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## Tackling the Twin Deficits of Human Development and Natural Resources

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EMILY CUPITO  
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THE MIDDLE EAST YOUTH INITIATIVE  
**WORKING PAPER**





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# YOUTH EXCLUSION IN YEMEN: TACKLING THE TWIN DEFICITS OF HUMAN DEVELOPMENT AND NATURAL RESOURCES

With a dwindling supply of natural resources, low levels of human development, high levels of poverty, and policies and institutions that work against youth instead of for them, Yemen faces significant challenges in helping youth reach their full potential.

## EXECUTIVE SUMMARY

Yemen is the poorest country in the Middle East region and one of the poorest in the world. Its population, already overwhelmingly young, is expanding rapidly, creating an explosion in the number of youth aged 15 to 29. A large youth population can provide the ideas and manpower necessary to foster economic growth and stimulate social development—but only if adequate resources and institutions are in place to help them do so. With a dwindling supply of natural resources, low levels of human development, high levels of poverty, and policies and institutions that work against youth instead of for them, Yemen faces significant challenges in helping youth reach their full potential.

The situation in Yemen is particularly challenging because of the twin deficits that the country faces in both human development and natural resources. Yemen ranks 138<sup>th</sup> out of 179 countries and territories on the United Nations Development Program's Human Development Index and 148<sup>th</sup> on combined primary, secondary, and tertiary gross enrollment

(UNDP 2008). Yemen also faces one of the largest gender gaps in human development in the world. For instance, in gross primary enrollment rates it ranks as the country with the fifth largest gender gap in the world (UNDP 2007). These human development challenges are compounded by severe limits on essential natural resources, such as water and arable land, for a rapidly growing population that is still predominantly rural.

In this paper, we identify processes through which many Yemeni youth are excluded from the opportunity to become productive adults and positive contributors to society. We set forth the idea that many youth face social exclusion, whereby they are cut off from the resources and institutions that could assist them in their transition to adulthood. We find that youth exclusion in Yemen is highly gendered and regionalized. Females and rural residents are much more likely to be excluded than males and urban residents.

Youth exclusion in Yemen is multi-faceted: no single axis of exclusion can fully explain the processes by which youth are excluded. Progress in assisting youth through one pathway will not ensure that youth are not excluded in other pathways. Exclusion is also interdependent: exclusion manifested during early stages of the transition can reinforce exclusion at later stages. For example, youth who receive inadequate schooling have trouble finding paid work, which can thereby limit their ability to purchase housing, get married and become independent adults.

In this paper, we use the life cycle approach to identify the pathways through which youth are excluded, focusing on processes of exclusion in educational attainment, livelihood and family formation. The structure of this paper is as follows: the study starts by analyzing the context of youth exclusion, followed by a detailed outline of the aforementioned life cycle stages. The study then concludes by discussing policies that affect youth and by recommending ways for policymakers to promote youth inclusion in the future. Yemen's twin deficits in human development and natural resources underscore the urgent need for greater development assistance to Yemen.

## I. YOUTH EXCLUSION IN CONTEXT

The impending youth bulge in Yemen is a result of declining mortality rates coupled with persistently high fertility rates. Yemen's fertility rates began to decline in the 1990s—much later than the fertility declines in most Middle Eastern countries. According to UN population predictions, Yemen's population will continue to expand rapidly for many decades to come. Yemen's resources, especially water, land and oil are already in short supply and will be increasingly strained by this excessive population growth.

Recent historical developments in Yemen contributed to the prevalence and depth of youth exclusion. Soon after the 1990 unification between North and South Yemen, the country suffered vast repercussions from the Gulf War, including the mass repatriation of almost a million Yemeni migrants and the cutoff of much international aid. These events damaged Yemen's economy and threw the country

into a period of turmoil and unrest. Rampant poverty and conflict created an unstable environment for youth, many of whom were already marginalized.

Youth exclusion in Yemen varies widely across regions and according to gender, with rural youth and women exhibiting the most severe signs of exclusion. However, regional differences in youth outcomes persist even after controlling for rural-urban differences. Throughout this paper, we discuss the effects of gender, rural-urban and regional differences on youth exclusion in each stage of the life cycle.

## II. EDUCATION

Youth in Yemen face significant educational challenges. Women and rural residents have been particularly excluded from educational gains. A fifth of youth have never enrolled in school, with never-enrollment being particularly problematic among rural girls. Delayed entry into school is also a significant problem, with only 20 percent of children entering the education system at the recommended age of six. Moreover, most students, again especially female students and rural residents, drop out before finishing basic education.

A number of factors contribute to the low educational outcomes. Al-Sharki et al. (2005) argue that it is not the idea of education that prevents girls' families from sending them to school. Rather, these families are hesitant to subject their girls to the circumstances of schooling, such as: attending class in a coeducational setting, traveling long distances to the schoolhouse, not having female teachers, and being taught in a male-dominated setting. We use a hazard model to determine that gender, parental background and region of residence also have large effects on determining young people's educational attainment.

Youth who are able to obtain adequate amounts of schooling are constrained by the poor quality of education in Yemen. Teaching and testing methods in Yemen encourage rote memorization. Much learning occurs in inadequate facilities, such as unsafe school building, tents, caves or open-air classrooms. Employers complain that graduates lack

critical cognitive, management, language and computer skills that are necessary in the workplace but not taught in Yemeni public schools. Unemployment is high across all education levels, with exceptionally high levels for “middle-educated” men with primary through secondary education and highly educated young women.

