987).

employment is lower for the less-educated and for the most-educated youth. Well known sociological interpretation can be easily applied here.

The level of income or wealth as proxied by the expenditure dummy variables is significant for the less-educated youth; in fact, the effects of expenditures on the probability of employment lose size and significance as the level of education of the youth increases. If household resources are important for finding a job, credit rationing or social networking might be important elements in the determining youth employment. However, this result should also be taken with care. The data do not allow us to exclude from household income the income generated by the possibly employed youth (the data on expenditures are only categorical), and hence reverse causation cannot be excluded. Especially in poor household, where we expect to find relatively less-educated youth, that additional employment of one household member might alter substantially the expenditure level of the household. The data do not allow us to control also for land ownership.

The conditions of the local labor market appear to substantially influence the probability of finding employment. The regional adult employment ratio is significant for all group considered and indicates that an increase of 10 percentage points in the adult employment ratio generates an increase in the probability of finding employment by 10–25 percentage points. This effect is stronger for youth that never attended school and substantially smaller for the other groups, especially for youth with at least some higher education. The supply of youth labor, as proxied by the share of young population, seems to negatively affect the possibility of finding employment. Again the effect is larger for youth that never attended school and smaller for the other groups. In fact, it is not significant for people with some higher education. Similar results are obtained when the labor market conditions are computed only for the urban areas of each region (table 18). Local labor market conditions are hence important for determining youth employment, and they seem to be especially relevant for youth with little or no education. Not surprising, supply and demand conditions are most relevant for the less qualified workforce that is more directly exposed to the phase of the cycle. All the factors that put a wedge between the cycle and the firm employment behavior (like labor hoarding, hiring and firing costs, and the like) are obviously far less relevant for these groups.

Table 16. Probability of Employment by Level of Education, Youth Aged 10–24, Probit estimates using the Regionwide Definition of Local Labor Market

(a) URBAN										
variable	Never attended school		Primary or less		Not completed lower secondary		Lower secondary completed		Higher Education	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
						-				
age	0.1409	6.51	0.0622	1.97	-0.0184	0.38	0.1632	1.39	-0.0791	-0.64
age2	-0.0038	-6.08	-0.0018	-1.9	0.0003	0.25	-0.0041	-1.45	0.0022	0.75
female*	-0.1493	-3.62	-0.2036	-4.08	-0.2224	-5.8	-0.1818	-4.21	-0.1411	-10.73
						-				
Household size	-0.0040	-0.93	-0.0105	-1.73	-0.0103	1.94	0.0069	1.04	-0.0097	-2.85
Home owner*	-0.0049	-0.19	0.0476	0.91	0.0025	0.09	0.0227	0.91	0.0065	0.39
						-				
Expenditure quintile 1*	-0.3834	-4.51	-0.4583	-7.17	-0.2693	3.56	-0.0785	-0.97	-0.1377	-1.78
						-				
Expenditure quintile 2*	-0.3801	-5.49	-0.3963	-8.32	-0.2207	3.92	-0.0041	-0.05	-0.0727	-1.62
						-				
Expenditure quintile 3*	-0.1945	-2.11	-0.3244	-5.63	-0.2357	3.73	-0.0533	-0.6	-0.0672	-1.87
Expenditure quintile 4*	-0.0671	-0.91	-0.2178	-4.35	-0.0987	-1.4	0.1010	1.13	-0.0711	-1.14
Local labor market indicator:										
Adult Employment ratio	2.3418	2.71	1.3490	5.4	1.3697	7.26	1.7341	4.69	1.0234	2.83
						-				
Share of population	-5.2088	-2.53	-3.0692	5.24	-1.6528	-2.28	-1.9929	-2.43	0.4631	0.48

Table 17 (cont'd) Probability of Employment by Level of Education, Youth Aged 10–24, Probit estimates using the Regionwide Definition of Local Labor Market

(b) RURAL										
variable	Never attended school		Primary or less		Not completed lower secondary		Lower secondary completed		Higher Education	
	dy/dx	z	dy/dx	z	Dy/dx	Z	dy/dx	z	dy/dx	Z
age	0.0314	2.74	0.0290	2.38	0.0649	1.57	-0.2079	-1.3	0.0697	0.26
age2	-0.0008	-2.65	-0.0007	-2.13	-0.0017	-1.6	0.0052	1.25	-0.0009	0.14
female*	-0.2513	-15.32	-0.2041	-7.54	-0.1783	-5.3	-0.1284	-2.63	-0.1642	2.56
Household size	0.0006	0.29	0.0003	0.11	0.0005	0.16	0.0044	0.58	-0.0016	0.26
Home owner*	0.0636	1.63	0.0282	0.82	0.1345	2.45	0.1457	2.19	-0.0515	0.65
Expenditure quintile 1*	-0.0349	-0.22	-0.0829	-0.99	-0.0650	-1.08	-0.1814	-2.4	0.1865	11.2
Expenditure quintile 2*	-0.0331	-0.22	-0.0766	-1.23	-0.0893	-1.55	-0.0206	-0.69	0.3717	7.94
Expenditure quintile 3*	0.0003	0	-0.0528	-0.63	-0.1340	-1.17	-0.0358	-0.87	0.1606	4.53
Expenditure quintile 4*	0.0060	0.05							0.1689	5.8
Local labor market indicator:										
Adult Employment ratio	0.6400	2.14	0.3376	2.33	0.4533	2.53	1.4439	4.88	0.2242	0.52
Share of population	0.8467	1.25	0.4590	1.12	-0.2614	-0.79	-1.7349	-2.16	0.8189	0.61

Source: UCW calculations based on Ethiopia Labor Force Survey 2000

In rural area the results are similar to those described but much more attenuated because of the dominating presence of agricultural self-employment and agricultural underemployment. The effect of age is present for the less-qualified workforce but is much smaller than that observed in urban areas.

Gender biases are large and somewhat more pronounced than in urban areas, especially for youth with little or no formal education. The link between household income and employment probability is weak and not well defined. This might be due to the lack of employment opportunities or to the prevalence of underemployment in the agriculture sector.

Finally, the adult employment ratio appears to have a positive effect on the employment probability of youth. The effect is again stronger for youth that never attended school, but overall much smaller than that observed in the urban areas. The relative supply of youth, by contrast, is not significant for any of the groups considered.

In short, in the rural areas there appear to be much less of a market for labor with respect to the urban areas. As mentioned, prevalence of self-employment (often subsistence-oriented) in agriculture and, hence, underemployment, insulate this section of the economy from the working of a competitive labor market.

Table 17. Probability of Employment by Level of Education, Youth Aged 10-24 Years, Probit Estimates Obtained with Indicators of Local Labor Market Separated for Rural and Urban Areas

(a) URBAN										
variable	Never attended school		Primary or less		Not completed lower secondary		Lower secondary completed		Higher Education	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
age	0.141	6.5	0.061	1.89	-0.021	-0.44	0.158	1.33	-0.075	-0.6
age2	-0.004	-6.05	-0.002	-1.81	0.000	0.3	-0.004	-1.4	0.002	0.72
female*	-0.155	-3.88	-0.205	-4.08	-0.225	-5.83	-0.182	-4.24	-0.142	-11.02
Household size	-0.001	-0.3	-0.009	-1.53	-0.010	-2.07	0.007	1.03	-0.011	-2.65
Home owner*	-0.009	-0.43	0.044	0.83	-0.001	-0.03	0.023	0.88	0.007	0.4
Household expenditure quintile. Reference group: top quintile										
Expenditure quintile 1*	-0.401	-4.31	-0.457	-7.1	-0.274	-3.58	-0.066	-0.79	-0.144	-1.83
Expenditure quintile 2*	-0.396	-5.21	-0.395	-8.19	-0.223	-3.96	0.006	0.07	-0.080	-1.78
Expenditure quintile 3*	-0.215	-2.13	-0.329	-5.49	-0.239	-3.84	-0.046	-0.53	-0.072	-1.96
Expenditure quintile 4*	-0.084	-1.05	-0.219	-4.43	-0.100	-1.45	0.103	1.15	-0.074	-1.21
Local labor market indicator:										
Adult Employment ratio	1.918	2.85	0.993	3.91	1.312	10.35	1.503	3.63	1.436	3.32
Share of population	-1.896	-2.54	-1.292	-2.89	-0.126	-0.41	-0.104	-0.25	0.994	1.28

Table 18 (cont'd) Probability of Employment By Level of Education, Youth Aged 10-24 Years, Probit Estimates Obtained with Indicators of Local Labor Market Separated for Rural and Urban Areas

(b) RURAL										
variable	Never attended school		Primary or less		Not completed lower secondary		Lower secondary completed		Higher Education	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
age	-0.075	-0.60	0.029	2.30	0.060	1.43	-0.199	-1.03	0.070	0.26
age2	0.002	0.72	-0.001	-2.06	-0.002	-1.46	0.005	1.00	-0.001	-0.14
female*	-0.142	-11.02	-0.205	-8.05	-0.179	-6.08	-0.105	-2.73	-0.164	-2.51
Household size	-0.011	-2.65	0.001	0.17	0.000	0.15	0.006	0.72	-0.002	-0.27
Home owner*	0.007	0.40	0.030	0.87	0.134	2.34	0.227	2.36	-0.053	-0.68
Household expenditure quintile. Reference group: top quintile										
Expenditure quintile 1*	-0.144	-1.83	-0.085	-1.04	-0.058	-0.97	-0.108	-1.80	0.187	10.81
Expenditure quintile 2*	-0.080	-1.78	-0.078	-1.29	-0.084	-1.45	0.011	0.27	0.373	7.36
Expenditure quintile 3*	-0.072	-1.96	-0.054	-0.65	-0.127	-1.11	-0.007	-0.13	0.162	4.54
Expenditure quintile 4*	-0.074	-1.21	--	--	--	--	--	--	0.169	5.68
Local labor market indicator:										
Adult Employment ratio	1.436	3.32	0.441	4.73	0.866	8.05	0.398	0.65	0.257	0.48
Share of population	0.994	1.28	0.353	2.57	-0.848	-6.06	1.305	1.05	0.600	0.76

Source: UCW calculations based on Ethiopia Labor Force Survey 2000

Technical and Vocational Training: a Brief Digression.