Attempts by the government to increase educational enrollments and improve quality have yet to meet with substantial success. These attempts have failed to significantly transform the structural factors that prevent children, especially rural girls, from attending school. While educational reforms have stressed the urgent task of increasing enrollment, they have yet to address the even bigger challenge of improving school quality.

### III. LIVELIHOOD

We use the term livelihood to encompass the different factors that affect young people’s incomes and work arrangements. We separate our analysis of work into unpaid family labor, non-wage agricultural work, and paid work (in agricultural and non-agricultural sectors). We find that young women work more hours than young men, but that young men are much more likely to participate in paid work. Women who do engage in paid work earn higher wages than men on average, mainly because they are a highly selected group and therefore tend to be much more educated. Women who do this kind of work are found almost exclusively in the non-governmental organization (NGO) and government sectors. Men in urban areas work long hours, as do male migrants from rural areas and well-educated women. In Yemen, it is common for both males and females to work while they are attending school—oftentimes compromising their educational attainment and quality of learning.

The demographics of households have important impacts on the well-being of youth. We find that young women living with their in-laws assume a disproportionate share of the domestic and unpaid work burden, with daughters-in-law working 11 percent more in unpaid work than the other daughters in the household. Having a family member abroad affects the income that trickles down to youth. Yemen’s 600,000 international migrants to

the Gulf States, Europe and the U.S. send remittances to about one-half of all households in Yemen. Households headed by youth are slightly more likely to receive remittances. Internal migration is also an important phenomenon among youth. Internal migrants earn lower wages on average than non-migrants, but they also work longer hours so that their total incomes parallel those of non-migrants. Urbanization seems to be the major reason for internal migration, with 35 percent of urban males and 60 percent of males in Sana’a City being migrants from rural areas and smaller cities.

The usage of qat (*Catha edulis*), a plant that acts as a stimulant when chewed, is common in Yemen and has important implications for young people’s incomes and use of leisure time. Different estimates cite 50 to 85 percent of men using qat on a regular basis and 30 to 60 percent of women doing so (Kennedy 1987, AFHS 2003). Men who chew qat spend about 20 percent of their incomes on the drug, with wealthier men spending slightly more than poor ones.

### IV. FAMILY FORMATION

Rural women are particularly prone to early marriage in Yemen. In general, women marry earlier than men, and rural residents marry earlier than urban residents. More than half of young women in Yemen marry while they are still teenagers and thereby become excluded from the benefits of higher education and wage work. Most young brides bear children early, putting themselves at risk of maternal mortality and putting their children at risk of dying prematurely. The young age of marriage and childbearing has also buoyed the persistently high fertility rate in Yemen. Although the fertility rate began to decline in the 1990s, the total fertility rate (TFR) for Yemen from 1998 to 2003 was 6.2 children per woman, which is the highest fertility rate in the Middle East and North Africa region (Arab Family Health Survey 2003).

Urban Yemeni males are beginning to suffer from the “waithood” phenomenon that has plagued other modernizing Middle Eastern societies, which manifests itself in involuntary delays in marriage. These delays are driven by education-induced increases in expectations about the standards of living to be

*Yemen faces many challenges in promoting youth inclusion, but focusing on assisting this important group will have positive benefits for the country for years to come. We make a strong plea for Yemen to receive greater amounts of development assistance both from Western donors as well as from its oil-rich neighbors in the Arabian Peninsula.*

achieved within marriage that are often unmatched by the economic opportunities young men face in the labor market.<sup>1</sup> Men who do marry young often bring their brides into their parental household, indicating that getting married may not signal true independence.

Young women in Yemen still struggle to receive adequate reproductive healthcare. According to the 2003 Arab Family Health Survey (AFHS 2003), less than 40 percent of young women had ever used any type of contraception, with the youngest brides being the least likely to use contraception. Furthermore, many women—especially women residing in rural areas—report that high costs, a lack of female physicians, and long distances to clinics and other health facilities impede their access to prenatal care. Yemen has attempted to enact policies that promote improved access to reproductive health services for women, but this sensitive issue has been met with sometimes impassioned political debate and religiously and culturally-based opposition.

## **V. POLICY IMPLICATIONS**

The Yemeni government is aware of the enormous challenges that it faces in human development, especially as it affects its youth population. A major sign of this awareness is the fact that Yemen is one of the only Arab countries to have issued a National Youth Strategy. However, due to major resource and financial constraints and even more limited institutional capacity, this strategy has not been fully implemented.

We set forth three broad recommendations to guide policymakers in dealing with issues affecting youth inclusion in Yemen and argue for greater development assistance to help Yemen overcome its twin human development and resource deficits.

First, we advocate for youth policies to take a holistic approach—addressing the various aspects of young people’s transitions to adulthood together rather than tackling each problem or sector on its own. Second, we recommend that policymakers focus on improving outcomes for women, especially those in rural areas. Finally, we suggest that policies be carefully tailored to take into account the micro-economic factors that affect youth outcomes, such as the distance women and girls must travel to attend school or access health care or the obstacles they face because schools, health facilities, and workplaces are not perceived as safe spaces for women.

Yemen faces many challenges in promoting youth inclusion, but focusing on assisting this important group will have positive benefits for the country for years to come. We make a strong plea for Yemen to receive greater amounts of development assistance both from Western donors as well as from its oil-rich neighbors in the Arabian Peninsula. The human development and natural resource challenges Yemen faces are daunting and it is unlikely that Yemen will be able to address them on its own, given its dwindling oil wealth. A large injection of development assistance on the part of Yemen’s richer

neighbors would be an excellent investment in regional stability. The neighboring Gulf countries should also consider adopting more open migration policies with respect to Yemeni labor to relieve

some of the intense pressure on Yemen's limited arable land resources and its overcrowded urban labor markets.

## I. YOUTH EXCLUSION IN CONTEXT

With over 75 percent of its population under 25 years of age, Yemen's population is one of the youngest in the Middle East. Unlike many countries in the region where the youth bulge has already peaked, the share of youth in Yemen's total population will not begin to diminish for many years to come. Under the right conditions, a large youth population can foster economic growth and stimulate social development, but Yemen's challenge of turning its youthful population into a demographic dividend is daunting because of deficits in both human development and natural resources, deteriorating economic and political conditions, and social and institutional obstacles that impede youth from reaching their potential.

The human development challenge facing Yemen today is highlighted by its poor performance across a range of development indicators. Yemen ranks 138<sup>th</sup> out of 179 countries on UNDP's Human Development Index and 148<sup>th</sup> on combined primary, secondary, and tertiary gross enrollment (UNDP 2008). Yemen also faces one of the largest gender gaps in human development in the world. For instance, in gross primary enrollment rates, it ranks as the country with the fifth largest gender gap in the world (UNDP 2007).

The macroeconomic and political conditions in Yemen are also important contributing factors. In 1990, the Yemen Arab Republic (YAR) in North Yemen joined with the People's Democratic Republic of Yemen (PDRY) to form a unified Yemeni state. Shortly thereafter, Yemen fell out of favor with the U.S. and many of its Arab neighbors by refusing to fight against Iraq during the first Gulf War. Saudi Arabia shut its doors to Yemenis and nearly one million migrants returned to Yemen, representing an eight percent increase in population (Colton 2001). Combined with political unrest within the country and the eventual civil war of 1994, the Gulf War marked the start of a period of decline for Yemen. Poverty and unemployment rose, educational attainment fell and inflation skyrocketed (Colton 2001, Hashem 2007). The effect of these setbacks still lingers in the country today as instability and conflict in the region persist.

Finally, institutional factors also play an important role in Yemen's human development deficit. Social-

ly conservative norms limit girls' access to education, restrict women's employment opportunities, and encourage them to marry early and bear a large number of children. Longstanding policies to protect the Yemeni middle class, including policies that resulted in a bloated bureaucracy and provided lifetime job security to government employees, have hampered the development of the private sector and reduced employment opportunities for youth. An education system accustomed to producing the credentials needed for people to join the bureaucracy is ill-suited to the task of producing the skills necessary for a dynamic private-sector led economy, resulting in a skill "mismatch" in the labor market. Social assistance programs in this resource-poor country have historically had limited outreach and impact. Finally, the usage of qat (*Catha edulis*), a major pastime activity among Yemenis including young people, has serious adverse consumption, productivity and health consequences. Qat cultivation also depletes scarce water resources and crowds out the production of essential food crops and agricultural exports.

All of these factors lead to the exclusion of a large portion of the youth population in Yemen. The World Bank identifies 60 percent of young people in Yemen as being disadvantaged. These youth have a high incidence of illiteracy, limited access to basic education and weak prospects for employment. Their exclusion spans the life cycle, making it difficult for them to access the resources and support they need to productively participate in society. Youth exclusion is a cumulative, multi-dimensional process (Silver 2007). For example, obtaining a job with an adequate income depends on one's ability to obtain a quality education, and a youth's marriage prospects might rest on his ability to demonstrate that he has a stable income. A young girl's early marriage might cut short the length of her education, while staying in school might delay marriage and decrease fertility.

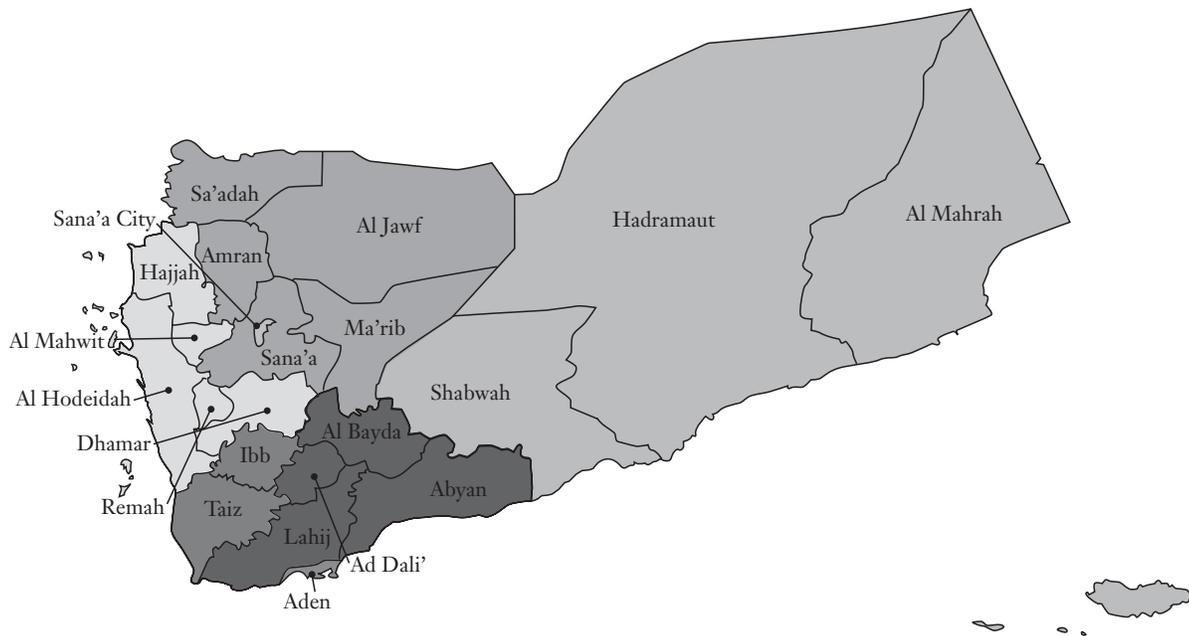
Our analysis shows that a number of attributes determine the level of exclusion for a young person in Yemen. The first of these attributes is gender. Youth exclusion in Yemen is gendered in nature, with women and girls being systematically disadvantaged. Girls are much less likely than boys to enroll in school and, even when they make it to school,