An increasing attention has been given to technical and vocational training in Ethiopia as a policy instrument to improve employment and employability among youth. A large expansion of the vocational training sector is envisaged in the near future. The data available do not allow us to carry out any full-fledged impact assessment of the possible effect of vocational training on employment. However, given the relevance of the questions we decided to carry out preliminary estimates to obtain some indication of the possible efficacy of these programs.

Only about 2% of the youth considered in the analysis has been involved in some form of vocational training. We have at our disposal no instruments to control for the possible endogenous selection into the program. We have hence estimate a model conditioning only on observables.

The estimates of this regression model appear to be confirmed also by the ATT (Average Treatment Effect). As far as the matching procedure is concerned, in the paper we use a nearest neighbor matching, that for each of the N^T treated (for example, attended vocational training) households looks for the nearest neighbor matching sets in the group of control households, defined as:

$$C(i) = \min_j \|p_i - p_j\|$$

which usually contains a single control unit (household). Denoting the number of controls matched with treated observation i by N_i^C , the matching estimator of ATT is

$$\widehat{ATT} = \frac{1}{N^T} \sum_{i \in T} \left[Y_i^1 - \sum_{j \in C(i)} \frac{1}{N_i^T} Y_j^0 \right].$$

An estimate of the variance of this estimator can be derived analytically or using bootstrap methods (see Becker and Ichino 2001 for details).

The following tables report the estimates of marginal effects of control variables on the probability of being in work for the urban and rural areas respectively. To the controls already described, we have added a series of dummy variables for the level of education achieved by the individual. The reference category is “never attended school.”

The variable training indicates whether the individual has attended a vocational training program.

Table 18. Marginal Effects of Control Variables on the Probability of Being in Work, by Residence

Variable	Urban		Rural	
	dy/dx	Z	dy/dx	z
Age	0.09	7.00	0.040199	4.17
age2	-0.00144	-3.98	-0.00079	-3.53
Female*	-0.07706	-5.42	-0.23647	-13.8
Household size	-0.00263	-1.14	-0.00252	-1.18
Home owner*	-0.002	-0.14	0.09392	3.11
Household expenditure quintile. Reference group: top quintile				
Expenditure quintile 1*	-0.07006	-1.71	-0.02886	-0.47
Expenditure quintile 2*	-0.0604	-2.25	-0.00836	-0.14
Expenditure quintile 3*	-0.07248	-3.21	0.024316	0.44
Expenditure quintile 4*	-0.07852	-4.94	0.037959	0.71
Local labor market indicator:				
Adult Employment ratio	1.183862	5.73	1.209995	4.5
Share of population	-0.74849	-2.43	0.028643	0.05
Level of Education ⁽¹⁾:				
Education level 2*	-0.12439	-9.35	-0.10704	-9.06
Education level 3*	-0.20846	-10.49	-0.14937	-6.73
Education level 4*	-0.24403	-13.07	-0.20736	-4.3
Education level 5*	-0.31417	-12.91	-0.29942	-7.66
training*	0.256015	10.72	0.134273	4.3

Note: (1) "Education level 1= Primary or less "; "Education level 2= , not completed lower secondary "; "Education level 3= , lower secondary completed "; "Education level 4= higher education". The reference group is "Never attended school"

Source: UCW calculations based on Ethiopia Labor Force Survey 2000

The impact of having participated in a training program appears to be very large: it increases the probability of being employed by one-quarter in urban areas and by about 13 percentage points in rural areas. Similar conclusions are reached using propensity scores matching, as shown in the following table.

Table 19. ATT Estimation with Nearest Neighbour Matching Method (random draw version), Analytical Standard Errors

Residence	n. treat.	n. contr.	ATT	Std. Err.	t
Urban	8073	150916	0.248	0.007	37.481
Rural	8073	148215	0.197	0.014	14.148

Note: the numbers of treated and controls refer to actual nearest neighbour matches

Source: UCW calculations based on Ethiopia Labor Force Survey 2000

These results must be considered with caution, as we cannot control for endogenous selection into the program. In particular, if some unobserved characteristics make the individual both more employable and more likely to attend vocational training, the estimates are likely to be substantially biased upward.

Overview of existing policies and programs on youth employment in Ethiopia

This section describes relevant aspects of the federal policy environment through the lens of youth employment.²⁰ The government ministries most directly concerned with youth and the labor force are the Ministry of Youth, Sports, and Culture (MOYSC), the Ministry of Education (MOE), the Ministry of Labor and Social Affairs (MOLSA), and the Ministry of Trade and Industry (MOTI). The policies with arguably the most significant impact on youth labor force employment opportunities are the education policy and the set of policies governing micro and small enterprise activities.

National Youth Policy

The MOYSC formulated Ethiopia's first National Youth Policy in March 2004 with the broad objective of encouraging the active participation of youth (defined as those aged 15–29) in the economic, social, and cultural life of the country and to support democratization and good governance. The basic principles of the policy are to ensure that youth will be active participants in and beneficiaries of democratization and economic development activities, to bring about unity, to allow youth to organize themselves to protect their rights and interests, and to build capacity (for example, via skills training). The policy addresses a wide range of issues, ranging from HIV/AIDS to environmental protection and social services.

- *Youth and Economic Development.* The policy sets out to facilitate the participation of youth in the formulation, implementation, and evaluation of existing national development policies, strategies, and programs. It also promises to facilitate growth of self-employment and formal and informal employment opportunities and to create

²⁰ This section is drawn from Getachew and Kallaur (2005).

conditions conducive for rural youth to acquire farming plots and grazing lands on the basis of existing laws.

- *Youth, Education, and Training.* The policy outlines a vision for creating an enabling environment for youth to benefit from education and training and for out-of-school youth to develop their reading and writing skills through adult education services. It acknowledges rural/urban, gender, and interregional disparities in education participation and aims to work toward reducing these disparities.

The MOYSC and its regional bureaus (BOLSAS) have the responsibility of coordinating, integrating, and evaluating the policy's implementation. However, both the strategic and action plan are still under preparation. The policy was officially launched in September 2004 but has not yet been fully publicized. To this effect, the Ministry is working on a three-month radio publicity campaign. The ministry believes that in 2006 it will be in a position to do a first assessment of the policy's impact, and it plans to review the policy five years after implementation begins, in order to revise it if necessary.

Labor Proclamation 377/2003

Ethiopia's Labor Law was proclaimed in 2003 to ensure that worker-employer relations are governed by certain basic principles, to guarantee the rights of workers and employers to form associations, and to strengthen and define labor administration. The law applies to the entire labor force, though some specific provisions may be more relevant for youth than others. Article 29 states that in the event of a reduction of the size of an organization's workforce, the employer in consultation with trade unions shall give priority according to workers' skills and productivity. In the case of equal skills and productivity, the workers to be affected first by reduction would be those having the shortest length of service in the undertaking and those with fewer dependents. Since youth are more likely to fall into these categories, this provision may be more likely to affect them.

Article 48 discusses apprenticeships and allows for contracts to be formed with those at least 14-years-old. The chapter includes the contents of the contract, obligations of the parties, termination of a contract and certification. In the case of work-related injuries, article 110 includes provisions for the payment of benefits to dependents and payment of funeral expenses (equal to at least two months' wages). Since regulations on

formal and informal apprenticeships are the responsibility of MOLSA, apprenticeship training centers are required to have a contract agreement with relevant BOLSAs in order to ensure that they are in conformity with the labor law.

A portion of the Labor Law is devoted to 14- to 18-year-olds (part 6, chapter 2, “Working Conditions of Young Workers”). The proclamation prohibits employment of those under age 14 and prohibits employment of young workers for activities that would endanger their life and health. These prohibited activities include:

- Work in the transport of passengers and goods (by road, railway, air, internal waterway, and docksides) and warehouses involving heavy lifting, pulling, pushing, or any other related type of labor.
- Work connected with electric power generation plants transformers or transmission lines.
- Underground work (mines, quarries, and similar work).
- Work in sewers and digging tunnels.

The Ethiopian Labor Law generally stipulates a maximum workday of 8 hours or 48 hours per week (article 61, subarticle 1). However, article 90 states that the normal workday for young workers should not exceed seven hours. In addition, employers are prohibited from employing young workers for night work (between 10 p.m. and 6 a.m.), overtime work, weekly rest days, and public holidays. Note that Ethiopia does not have an employment policy per se or a minimum wage law.

Education Policy

In 1994 a new education policy that dramatically changed the education system was introduced and included a major supply-side push on technical and vocational education and training (TVET) to facilitate the school-to-work transition. Before 1994 primary school included grades 1–6, junior secondary grades 7–8, and secondary school grades 9–12. In grade 12 students took a school-leaving exam in order to pursue higher education. However, only a small percentage of students could enroll in higher education, while the majority of school-leavers were left without any readily marketable professional or technical skills.

The new education policy aims to change this picture by focusing on producing a skilled labor force rather than a large cohort of relatively unskilled secondary school

graduates. Grades 1–8 are now considered primary school and grades 9–10 the first cycle of secondary school. Both levels provide general academic education. A national exam is given upon the completion of grade 10, and those who score well are promoted to the second cycle of secondary school, or grades 11-12, which is considered college or university preparatory. Those who do not score well enough to continue in secondary school have the opportunity to pursue formal TVET, which takes from one to three years. One- and two-year training programs (known as “10+1” and “10+2”) are considered certificate level, while three years of training (“10+3”) is considered diploma level.