they drop out earlier. Young women, even when well-educated, have more trouble obtaining paid employment. Women typically marry earlier than men and face a variety of unique health problems, such as the inability to access adequate prenatal care and increased probability of maternal morbidity and mortality. According to the World Economic Forum (Hausmann et al. 2007), the gender gap in Yemen is the highest among the 128 countries studied. The index includes economic participation and opportunities, educational attainment, health and survival, and political participation. Yemen ranks last in almost all of these sub-indexes.

Youth exclusion in Yemen is also region-specific. The regional diversity of Yemen is large and extends to topography, types of agriculture, politics, demography, access to education, access to employment and resource wealth. A young person's region of origin is essential to understanding exclusion in

more national urban areas such as Aden and Sana'a as it often determines the types of social networks that a youth can access. In this paper, we follow the regional distinctions used in the 1998 Household Budget Survey for our analysis. We construct seven regions where each is a composite of relatively similar governorates, as depicted in Figure 1.1. The two major urban areas, Aden in the South and Sana'a in the North, represent two of these seven regions. The Eastern provinces, which are generally among the wealthiest in Yemen, are aggregated as are the poorer regions of the North. The Western provinces, which include the important port of Al-Hodeidah and are the destination of many African immigrants as well as Yemeni returnees from the Gulf, form another region. The Yemeni highlands of Taiz and Ibb, the source of many immigrants to the United States, compose the sixth region. The Southern governorates form the final region.

Figure 1.1: Regional Classification of Yemeni Governorates



Gender and region specificities aside, our research shows that social status in Yemen is determined following a three-tier model of social hierarchy. The highest group is the *sayyids*, which claim ancestral origins outside Yemen and, in particular, to the north. The next group is the *qabilis*, meaning the “tribespeople,” who compose a majority of the rural population. The final group is generally referred to as the “butchers,” which serves as a catch-all for those individuals engaged in a variety of service work in urban centers. Intermarriage among these groups is quite rare and one’s ancestry can thus play a strong role in determining the types of opportunities that one might possibly have (Weir 2007).

There are several marginalized groups in Yemen whose youth have significantly restricted opportunities as compared to other Yemeni youth. The marginalized group that is most severely impacted by this is a group called the *akbdam*, which is a social group that has historically lived separate from other Yemenis and provided services that other Yemenis consider beneath them. The World Bank (2007) estimates that there are 130,000 children and young *akbdam* in Yemen, concentrated mainly in Al Hodeidah, Aden, Hajjah and Taiz. These

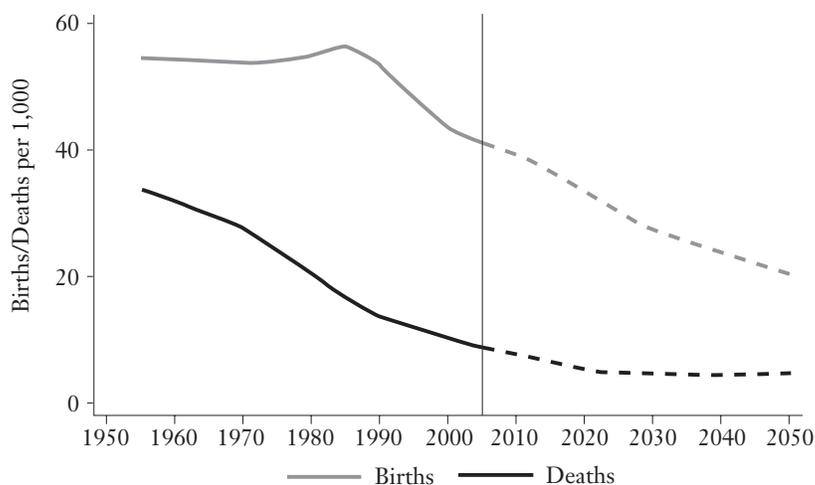
youth are usually poor, have low educational attainments and use begging as their main source of livelihood. In addition, the foreign youth refugee population (primarily from Somalia and Ethiopia) is a large and rapidly growing cohort who face significant exclusion challenges in Yemen, including access to citizenship, healthcare, employment, and education.

This paper focuses on three important transitions that take place during the life stage of youth: 1) obtaining an adequate education, 2) accessing employment and livelihoods, and 3) forming a family. We concentrate on these three life transitions because Yemen’s lack of resources and inflexible institutions impede young people’s successful transition into adulthood in these specific areas.

#### DEMOGRAPHY AND POPULATION GROWTH

The exclusion of youth in Yemen is all the more important because the youth population is increasing exponentially. High fertility rates in Yemen coupled with declining mortality rates have resulted in a high, steady rate of population growth of 3.4 percent (World Bank 2007). As Figure 1.2 shows, Yemen’s birth rates did not begin to decline until the

Figure 1.2: Birth and Death Rates, 1950-2050



Source: UN Population Prospects, 2005 Revision

late 1980s—substantially later than the declines in fertility witnessed in other Middle Eastern countries. Generally speaking, populations continue to grow for many decades after fertility begins to decline. Thus, Yemen can expect no relief from its bulging population in the near future, despite the recent declines in fertility.

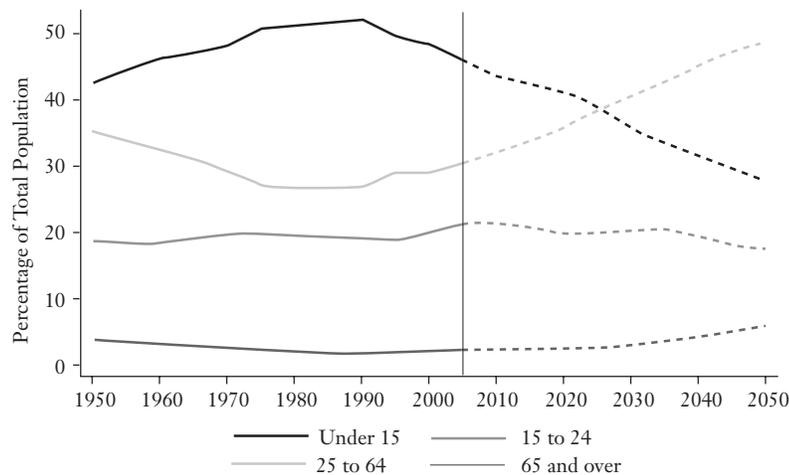
The high fertility rates and declining mortality rates have buoyed Yemen’s 15 to 24 year-old population, which will make up a steady 20 percent of the population for the foreseeable future. As Figure 1.3 shows, the recent declines in fertility will not affect the share of the youth population for many decades. Even as the proportion of the population under the age of 15 falls during the next four decades, the youth population will continue to constitute a large, steady proportion of the population. With the overall population of Yemen expected to triple by 2050, so will the youth population.

Young families in Yemen begin childbearing early and space their children closely together, creating a very high national fertility rate. Here, we use the total fertility rate (TFR) to describe fertility trends. The TFR is defined as the average number of chil-

dren a woman would have over the course of her childbearing years if she follows the current age-specific fertility rates. According to the 2003 Arab Family Health Survey (AFHS 2003), the TFR for Yemen for the period from 1998 to 2003 was 6.2 children per woman.<sup>2</sup> This rate finally began to fall during the 1990s after reaching a peak of 6.8 children per woman (United Nations Population Statistics 2005).

Fertility patterns show large regional differences. Unsurprisingly, total fertility rates are greater in rural areas (6.7 children per woman) than they are in urban areas (4.5 children per woman), but regional differences are strong even after controlling for rural-urban differences. Total fertility rates are very low in Aden and in the Eastern region. These figures show that the urban parts of some regions have fertility rates as high as or higher than the rural parts of those regions. This indicates that even Yemenis living in more “modern” urban areas, where space is precious and the cost of living higher, must provide for large families. Young parents who must care for the immediate needs of large families often lack the resources to invest in themselves. These parents might find it difficult or impossible to take low-paying jobs that would boost their human capi-

**Figure 1.3: Population Age Structure in Yemen**



Source: UN Population Prospects, 2005 Revision (Medium Variant)

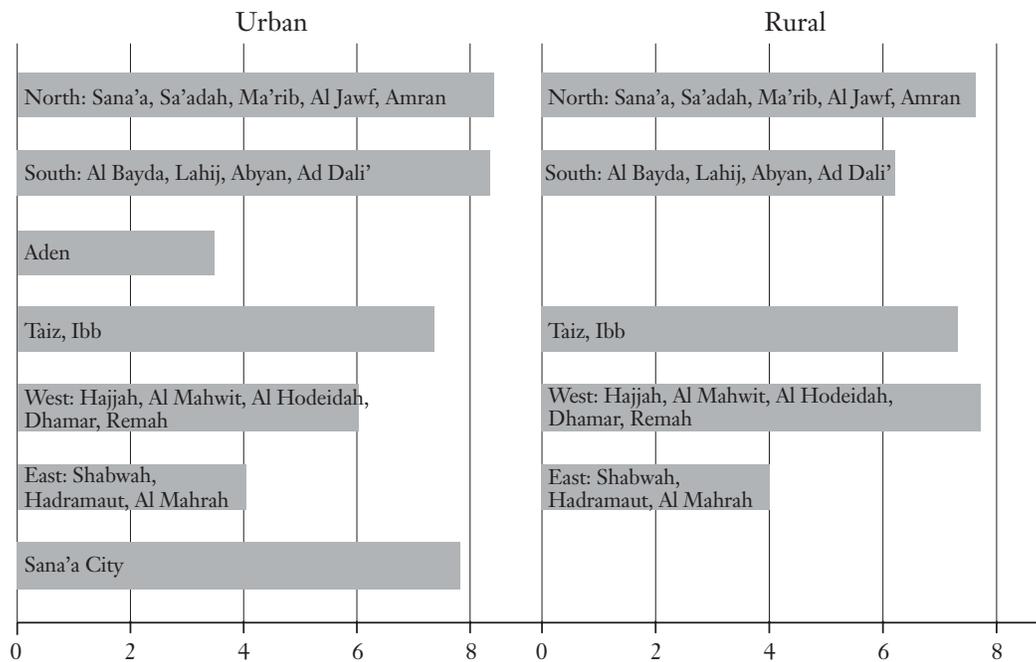
tal or to save financially for their future. It may also reduce their ability to invest in their children. Furthermore, high fertility, especially at young ages, poses a health risk to young women and may hinder their ability to work.