A pilot tracer study of TVET is currently under way to gather information on graduates, including their employment status, to see if the new system is effective. The MOE is also working on a study, in cooperation with the GTZ, of the projected demand for mid-level human resources to better understand current skill gaps in the labor force and thus to inform education policy. Also, the MOE has formed a stakeholder network, which includes employers, to help prepare the TVET curriculum. For the last six years the MOE has offered training every summer for TVET teachers in order to improve the quality and practical relevance of its programs. Still, it believes that a major challenge is better understanding the demand for the skills taught in TVET programs. The tracer study is one recognition of the need to ensure that the programs are not entirely supply-driven, but that they respond to the changing needs of the market.

Education Sector Development Program III

The main objectives of the education sector in Ethiopia are to achieve access to a quality primary school education for all children by 2015 and to create a skilled labor force at all levels. The government developed its third Education Sector Development Program (ESDPIII), covering 2005/06–2010/11, in order to continue implementation of its education policy. TVET, along with general tertiary education, is a major element of ESDPIII, due to the government’s belief that encouraging and equipping youth (through a strong skills-based training program) to become self-employed is an important way to reduce youth unemployment.

The action plan proposes that the government will, among other things:

- Provide relevant and demand-driven education and training through labor market monitoring, and re-orienting and re-focusing the existing TVET system.

- Provide education and training for basic and junior-level trainees.
- Ensure the quality of TVET provision by establishing a testing system throughout the country in all trades.
- Regard income-generating activities as a source of income and component of training to reduce government allocations to the TVET sector.
- Develop demand-oriented curricula based on occupational standards by involving experts from the work world.
- Completely revise technical teacher-training institutions' curricula in different universities and institutes to bring about better quality instruction.

Apply aptitude tests to avoid rigid trainee selection placement procedures.

In order to increase the efficiency of TVET, the MOE issued a TVET proclamation in March 2004 to give procedural guidelines on pre-accreditation, accreditation, internships, certification, board and council establishments, vocational guidance and counseling, cost-sharing, an occupational standard development handbook, and production centers.

Micro and Small Enterprise Development Strategy

In recognition of the economic and social role of micro and small enterprises in providing goods and services, creating employment opportunities and generating income, the MOTI formulated the Micro and Small Enterprises Development Strategy in 2004. The strategy defines micro enterprises as formal or informal enterprises with paid-up capital not exceeding Birr 20,000 (\$2,301). Small enterprises are defined as those with paid-up capital of Birr 20,000–50,000 (\$2,301–\$5,754), excluding high technology firms. The objectives of the strategy are to:

- Strengthen micro and small enterprises in order to facilitate economic growth and bring about equitable development.
- Create long-term jobs.
- Strengthen the cooperation among micro and small enterprises.
- Provide a basis for medium- and large-scale enterprises.
- Promote exports.
- Balance preferential treatment between micro and small enterprises and medium- and large-scale enterprises.

The strategy pays particular attention to females, giving priority to female-operated enterprises, school dropouts, people with disabilities, and unemployed youth. It also outlines key limitations faced by micro and small enterprises and sets out the goal of providing the following kinds of support: credit services, entrepreneurship and business management training, appropriate technology research, market support, information and counseling, business development services, and infrastructure provision, including roads, electricity, and water and access to land and workplaces.

Industrial Development Strategy

The Ethiopian Industrial Development Strategy was formulated in 2001, and includes as strategic principles: recognizing the private investor as the engine for industrial development, following agriculture-led industrial development, following export-led industrial development, and encouraging labor-intensive industries. The strategy also underlines the importance of micro and small enterprises, since they require little startup capital, and recognizes the role these enterprises play in youth employment. In general, the strategy acknowledges micro and small enterprises as important vehicles in ameliorating unemployment and boosting investment and savings. Our contact noted that micro and small enterprises are second only to the agriculture sector in employment generation.

Licensing and Supervision of Microfinance Institutions

The National Bank of Ethiopia has the authority to license and supervise microfinance institutions, which must adhere to its regulations. To operate legally, microfinance institutions must be licensed, which requires minimum paid-up capital of Birr 200,000 (\$23,015). This amount was set fairly low in order to attract investors to the microbanking sector. Some existing microfinance institutions were originally founded by nongovernmental organizations, but a change in the law means that a minimum of five shareholders is required to operate an microfinance institution, so many are jointly owned by a mixture of public, nongovernmental organization, and private shareholders. Per the loan policy (MFI/05/96), microfinance institutions should give preference to poor rural farmers and microeconomic activities of rural and urban communities with small cash requirements.

Formerly, by law, the minimum annual interest rate paid on savings and time deposits microfinance institutions was 7%, and individual microfinance institutions could

set their own interest rates on loans, up to a maximum of 15.5% per year (MFI 10/98). However, the law on loan interest rates was amended, and currently the interest rates on loans and advances can be determined by each institution's board of directors. The minimum interest rate payable on savings and time deposits was also amended and lowered to 6% (MFI/12/98). There also used to be a cap of Birr 5,000 (\$575) per loan, but this regulation was relaxed due to the number of borrowers who needed medium-size loans—more than microfinance institutions could offer but not enough to access credit from commercial banks. Now, microfinance institutions can offer up to 20% of their annual lending amount in loans larger than Birr 5,000.

HIV/AIDS Policy

The HIV/AIDS Policy was designed in 1998 in response to the alarming spread of the HIV/AIDS epidemic, albeit more than a decade after the first reported AIDS cases. It contains several provisions relevant to employment. Article 3, subarticle 3.3 states that no person should be forced to undergo an HIV screening for job recruitment purposes, unless the nature of the occupation (for example, civil aviation and air force pilots) requires it to do so. Article 8, subarticle 8.2 outlines the rights of people living with HIV/AIDS with respect to access to employment and associated privileges, education and training facilities, and public facilities. Subarticle 8.4 further strengthens this provision by stating that people should not be subjected to discriminatory practices on the basis of HIV/AIDS.

In 2003 the HIV/AIDS Prevention and Control Office developed a mainstreaming guideline to provide both conceptual and practical guidance and information on how government sectors should respond to the threat of the epidemic in the workplace. The guideline emphasized mainstreaming HIV/AIDS awareness into routine operations of all federal ministries and organizations in order to encourage prevention. MOLSA in particular was requested to incorporate HIV/AIDS awareness in its development plan, strategies, and policies. In addition to this mainstreaming function, MOLSA was asked to undertake studies on HIV/AIDS' impact on women, youth, and children from various perspectives and to coordinate and assist relevant organizations in eliminating HIV/AIDS.

Through MOLSA's Labor Affairs Department, the ministry is meant to give guidance on employment procedures and the labor law in order to prevent mandatory pre-employment and periodic medical checkups for HIV/AIDS. Furthermore, it is meant to develop and disseminate a national workplace HIV/AIDS code of conduct. Through its

Children and Family Affairs department, MOLSA was required, among other things, to establish and strengthen youth anti-AIDS clubs and peer-to-peer leadership forums to combat the epidemic.

Conclusions and Policy Recommendations

The descriptive evidence examined above indicates that Ethiopian young people enter the labor market with very low levels of human capital, notwithstanding the recent increase in enrollment rates. This is especially true in rural areas, where more than 70% of the 15- to 24-year-olds have never attended formal education and only 17% have attended or completed only primary education. In urban areas the situation is less dramatic, but still about 30% of youth has at most completed primary, while another 24% has not completed lower secondary.

Associated with low levels of education attainment is the large number of youth that enter the labor market at an early age. By the age of 18 years, about 80% of youth are working in rural areas and about 40% are working in urban areas. Differences by sex are large, again especially in rural areas, with females much less likely than their male counterparts to be in formal employment.

Strong rural/urban duality also characterizes the status of young people in the labor market. In rural areas, youth unemployment is low (about 4%), transition from school to work for the few who attend school is about two years, and youth workers are not disadvantaged with respect to adult workers in terms of either employment type or unemployment. However, employment is overwhelmingly in the agriculture sector (largely subsistence), labor income is low, and there is evidence of large underemployment.

In urban areas youth face a high rate of unemployment (almost 20%), and the transition from school to work is more than twice as long as that in rural areas. Urban youth are at disadvantage with respect to the adult population in terms of employment (unemployment) and of type of occupation. In particular, urban youth face more difficulty in finding wage jobs and employment in the formal sector.

The descriptive evidence suggests that education helps to secure better jobs, but that difficulties in finding a job increase with the level of human capital. The data available do not allow us to assess whether adults are in a better position than youth in this respect; unemployment rates are also higher for the better-educated among the prime-age adults. These findings need to be interpreted with caution, however, as we do not

have enough information to assess how much of the higher unemployment rate of the more educated might be due to wait unemployment.

Summing up, a dual labor market situation characterizes youth employment and employment generally in Ethiopia. In rural areas, where the large majority of population resides, young people enjoy low unemployment, relatively easy transition from school to work, and almost no disadvantage with respect to adults in the labor force. On the other hand, rural youth start to work at very early ages, endowed with an extremely low level of human capital, and face underemployment in largely subsistence farming, low incomes, and few chances to be employed in the formal sector of the economy.

In urban areas youth face better prospects in terms of income and employment quality but difficulties in finding a job. The urban youth unemployment rate is larger than the adult one, and the chances of getting into wage employment are lower with respect to the adults. Transition from school to work is long, and higher levels of education are associated with higher unemployment. In short, the functioning of the labor market, where it exists as in urban areas, seems to put youth at a disadvantage.