It is also important to note that childbearing occurs at young ages. Of all young women 15 to 19 years of age, approximately 7 percent had given birth to a child. Among married young women in this same age category, 48 percent had already given birth to at least one child and 15 percent had given birth to two or more children. These high rates indicate that childbearing occurs early in a marriage, even if the wife is very young. Of all young women under 29, 31 percent had given birth to at least one child, and 24 percent had given birth to two or more children. Of all married young women under 29, 80 percent had given birth to at least one child and 61 percent had given birth to two or more children.

These high fertility rates make the challenges facing youth all the more difficult. As long as fertility rates remain high, the population will continue to boom, spreading thin already strained resources. The high fertility rates also pose an immediate challenge to youth. Early marriage and high fertility limit opportunities for young women in other areas of their lives, such as employment or education. Expectations of high fertility mean that employers are hesitant to hire females who they believe will soon leave their jobs to raise their large families (World Bank 2007).

Yemen introduced family planning services in the 1970s. These services were first offered in urban areas, but eventually spread to rural regions. Contraceptive use is still limited, especially in rural areas (Worm 2007). According to the 2003 AFHS, 37 percent of married youth had ever used contraception. Our analysis of this data shows that contraceptive use increases with age even after controlling for

**Figure 1.4: Total Fertility Rate by Region**



Source: AFHS 2003

the length of time a woman has been married. Thus, young married women are especially prone to not use contraception. Indeed, young wives report that they want to bear children immediately. Of women pregnant at the time of the survey, only 5 percent of teenagers stated they did not want their current pregnancy, compared to 23 percent of 20 to 29 year-olds and 50 percent of women over 30.

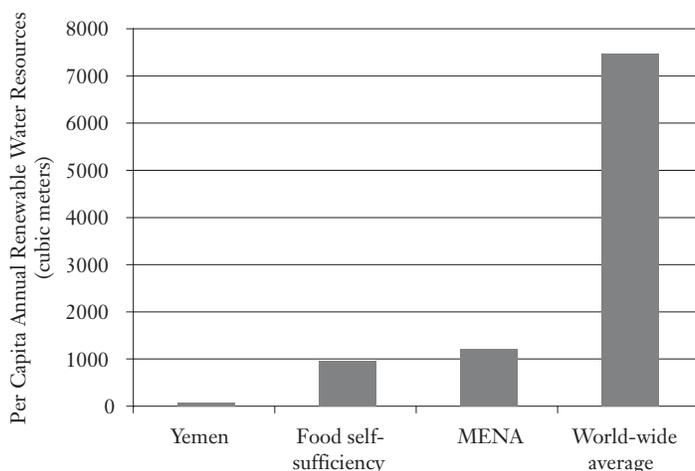
Other factors affect contraceptive use as well. For instance we find that women living in urban areas are 2.5 times more likely to use contraception than women in rural areas, even after controlling for educational differences. Descriptive statistics show that 60 percent of ever-married young women living in urban areas had ever used contraception while only 27.5 percent of ever-married young women in rural areas had done so. Education also has a large impact on contraceptive use, but this need not be extensive education. Finishing basic education had the largest impact on a women's likelihood of using contraception. Finally, contraceptive use varies by region: women in western Yemen have the lowest rates while women in Sana'a City have the highest rates of contraceptive use.

## RESOURCE CONSTRAINTS

Yemen has always been a nation of scarce resources: the water supply is particularly meager, and much of the land is not arable due to the country's difficult topography. Yemenis have long lived in careful balance with these resources, developing creative ways of using them in a sustainable manner. However, the recent surge in population, the use of new technologies, the rise of urbanization, and weak policies regarding resource management have all tipped this careful balance. Yemen is now exploiting its resources—especially water, oil and land—much faster than they can be replenished, setting the country up for future crises. Moreover, steadily high fertility rates continue to increase the population pressures on these already scarce resources.

Yemen is an extremely water-scarce country. With an estimated 2.1 billion cubic meters of annually renewable water resources that must be divided amongst 20 million people, Yemen has a mere 105 cubic meters of annual renewable water resources per person (Ward 2007). The world-wide average is 7,500 cubic meters per person, and the regional average in the water-scarce Middle East is 1,250 cubic

Figure 1.5: Per Capita Annual Renewable Water Resources



Source: World Bank 2007

meters per person. To be food self-sufficient, a country must have at least 1,000 cubic meters per person—meaning that Yemen has about one-tenth of the water it needs to be food self-sufficient in the long term (Ward 2007). Figure 1.5 clearly depicts the seriousness of the water shortage in Yemen. The World Bank (2007) estimates that Yemen's water use exceeds its renewable allotment by almost one billion cubic meters per year. Yemen's aquifers drop by about six meters each year and are expected to run dry in 15 to 50 years.