The econometric analysis confirms most of the descriptive findings and adds some insights in terms of effects of household background and of local labor markets. The overall estimates indicate that rural employment is less influenced than urban employment by household characteristics and by the status of the local labor market, confirming the strong dichotomy just discussed.

Household background characteristics, and in particular the level of expenditures, seem to affect the probability of employment, especially of the youth entering the labor market with low levels of human capital. Even if this result should be taken with care, it seems to indicate that credit rationing and parental support are important determinants of employment probability.

The stance of the local labor market substantially influences the probability of employment, again especially but not exclusively for the youth less endowed with human capital. Youth employment hence appears to respond to the demand for labor and to the relative supply of young individuals. Macroeconomic evolution is hence likely to be relevant for solving the relative disadvantage of youth.

Main policy issues emerging from the study include the following:

- The very high levels of child labor and associated very low levels of school attainment, both influencing patterns of employment (unemployment), job quality, and remuneration later in life. Education sector development efforts have resulted in some progress in raising attendance, but addressing the access and quality issues influencing parents' decisions to enroll their children in school remains a major challenge in rural areas. Developing and expanding policies designed to offset or minimize the opportunity costs of rural children's time in school, for example, flexible school scheduling designed around the agricultural seasons or school attendance incentive schemes, might hold promise in this context.
- The large number of youth already in the labor market with very low human capital. Even if the general enrollment situation improves, the current generation of young people will have few chances to see a real change in their circumstances. Further investment in special training and skill formation activities is therefore needed in parallel with broader education expansion efforts, to improve the employment prospects of this stock of low or uneducated youth.
- The minority of (primarily urban) youth relatively well equipped with human capital that face specific but not dramatic problems in terms of unemployment. There is not at present enough information to identify the causes of this phenomenon and especially to distinguish voluntary from involuntary unemployment. The issue of differentiating between wait unemployment and employability problem is very important in terms of policy formulation, especially in view of the fact that successful education policies will in the near future substantially increase the relative number of educated youth in the labor market. An assessment of the determinants of the excess unemployment and of the education-specific unemployment of youth will be essential to designing the appropriate policies to favor school to work transition and reduce youth disadvantage.
- A number of labor market surveys have been carried out in Ethiopia, especially in urban areas. Nonetheless, information gaps persist, preventing a complete picture of the youth labor market situation from being drawn. It would be useful to introduce minor changes in the current survey instruments to fill these gaps. For example, a few retrospective questions could go a long way in helping the analysis in absence of panel data.

- The results of the estimates pointed to the impact of low skill levels and the likely impact of credit rationing on youth labor force outcomes. These results underscore the relevance of the government's micro and small enterprise development and microfinance strategies. Unfortunately, there is not information available to assess the impact of such strategies. Again, it would be an important priority to fill these gaps.
- The strong role that labor market stance plays in determining the probability of employment indicates that macroeconomic growth is crucial to youth employment and that the youth situation hinges to a large extent on the success of general national development policies. The fact that labor market effects are particularly strong for the less-educated labor force points to the special vulnerability of these groups and to the need to introduce risk reduction policies.

Appendix 1. Additional Descriptive Tables

Table 20. Nonstudent Employment Status and Employment Modality, by Education Attainment Level and Age Group, Rural

Age group	Highest education Level attained	Employment status			Employment modality					
		Employed	Unemployed	Inactive	Domestic employee	Wage employee	Self employed	Unpaid family worker	Other	Total
20-24 years	No schooling	79.0	4.1	16.9	0.2	4.8	29.6	65.2	0.2	
	primary or less	87.8	4.0	8.2	0.4	5.6	36.2	57.3	0.5	
	lower secondary not completed	85.5	4.0	10.5	0.3	3.2	37.8	58.7	0.0	
	lower secondary completed	89.8	2.8	7.4	0.0	5.8	29.8	63.9	0.4	
	upper secondary*	88.2	5.8	6.0	0.1	50.9	18.3	29.5	1.1	
	higher education									
25-55 years	No schooling	80.6	3.1	16.3	0.2	3.2	60.0	36.5	0.1	
	primary or less	92.8	1.4	5.9	0.1	5.0	79.9	14.6	0.4	
	lower secondary not completed	91.8	2.1	6.1	0.3	4.0	82.0	13.5	0.3	
	lower secondary completed	94.1	1.4	4.5	0.0	2.8	77.7	18.5	1.0	
	upper secondary*	95.8	1.2	3.0	0.2	35.5	55.2	8.5	0.7	
	higher education									

Source: UCW calculations based on Labor Force Survey 2001

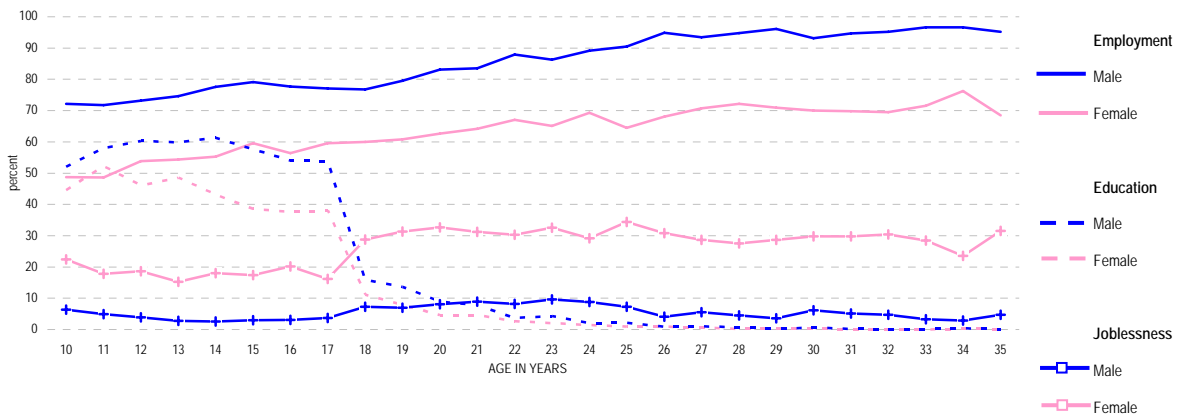
Table 21. Nonstudent Employment Status and Employment Modality, by Education Attainment Level and Age Group, Urban

Age group	Highest education Level attained	Employment status			Employment modality					Total
		Employed	Unemployed	Inactive	Domestic employee	Wage employee	Self employed	Unpaid family worker	Other	
20-24 years	No schooling	60.4	7.1	32.5	31.0	13.0	41.7	13.5	0.8	
	primary or less	69.6	11.5	18.9	18.3	27.7	38.1	15.4	0.5	
	lower secondary not completed	61.2	16.7	22.1	7.9	31.0	40.6	19.3	1.2	
	lower secondary completed	60.4	20.8	18.8	3.1	34.9	40.8	18.0	3.3	
	upper secondary*	59.0	26.9	14.2	2.0	52.1	28.3	15.4	2.2	
	higher education									
25-55 years	No schooling	65.2	6.2	28.6	5.6	17.4	67.1	9.0	1.0	
	primary or less	72.9	7.1	20.0	5.1	24.7	64.1	5.4	0.7	
	lower secondary not completed	74.0	9.6	16.4	2.8	37.6	53.2	5.0	1.4	
	lower secondary completed	70.4	13.3	16.3	1.9	39.9	50.4	7.2	0.7	
	upper secondary*	78.6	11.9	9.5	1.1	70.6	23.9	3.8	0.6	
	higher education									

Notes: (a) Percentage of population in each age group.

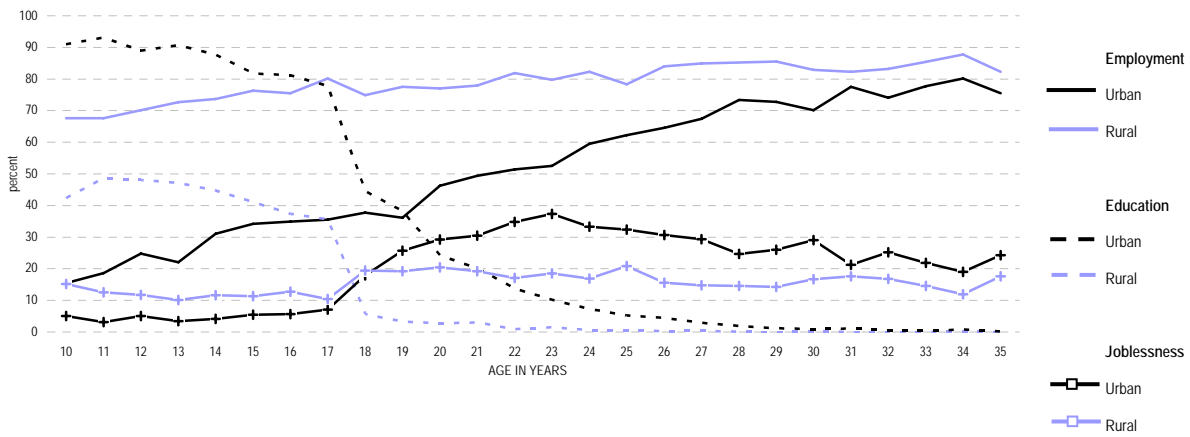
Source: UCW calculations based on Labor Force Survey 2001

Figure 16. Changes in the Time use Patterns of Young People, by Sex and Age



Source: UCW calculations based on Labor Force Survey 2000

Figure 17. Changes in the Time use Patterns of Young People, by Residence and Age



Source: UCW calculations based on Labor Force Survey 2000

Table 22. Job Characteristics by Age Group, Sex, and Residence

Age group	Sex and residence	Work modality ^(a)						Sector ^(b)					Ave. weekly working hours
		Domestic employee	Wage employee	Self employed	Unpaid family worker	Other employment	Total	Agriculture	Manu fact.	Services ^(c)	Other ^(d)	Total	
5-9 years	Total	0,2	1,2	0,7	97,7	0,3	100	97,9	0,4	1,3	0,5	100	36,0
	Male	0,1	1,6	0,7	97,4	0,2	100	99,0	0,2	0,7	0,2	100	38,4
	Female	0,2	0,3	0,8	98,2	0,4	100	96,0	0,7	2,3	1,0	100	32,1
	Rural	5,0	1,7	7,8	76,9	8,6	100	56,1	5,5	26,2	12,2	100	26,0
	Urban	0,1	1,1	0,6	98,0	0,2	100	98,4	0,3	1,0	0,3	100	36,2
10-14 years	Total	0,9	3,2	2,6	92,6	0,6	100	90,8	2,0	5,6	1,6	100	31,3
	Male	0,5	4,6	2,0	92,5	0,5	100	94,9	0,6	3,7	0,8	100	34,1
	Female	1,6	1,3	3,6	92,9	0,7	100	84,6	4,0	8,4	3,0	100	27,1
	Rural	10,5	6,0	15,8	61,4	6,2	100	25,3	11,4	45,4	17,9	100	26,3
	Urban	0,4	3,1	1,9	94,3	0,3	100	94,4	1,5	3,4	0,8	100	31,6

Notes: (a) Percentage distribution of employed population in each age group. (b) Percentage distribution of employed population in each age group. Sector breakdown based on ISIC Rev.3 if the information is available; (c) Services include: wholesale and retail trade; hotels and restaurants; transport; financial intermediation; real estate; public administration; education; health and social work; other community services; private household ; (d) Other includes: mining and quarrying; electricity, gas and water; construction; extra territorial organization.

Source: UCW calculations based on Labor Force Survey 2001

Appendix 2. The Transition from School to Work

Based on the discussion in the section on national context, it should be clear that the transition from school to work is by no means a linear, well defined process, with individuals leaving school once and for all, possibly searching over a certain period of time before landing in their first job, the latter being a definite port of entry into employment for life. Perhaps the start point of this transition is well defined if individuals never re-enter school and if school attendance is universal. The greatest difficulty arises if one tries to define the end point of this transition. Individuals might alternate periods of employment to periods of unemployment, change jobs or possibly even stay out of work for the rest of their life.

Young individuals might take up temporary jobs, work in the household farm or enterprise, or devote themselves to household chores for lack of better work opportunities or for the potential return these initial work experience have in terms of future employment and income prospects. These problems are particularly relevant in developing countries, where women's labor force participation (at least in the market) is low, individuals often associate work with schooling, and, most important, underemployment, self-employment, home production, and casual employment are widespread. The process is made even more complex by the fact that school-leaving time is endogenous and most likely influenced by the expectation about the transition to work and the kind of job that will be obtained at the end of the transition. A better understanding to this transition period would require integrating the analysis of optimal school-leaving age with that of employment search and labor force participation.²¹

Although in principle very important, the issues highlighted above make relatively little sense when one is confronted with the data, especially the ones from developing countries. In most cases the data provide only information on whether an individual in school or in employment (perhaps distinguishing between market and nonmarket work). In the next section, hence, we develop a simple indicator that in view of data limitations does not make justice of the issues raised above.

²¹ In a companion paper we try to approach these issues using a real option approach.

Building a Simple Indicator of the School to Work Transition

Here we develop a simple indicator of transition from school to work that should be comparable across countries. In order to describe the transition process from school to work, we derive the distribution of school leaving age and the distribution of age of entry into the first job. As a synthetic indicator of this transition we compute the difference between the average school-leaving age and the average age of first entry into work.

We are not the first ones to attempt to describe the school to work transition process. For example OECD (1998a, 1999, 2000) uses the age at which 50% of individuals are in employment to determine the end point of the transition. Measures of transition based on such definition implicitly assume that the overall portion of individuals getting into employment is above 50% (otherwise no transition would be ever completed) and that the overall proportion of individuals who enter in employment in any given country is roughly comparable (otherwise this indicator is biased by the overall differences in participation across countries). None of these assumptions is likely to be true, especially in developing countries. Similar problems occur when estimating the starting point of the transition. For example, Organisation for Economic Co-operation and Development (OECD) indicators implicitly assume that all children do transition through the school system and that the vast majority of them stays in school at least until the end of compulsory school—an assumption that can be hardly maintained in most developing countries.

While the assumptions at the base of the OECD indicator arguably represent not much of a problem in developed countries, they might be a serious source of bias, as just mentioned, in comparing data from developing countries with very different levels of overall labor market participation in adulthood, especially among women, and of school attendance.

Below we try to circumvent these problems by standardizing our measures of school to work transition to the population at risk, that is, those who indeed eventually transition through school and participate in the labor force.

Ideally, to model the transition process from school to work, one would need longitudinal data with detailed job history information that follows individuals from childhood into adulthood or alternatively cross-sectional data with retrospective information that allows work histories to be reconstructed. In the absence of these data—

generally the case in developing countries—one can use cross-sectional data to measure the length of the transition. Under appropriate assumptions, the available cross-sectional data allow us to consistently identify the parameters of interest.

Indicators and their interpretation depend on the underlying assumptions. We find it necessary then to spend some time describing such assumptions in order to favor comparability with other indicators.

Suppose there exists an age a_{\min} , such that for $a > a_{\min}$ individuals never transition into school and such that for $a \leq a_{\min}$ individuals never transition out of school.

In this case at age a_{\min} those who ever transition through school all happen to be in school. In this case it is easy to show that if by S we denote the event of being in school, the probability of leaving school at age a , denoted by SL_a is nothing but:

$$SL_a = -[P(S_{a+1}) - P(S_a)] \quad a > a_{\min} \quad (1)$$

that is, the change in enrollment across two consecutive ages. Equation 1 simply states that if, say, 90% of children are in school at age 10 and 80% are in school at age 11, 10% of children must have dropped out between age 10 and age 11.

Assume in addition that for any age $a < a_{\max}$, individuals never transition out of work and for $a \geq a_{\max}$ individuals never transition into work. Again this implies that at a_{\max} all who ever work are simultaneously in work. This assumption—that is admittedly more unrealistic than the previous one—rules out exit from employment before a_{\max} and exit from inactivity above a_{\max} . In this case, if by W we denote work and by EW_a the probability of entry into work at age a this is

$$EW_a = P(W_{a+1}) - P(W_a) \quad a < a_{\max} \quad (2)$$

that is, the increase in participation from one year to the other. As in equation 1, equation 2 simply states that if, say, 10% of children are working at age 14 and 15% are working at age 15, then 5% of children must have started to work between age 14 and age 15.

One major difficulty with these indicators is that not all individuals make a transition through school (a relevant problem in developing countries) and, most important, that not all individuals transition into work. This is particularly true for women, especially if work is defined as participation in a market-oriented economic activity. Hence, we derive these

indexes conditional on individuals ever transitioning into the relevant state, as for the others there is no transition to be defined.

Under the assumptions above, the average school-leaving age conditional on ever having been in school is:

$$E(SL)=\sum_{a>a_{min}} a [SL_a/P(S_{amin})] \quad (3)$$

and the distribution of age of entry into work is

$$E(EW)=\sum_{a<a_{max}} a [EW_a/P(W_{amax})] \quad (4)$$

Notice that $P(W_{amax})=\sum_{a<a_{max}} EW_a$ and hence $\sum_{a<a_{max}} [EW_a/P(W_{amax})]=1$. A similar reasoning applies to the weights in equation 3.

We compute our synthetic index as:

$$I= E(SL)-E(EW) \quad (5)$$

This index is the average gap between age of entry into work (conditional on ever entering into work) and age of exit from school (conditional on ever being in school).

Notice that to the extent that the distribution of drop out rates (entry rates) is symmetrical, the indexes in equations 4 and 5 are also the median of the conditional distributions. In this case our index is similar to the one used by OECD (2000) except for the adjustment factor—which seems necessary in the countries under study—for the population at risk

Empirical Implementation

In this section we describe the empirical implementation of our indicator when, as in our case, only one cross-section is available. As a first step, we fit a probit model on the probability of being in school across all individuals in the sample separately for males and females in each country. We regress this on a polynomial in age. Fitting a probit model is useful to smooth the age participation profiles in the presence of measurement error and small sample sizes and allows, if required, to make out of sample predictions. We identify a_{min} as the turning point in the estimated age participation profile. We do the same for the

probability of work. We use these estimated probabilities to compute the indicators in equations 3, 4, and ultimately 5.

There are several drawbacks to this procedure. First, although there is generally a way with our data to ascertain whether individuals in work ever transitioned through school, which allows us to base all these calculations on individuals who acquired some education, it is generally impossible to know whether those who attend school ever get a job. So, in computing the average age of exit from school we are unable to condition on those eventually transitioning to the labor market. The index in equation 5 then is the average age gap for those who after school ever enter into work (hence the true school to work transition age gap) only under the assumption that age of exit from school is uncorrelated with the probability of entering into work later in the life cycle, an assumption that perhaps some would find not very compelling. If early school-leavers are less (more) likely to eventually find a job, the gap will be over- (under)-estimated.

A second drawback of this procedure when applied to a single cross-section is that our index is derived from a comparison of individuals of different ages at a given time, and hence from different birth cohorts. The bias is difficult to determine. If there is a secular increase in school-leaving age without relevant changes in the age of first employment across cohorts one might end up underestimating the length of the transition period from school to work in each single country. If also the age of first employment shows a secular increase, the bias could go in either direction.

However, if one is ready to assume that these biases are similar across countries, one can still make a sensible inference on differences across countries. This is what we assume in the rest.