Oil is a critical contributor to the Yemeni economy. The income from oil has helped keep many Yemenis from falling below the poverty line, and oil and gas revenues have helped to support social programs such as the Social Welfare Fund (World Bank 2007). The new Yemen LNG project was launched in 2005 in order to expand the country's production and export of natural gas. However,

Yemen's oil supply is being depleted quickly. In 2000, oil contributed 17 percent to the real GDP. In 2005, this contribution had dropped to just over 12 percent. Production is expected to decline by 2-3 percent annually, with an eventual depletion in the 2020s (World Bank 2007).

Land resources are also scarce in Yemen. Al-Sanabani (2007) asserts that after a long history of maintaining the sustainability of land in Yemen, recent population growth, urbanization, a focus on marketable crops, and a lack of land maintenance have compromised these efforts. Yemen has 1.66 million hectares of arable land, of which 64 percent is cultivated. The United Nations Population Fund (UNFPA) estimates that the per capita allocation of land was 0.07 hectares in 2004 and will fall to 0.03 hectares per person by 2034, using the medium variant UN population projection.

## II. EDUCATION

Yemen's constitution guarantees all citizens the right to an education, yet Yemen has some of the poorest education indicators in the world (Al-Abasi 2007). Enrollments are low, retention is poor, and illiteracy is widespread. These problems are pervasive throughout the country, but they disproportionately affect women, the poor and rural residents. Education is a critical investment for youth. Poor educational attainment and poor quality education make youth ill-prepared to contribute economically, participate in society, and invest in the human capital of the next generation. In this section, we briefly discuss the education system in Yemen. We then discuss the educational constraints faced by youth, including low enrollments, delayed entry and the poor match between educational outcomes and the needs of the labor market.

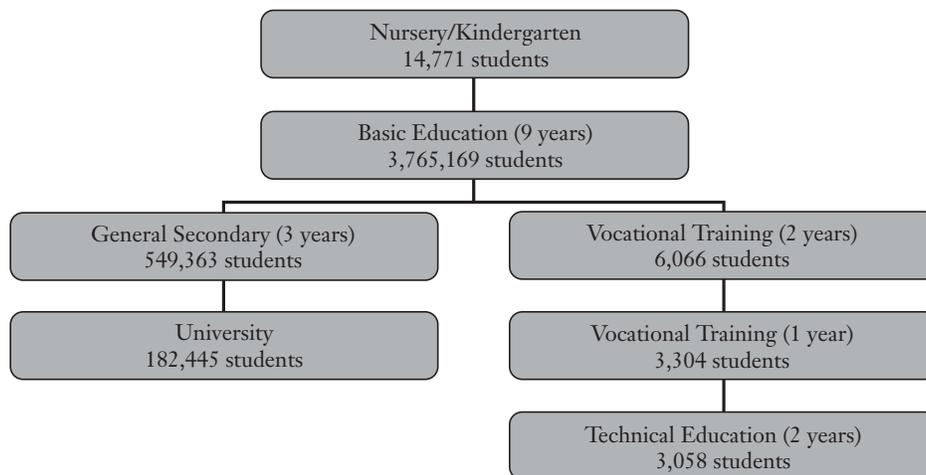
### YEMEN'S EDUCATION SYSTEM

After the 1990 unification of North and South Yemen, the newly merged Ministry of Education (MOE) based the new education system on nine years of basic education followed by three years of secondary education. Children are supposed to start basic education at age six, but they are legally al-

lowed to start anytime between the ages of six and nine—or even at age 10 in rural areas (MOE 2004). After the completion of basic education, students can decide to enter general or technical secondary school. General secondary school lasts three years and is designed to prepare students for university. Technical secondary school lasts either two or three years, depending on the track that the student chooses. Students who complete the three-year technical track (or who have graduated from general secondary school) are eligible to pursue a two-year technical higher education degree. As Figure 2.1 shows, most of the students enrolled in the Yemeni education system are in basic education—representing high drop-out rates at higher levels of education. Only a small proportion of students pursues secondary education and an even smaller group pursues higher education.

As of 2005/06, only 1.4 percent of Yemeni students was enrolled in technical and vocational education and training (TVET) (Central Statistical Office 2005/2006). TVET includes both tracks of vocational secondary school as well as higher technical education. However, this small group of TVET

Figure 2.1: Structure of the Yemeni Education System



Note: Enrollments are from the 2002/03 school year.

Source: Yemen National Commission of Education and Culture and Sciences, Ministry of Education, 2004

students is extremely expensive for the Yemeni government to subsidize: the per student cost of TVET is 5.6 times higher than the per student cost of basic education (Yuki 2003).

Similar to most education systems in the Middle East, entrance to university is determined by a student's score on an examination at the end of general secondary school. This test is based on rote memorization from textbooks. Little coordination exists between TVET and universities. Students who attend vocational secondary school are not permitted to enter university, although general secondary school graduates may attend higher technical institutes (MOE 2004). Of the budget for higher education, nearly one-third is spent on providing scholarships for students to study abroad, perhaps indicative of the government's acknowledgement of the weaknesses of the domestic education system (World Bank 2007).

The Government of Yemen spends 19 percent of its total budget, which translates to 6 percent of GDP, on education—a relatively large share for a low-income country. Although the majority (82 percent) of funding goes to general secondary education, the share of funding devoted to TVET and higher education is increasing (World Bank 2007). Despite the high level of funding, the Yemeni school system suffers from a lack of resources. Facilities are often overcrowded, especially in urban areas. Many rural students do not attend school because no schools are located within a reasonable distance (Al-Sharki et al. 2005). Low levels of private school enrollment do little to alleviate the burden on the public school system (Yuki 2003).