Appendix 3. Multinomial Logit Selection Model

A3.1. Multinomial Logit Selection Model: Probability of Employment for Youth Never attended school, urban

Selectivity correction based on multinomial logit

Second step regression

Bootstrapped standard errors

Employment for Youth Never attended school	Coef.	Std.	t	P> t 	[95% Conf. Interval]	
age	0.1666	0.0489	3.41	0.001	0.071	0.262
age2	-0.0048	0.0013	-3.83	0.000	-0.007	-0.002
Household size	0.0035	0.0045	0.78	0.435	-0.005	0.012
female	-0.1530	0.0828	-1.85	0.065	-0.315	0.009
Home owner*	-0.0161	0.0363	-0.44	0.657	-0.087	0.055
Expenditure quintile 1*	-0.2750	0.0562	-4.90	0.000	-0.385	-0.165
Expenditure quintile 2*	-0.2907	0.0497	-5.85	0.000	-0.388	-0.193
Expenditure quintile 3*	-0.1511	0.0551	-2.74	0.006	-0.259	-0.043
Expenditure quintile 4*	-0.0463	0.0534	-0.87	0.387	-0.151	0.058
Adult Employment ratio	1.8310	0.2108	8.68	0.000	1.418	2.244
Share of population	-1.8354	0.3346	-5.49	0.000	-2.491	-1.179
_m0	0.0286	0.1835	0.16	0.876	-0.331	0.388
_m1	0.7025	0.4925	1.43	0.154	-0.263	1.668
_m2	-0.9513	0.5645	-1.69	0.092	-2.058	0.155
_m3	2.5319	0.8383	3.02	0.003	0.888	4.175
_m4	-0.4266	0.3295	-1.29	0.196	-1.073	0.219
_cons	-0.7004	0.4575	-1.53	0.126	-1.597	0.197
Implied residual standard error : 0.45379						

A3.2 Multinomial Logit Selection Model: Probability of Employment for Youth Never Attended School, Rural

Selectivity correction based on multinomial logit

Second step regression

Bootstrapped standard errors

Employment for Youth Never attended school	Coef.	Std.	z	P> z 	[95% Conf. Interval]	
age	0.0245	0.0162	1.51	0.131	-0.007	0.056
age2	-0.0006	0.0004	-1.45	0.146	-0.002	0.000
Household size	0.0006	0.0015	0.39	0.700	-0.002	0.004
female	-0.2359	0.0163	-14.48	0.000	-0.268	-0.204
Home owner*	0.1165	0.0319	3.65	0.000	0.054	0.179
Expenditure quintile 1*	0.0314	0.1309	0.24	0.811	-0.225	0.288
Expenditure quintile 2*	0.0268	0.1307	0.20	0.838	-0.229	0.283
Expenditure quintile 3*	0.0568	0.1293	0.44	0.660	-0.197	0.310
Expenditure quintile 4*	0.0816	0.1333	0.61	0.540	-0.180	0.343
Adult Employment ratio	1.2996	0.1474	8.82	0.000	1.011	1.589
Share of population	0.0650	0.2557	0.25	0.799	-0.436	0.566
_m0	-0.1092	0.1798	-0.61	0.544	-0.462	0.243
_m1	-0.4424	0.2111	-2.10	0.036	-0.856	-0.029
_m2	0.5289	0.3497	1.51	0.130	-0.156	1.214
_m3	-1.1622	0.8930	-1.30	0.193	-2.912	0.588
_m4	-0.2411	0.3023	-0.80	0.425	-0.834	0.351
_cons	-0.5982	0.2348	-2.55	0.011	-1.058	-0.138
Implied residual standard error : 0.39379						

A3.3 Multinomial Logit Selection Model: Probability of Employment for Youth with Primary or Less Education, Urban

Selectivity correction based on multinomial logit
 Second step regression
 Bootstrapped standard errors

Employment for Youth with Primary or less education	Coef.	Std.	z	P> z	[95% Conf. Interval]	
age	0.0270	0.0634	0.43	0.671	-0.097	0.151
age2	-0.0012	0.0016	-0.73	0.463	-0.004	0.002
Household size	-0.0079	0.0063	-1.26	0.207	-0.020	0.004
female	-0.1351	0.1058	-1.28	0.202	-0.342	0.072
Home owner*	0.0754	0.0436	1.73	0.084	-0.010	0.161
Expenditure quintile 1*	-0.3599	0.0974	-3.69	0.000	-0.551	-0.169
Expenditure quintile 2*	-0.3397	0.0830	-4.09	0.000	-0.502	-0.177
Expenditure quintile 3*	-0.2650	0.0913	-2.90	0.004	-0.444	-0.086
Expenditure quintile 4*	-0.1100	0.0795	-1.38	0.167	-0.266	0.046
Adult Employment ratio	0.9102	0.4044	2.25	0.024	0.118	1.703
Share of population	-1.6238	0.6492	-2.50	0.012	-2.896	-0.351
_m0	0.6303	0.8731	0.72	0.470	-1.081	2.342
_m1	0.3026	0.3026	1.00	0.317	-0.290	0.896
_m2	-1.0475	1.2063	-0.87	0.385	-3.412	1.317
_m3	2.0659	1.2788	1.62	0.106	-0.440	4.572
_m4	0.2319	0.5901	0.39	0.694	-0.925	1.388
_cons	1.0266	1.1277	0.91	0.363	-1.184	3.237
Implied residual standard error : 0.45075						

A3.4 Multinomial Logit Selection Model: Probability of Employment for Youth with Primary or Less Education, Rural

Selectivity correction based on multinomial logit

Second step regression

Bootstrapped standard errors

Employment for Youth with Primary or less education	Coef.	Std.	z	P> z 	[95% Conf. Interval]	
age	-0.0481	0.0991	-0.48	0.628	-0.242	0.146
age2	0.0012	0.0024	0.50	0.615	-0.003	0.006
Household size	0.0027	0.0051	0.52	0.600	-0.007	0.013
female	-0.0644	0.1160	-0.56	0.579	-0.292	0.163
Home owner*	0.0969	0.0914	1.06	0.289	-0.082	0.276
Expenditure quintile 1*	-0.1986	0.6698	-0.30	0.767	-1.511	1.114
Expenditure quintile 2*	-0.2163	0.6676	-0.32	0.746	-1.525	1.092
Expenditure quintile 3*	-0.1778	0.6664	-0.27	0.790	-1.484	1.128
Expenditure quintile 4*	-0.0811	0.6709	-0.12	0.904	-1.396	1.234
Adult Employment ratio	0.5303	0.6058	0.88	0.381	-0.657	1.718
Share of population	1.2009	1.1300	1.06	0.288	-1.014	3.416
_m0	0.1117	0.0428	2.61	0.009	0.028	0.196
_m1	-0.4227	0.2169	-1.95	0.051	-0.848	0.002
_m2	0.8487	0.3623	2.34	0.019	0.139	1.559
_m3	-0.2747	1.1202	-0.25	0.806	-2.470	1.921
_m4	-0.2113	0.2772	-0.76	0.446	-0.754	0.332
_cons	1.0990	1.4018	0.78	0.433	-1.649	3.847
Implied residual standard error : 0.31299						

A3.5 Multinomial Logit Selection Model: Probability of Employment for Youth with Incomplete Lower Secondary Education, Urban

Selectivity correction based on multinomial logit
 Second step regression
 Bootstrapped standard errors

Employment for youth with Not completed lower secondary	Coef.	Std.	z	P> z [95% Conf. Interval]		
Age	-0.4595	0.1865	-2.46	0.014	-0.825	-0.094
age2	0.0102	0.0044	2.29	0.022	0.001	0.019
Household size	-0.0104	0.0088	-1.18	0.237	-0.028	0.007
female	-0.1019	0.1132	-0.90	0.368	-0.324	0.120
Home owner*	0.0556	0.0691	0.80	0.421	-0.080	0.191
Expenditure quintile 1*	-0.3864	0.1171	-3.30	0.001	-0.616	-0.157
Expenditure quintile 2*	-0.3759	0.1176	-3.20	0.001	-0.606	-0.145
Expenditure quintile 3*	-0.4194	0.1122	-3.74	0.000	-0.639	-0.200
Expenditure quintile 4*	-0.0849	0.0951	-0.89	0.372	-0.271	0.102
Adult Employment ratio	1.4267	0.4228	3.37	0.001	0.598	2.255
Share of population	-0.3566	0.9045	-0.39	0.693	-2.129	1.416
_m0	0.6338	1.0149	0.62	0.532	-1.355	2.623
_m1	2.5598	1.3652	1.88	0.061	-0.116	5.236
_m2	-0.7906	0.4733	-1.67	0.095	-1.718	0.137
_m3	1.4511	1.8039	0.80	0.421	-2.084	4.987
_m4	0.1196	0.8254	0.14	0.885	-1.498	1.737
_cons	7.1189	3.3015	2.16	0.031	0.648	13.590
Implied residual standard error : 0.47002						

A3.6 Multinomial Logit Selection Model: Probability of Employment for Youth with Incomplete Lower Secondary Education, Rural

Selectivity correction based on multinomial logit
 Second step regression
 Bootstrapped standard errors

Employment for Youth with not completed lower secondary	Coef.	Std. Err.	z	P> z 	[95% Conf. Interval]	
Age	-0.1011	0.2879	-0.35	0.725	-0.665	0.463
age2	0.0024	0.0067	0.35	0.725	-0.011	0.016
Household size	0.0018	0.0103	0.18	0.859	-0.018	0.022
Female	-0.1409	0.1252	-1.13	0.260	-0.386	0.104
Home owner*	0.1405	0.1660	0.85	0.397	-0.185	0.466
Expenditure quintile 1*	-0.2902	0.5132	-0.57	0.572	-1.296	0.716
Expenditure quintile 2*	-0.2982	0.5052	-0.59	0.555	-1.288	0.692
Expenditure quintile 3*	-0.3148	0.5017	-0.63	0.530	-1.298	0.669
Expenditure quintile 4*	-0.3473	0.5776	-0.60	0.548	-1.479	0.785
Adult Employment ratio	0.1085	2.1995	0.05	0.961	-4.203	4.420
Share of population	-0.5426	2.0412	-0.27	0.790	-4.543	3.458
_m0	0.0091	0.4071	0.02	0.982	-0.789	0.807
_m1	0.4979	1.6881	0.29	0.768	-2.811	3.806
_m2	-0.3311	0.5793	-0.57	0.568	-1.467	0.804
_m3	2.8064	2.4326	1.15	0.249	-1.961	7.574
_m4	-0.4605	0.3810	-1.21	0.227	-1.207	0.286
_cons	3.0858	5.2523	0.59	0.557	-7.209	13.380
Implied residual standard error : 0.30902						

A3.7 Multinomial Logit Selection Model: Probability of Employment for Youth with Completed Lower Secondary Education, Urban

Selectivity correction based on multinomial logit
 Second step regression
 Bootstrapped standard errors

Employment for Youth with completed lower secondary	Coef.	Std.	z	P> z 	[95% Conf. Interval]	
age	-0.3602	0.6751	-0.53	0.594	-1.683	0.963
age2	0.0084	0.0161	0.52	0.603	-0.023	0.040
Household size	-0.0058	0.0256	-0.23	0.821	-0.056	0.044
female	-0.1240	0.2032	-0.61	0.542	-0.522	0.274
Home owner*	0.0058	0.1013	0.06	0.954	-0.193	0.204
Expenditure quintile 1*	-0.2367	0.3744	-0.63	0.527	-0.971	0.497
Expenditure quintile 2*	-0.2113	0.3508	-0.60	0.547	-0.899	0.476
Expenditure quintile 3*	-0.2706	0.3719	-0.73	0.467	-1.000	0.458
Expenditure quintile 4*	-0.0373	0.2511	-0.15	0.882	-0.529	0.455
Adult Employment ratio	1.7369	0.8336	2.08	0.037	0.103	3.371
Share of population	1.1627	2.4812	0.47	0.639	-3.700	6.026
_m0	0.5197	1.9280	0.27	0.787	-3.259	4.298
_m1	0.2333	1.9664	0.12	0.906	-3.621	4.087
_m2	2.4113	3.4106	0.71	0.480	-4.273	9.096
_m3	-1.1205	1.2283	-0.91	0.362	-3.528	1.287
_m4	0.8064	1.9949	0.40	0.686	-3.104	4.716
_cons	5.9687	9.7379	0.61	0.540	-13.117	25.055
Implied residual standard error : 0.47008						

A3.8 Multinomial logit selection model: probability of employment for youth with completed lower secondary education, rural

Selectivity correction based on multinomial logit

Second step regression

Bootstrapped standard errors

Employment for Youth with completed lower secondary	Coef.	Std.	z	P> z	[95% Conf. Interval]	
age	-0.3004	0.4932	-0.61	0.542	-1.267	0.666
age2	0.0081	0.0114	0.71	0.478	-0.014	0.031
Household size	0.0083	0.0231	0.36	0.720	-0.037	0.054
female	-0.0454	0.3873	-0.12	0.907	-0.804	0.714
Home owner*	0.0575	0.5159	0.11	0.911	-0.954	1.069
Expenditure quintile 1*	-0.4515	0.9320	-0.48	0.628	-2.278	1.375
Expenditure quintile 2*	-0.2275	0.7848	-0.29	0.772	-1.766	1.311
Expenditure quintile 3*	-0.2216	0.6267	-0.35	0.724	-1.450	1.007
Expenditure quintile 4*	-0.5898	0.5531	-1.07	0.286	-1.674	0.494
Adult Employment ratio	-0.5819	3.6656	-0.16	0.874	-7.766	6.603
Share of population	0.2858	5.0220	0.06	0.955	-9.557	10.129
_m0	-1.6315	1.1589	-1.41	0.159	-3.903	0.640
_m1	0.3453	3.2782	0.11	0.916	-6.080	6.770
_m2	-4.3745	2.4033	-1.82	0.069	-9.085	0.336
_m3	0.9805	0.9740	1.01	0.314	-0.929	2.889
_m4	-1.8447	1.2783	-1.44	0.149	-4.350	0.661
_cons	-0.0384	6.1508	-0.01	0.995	-12.094	12.017
Implied residual standard error : 0.31064						

A3.9 Multinomial logit selection model: probability of employment for youth with higher education, urban

Selectivity correction based on multinomial logit

Second step regression

Bootstrapped standard errors

Employment for Youth with Higher education	Coef.	Std.	z	P> z 	[95% Conf. Interval]	
Age	-0.3497	0.2485	-1.41	0.159	-0.837	0.137
age2	0.0087	0.0060	1.46	0.144	-0.003	0.020
Household size	-0.0206	0.0120	-1.72	0.086	-0.044	0.003
female	-0.0424	0.0722	-0.59	0.557	-0.184	0.099
Home owner*	0.0467	0.0487	0.96	0.337	-0.049	0.142
Expenditure quintile 1*	-0.3550	0.1933	-1.84	0.066	-0.734	0.024
Expenditure quintile 2*	-0.2974	0.1756	-1.69	0.090	-0.642	0.047
Expenditure quintile 3*	-0.2705	0.1652	-1.64	0.101	-0.594	0.053
Expenditure quintile 4*	-0.1265	0.1450	-0.87	0.383	-0.411	0.158
Adult Employment ratio	1.4169	0.4142	3.42	0.001	0.605	2.229
Share of population	1.1191	1.2624	0.89	0.375	-1.355	3.593
_m0	0.8029	0.4893	1.64	0.101	-0.156	1.762
_m1	1.3690	1.9938	0.69	0.492	-2.539	5.277
_m2	0.2484	2.5242	0.10	0.922	-4.699	5.196
_m3	-2.0607	3.4168	-0.60	0.546	-8.757	4.636
_m4	0.3986	0.2325	1.71	0.086	-0.057	0.854
_cons	2.7250	2.7004	1.01	0.313	-2.568	8.018
Implied residual standard error : 0.47971						

A3.10 Multinomial logit selection model: probability of employment for youth with higher education, rural

Selectivity correction based on multinomial logit
 Second step regression
 Bootstrapped standard errors

Employment for Youth with Higher education	Coef.	Std.	z	P> z 	[95% Conf. Interval]	
age	-0.3465	0.4376	-0.79	0.429	-1.204	0.511
age2	0.0082	0.0103	0.80	0.425	-0.012	0.028
Household size	-0.0102	0.0224	-0.45	0.649	-0.054	0.034
female	0.1470	0.2614	0.56	0.574	-0.365	0.659
Home owner*	0.3395	0.2601	1.31	0.192	-0.170	0.849
Expenditure quintile 1*	1.0184	0.4715	2.16	0.031	0.094	1.943
Expenditure quintile 2*	0.9258	0.4386	2.11	0.035	0.066	1.785
Expenditure quintile 3*	0.6757	0.3939	1.72	0.086	-0.096	1.448
Expenditure quintile 4*	0.7414	0.3791	1.96	0.051	-0.002	1.485
Adult Employment ratio	-2.0322	1.9475	-1.04	0.297	-5.849	1.785
Share of population	4.8198	2.4807	1.94	0.052	-0.042	9.682
_m0	0.3389	0.8171	0.41	0.678	-1.262	1.940
_m1	-1.5983	1.9716	-0.81	0.418	-5.463	2.266
_m2	0.5045	1.6305	0.31	0.757	-2.691	3.700
_m3	-3.8443	2.7776	-1.38	0.166	-9.288	1.600
_m4	-0.1352	0.2055	-0.66	0.511	-0.538	0.268
_cons	2.2160	4.9896	0.44	0.657	-7.563	11.995
Implied residual standard error : 0.34633						

Appendix 4. Probit Estimates Results

A4.1 Probability of employment by level of education, youth aged 10–24, probit estimates obtained with indicators of local labor market using the results of the cluster analysis

(a) Urban Area

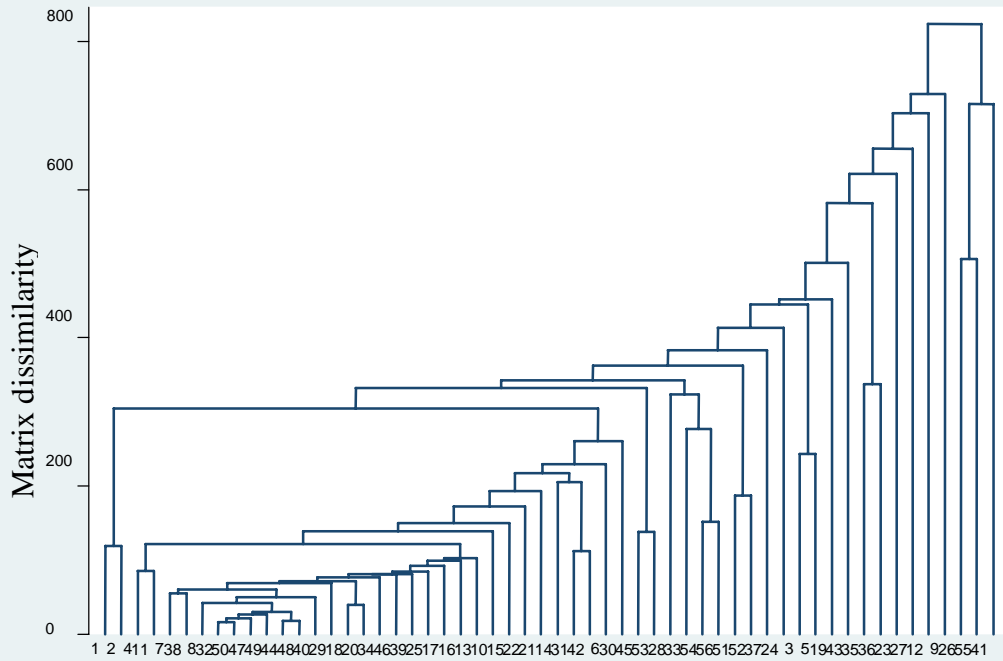
variable	No Education		Primary or less		Not completed lower secondary		Completed lower secondary		Higher Education	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
age	0.143	6.17	0.061	2.02	-0.023	-0.480	0.186	1.6	-0.074	
age2	-0.004	-5.81	-0.002	-1.94	0.000	0.340	-0.005	-1.66	0.002	
female*	-0.154	-3.68	-0.207	-4.14	-0.230	-6.030	-0.184	-4.07	-0.143	
Household size	-0.001	-0.26	-0.009	-1.45	-0.010	-2.260	0.007	0.98	-0.012	
Home owner*	-0.012	-0.51	0.036	0.7	-0.003	-0.130	0.019	0.74	0.010	
Expenditure quintile 1*	-0.400	-4.29	-0.470	-7.77	-0.289	-3.710	-0.066	-0.73	-0.141	
Expenditure quintile 2*	-0.384	-4.92	-0.399	-8.2	-0.233	-3.850	0.007	0.08	-0.080	
Expenditure quintile 3*	-0.197	-1.85	-0.348	-5.91	-0.250	-3.760	-0.049	-0.57	-0.070	
Expenditure quintile 4*	-0.064	-0.79	-0.205	-4.09	-0.118	-1.530	0.107	1.19	-0.073	
Adult Employment ratio	1.781	2.52	1.069	4.34	1.291	15.000	1.190	4.09	1.303	
Share of population	-1.562	-3.52	-0.624	-1.88	-0.111	-0.360	0.151	0.42	0.634	

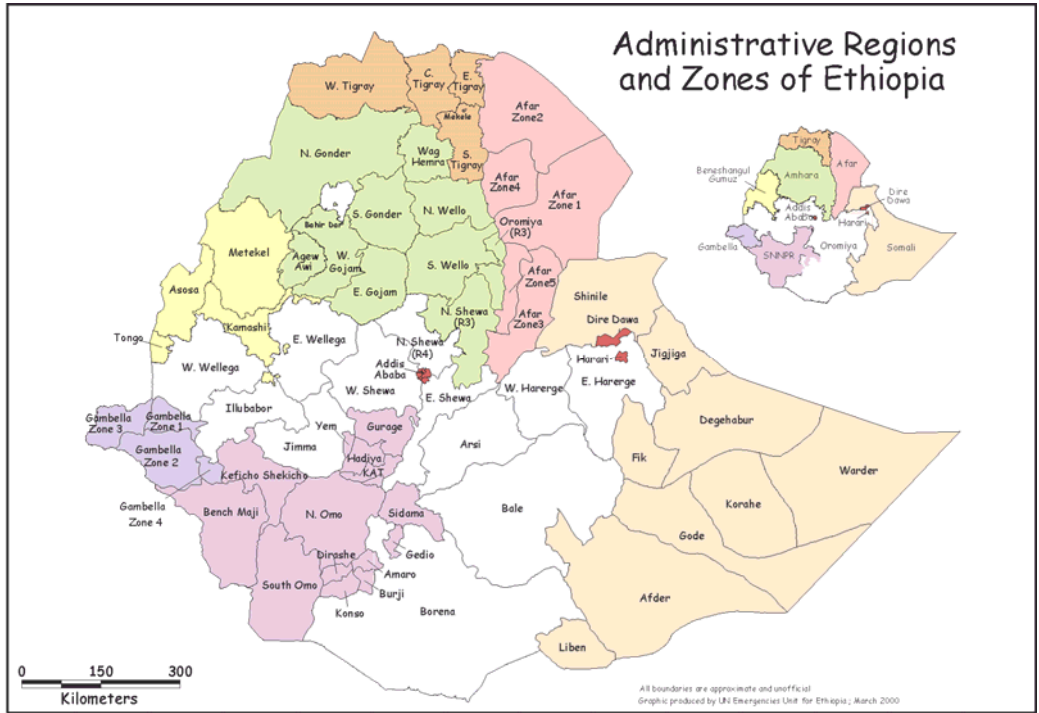
A4.1 (Cont'd) Probability of Employment by Level of Education, Youth Aged 10–24, Probit Estimates Obtained with Indicators Of Local Labor Market Using the Results of the Cluster Analysis

(b) Rural Area

variable	No Education		Primary or less		Not completed lower secondary		Completed lower secondary		Higher Educa	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Age	0.030	2.79	0.032	2.86	0.067	1.570	-0.214	-0.9	0.119	
age2	-0.001	-2.68	-0.001	-2.63	-0.002	-1.580	0.005	0.88	-0.002	
female*	-0.250	-11.57	-0.200	-6.53	-0.178	-4.620	-0.115	-3.29	-0.146	
Household size	0.000	-0.2	0.000	0.14	0.001	0.310	0.001	0.18	-0.002	
Home owner*	0.074	2.03	0.045	1.47	0.149	2.580	0.222	1.99	-0.032	
Expenditure quintile 1*	-0.028	-0.18	-0.085	-0.97	-0.057	-0.940	-0.087	-1.1	0.184	
Expenditure quintile 2*	-0.025	-0.16	-0.080	-1.24	-0.086	-1.520	0.042	0.85	0.369	
Expenditure quintile 3*	0.011	0.08	-0.060	-0.71	-0.127	-1.130	0.005	0.11	0.144	
Expenditure quintile 4*	0.010	0.08	--	--	--	--	--	--	0.165	
Adult Employment ratio	1.234	6.32	0.375	3.15	0.344	1.360	1.404	1.65	-0.489	
Share of population	-0.053	-0.11	0.342	2.58	0.020	0.060	-0.137	-0.12	1.774	

Dendrogram - Cluster analysis





A4.2 Probability of employment by level of education, youth aged 10–24, probit estimates obtained using the zones for the definition of the local labor market

(a) Urban area

Variable	No Education		Primary or less		Not completed lower secondary		Completed lower secondary		Higher Education	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Age	0.147	5.85	0.066	2.08	-0.021	-0.42	0.196	1.72	-0.075	-0.62
age2	-0.004	-5.51	-0.002	-2	0.000	0.29	-0.005	-1.8	0.002	0.75
female*	-0.154	-3.67	-0.209	-4.12	-0.233	-6.13	-0.185	-4.12	-0.144	-11.32
Household size	-0.002	-0.49	-0.009	-1.46	-0.010	-2.21	0.007	0.96	-0.013	-3.52
Home owner*	-0.003	-0.14	0.040	0.79	-0.003	-0.1	0.016	0.66	0.012	0.7
Expenditure quintile 1*	-0.383	-4.05	-0.460	-7.85	-0.284	-3.64	-0.072	-0.76	-0.139	-1.84
Expenditure quintile 2*	-0.375	-4.8	-0.397	-8.34	-0.228	-3.78	0.006	0.07	-0.076	-1.8
Expenditure quintile 3*	-0.189	-1.81	-0.347	-6.03	-0.245	-3.7	-0.052	-0.58	-0.065	-1.93
Expenditure quintile 4*	-0.065	-0.84	-0.203	-4.1	-0.113	-1.44	0.104	1.13	-0.071	-1.21
Adult Employment ratio	1.515	2.39	1.036	4.82	1.289	14	1.243	6.18	1.091	2.78
Share of population	-1.317	-4.53	-0.539	-2.16	-0.115	-0.39	0.148	0.33	0.217	0.44

A4.2 (Cont'd) Probability of employment by level of education, youth aged 10–24, probit estimates obtained using the zones for the definition of the local labor market

(b) Rural area

Variable	No Education		Primary or less		Not completed lower secondary		Completed lower secondary		Higher Education	
	dy/dx	z	dy/dx	Z	dy/dx	z	dy/dx	z	dy/dx	z
Age	0.033	2.81	0.032	2.63	0.062	1.45	-0.219	-0.99	0.117	0.47
age2	-0.001	-2.73	-0.001	-2.44	-0.002	-1.48	0.005	0.95	-0.002	-0.33
female*	-0.250	-20.76	-0.202	-7.52	-0.178	-4.91	-0.125	-3.28	-0.148	-2.23
Household size	-0.001	-0.38	0.000	-0.03	0.000	-0.02	0.003	0.37	-0.001	-0.08
Home owner*	0.068	1.97	0.045	1.35	0.148	2.32	0.242	2.33	-0.038	-0.51
Expenditure quintile 1*	-0.037	-0.23	-0.078	-0.95	-0.058	-0.99	-0.081	-1.13	0.190	11.94
Expenditure quintile 2*	-0.033	-0.22	-0.075	-1.25	-0.086	-1.54	0.037	0.79	0.383	6.83
Expenditure quintile 3*	0.000	0	-0.053	-0.66	-0.122	-1.11	-0.006	-0.12	0.150	3.99
Expenditure quintile 4*	0.000	0	--	--	--	--	--	--	0.169	5.96
Adult Employment ratio	1.113	12.19	0.497	5.91	0.423	1.97	0.614	1.96	-0.185	-0.61
Share of population	0.251	1.28	0.135	1.12	0.219	0.77	0.514	0.62	1.315	2.27

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