## EDUCATIONAL ENROLLMENT

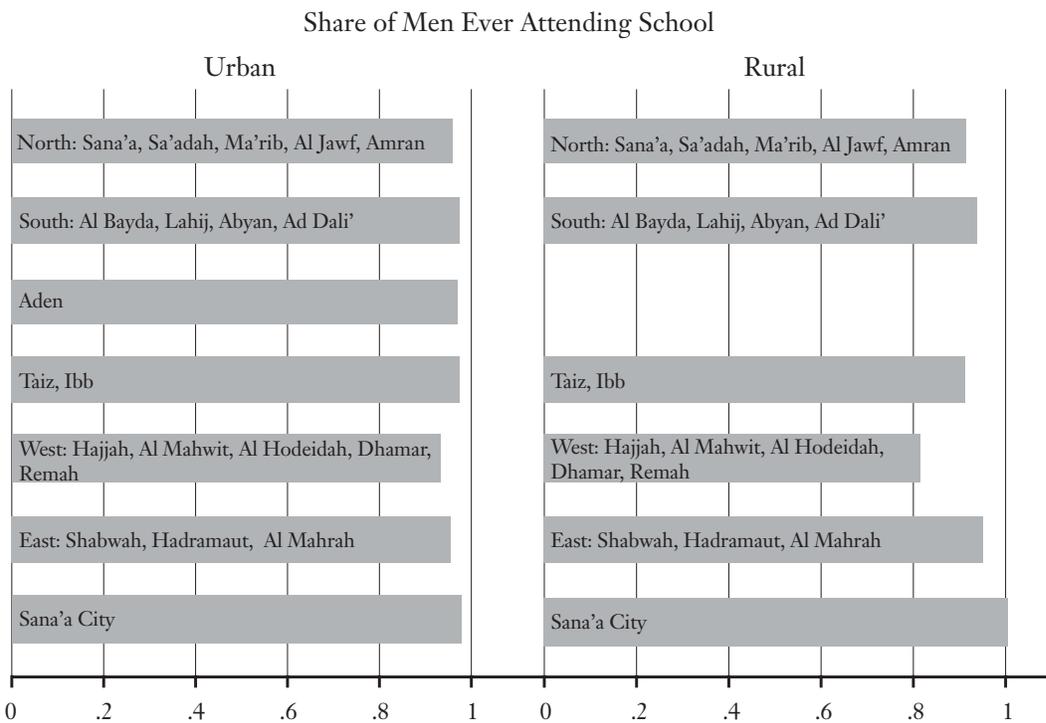
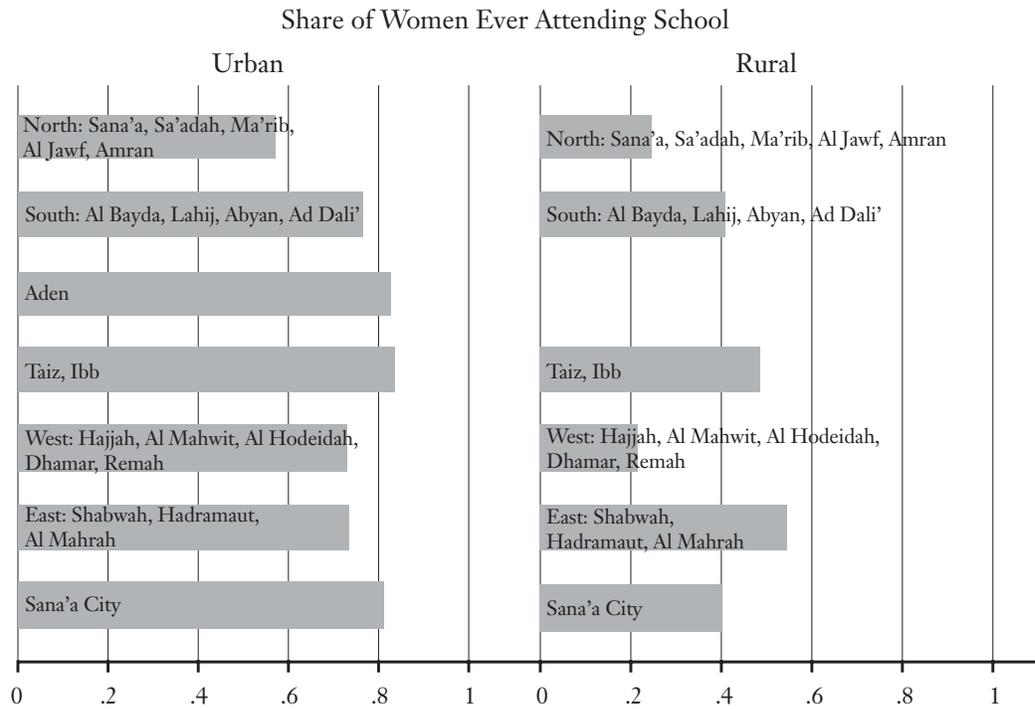
While educational attainment among youth in Yemen is low, most youth attend school for at least a short time. A little more than one-fifth of youth surveyed in the Household Budget Survey (HBS 2005/6) stated that they had never enrolled in school. Never-enrollment is almost exclusively a problem for girls: 5 percent of young men had failed to ever enroll while 35 percent of young women had failed to do so. Furthermore, the problem is much more pronounced in rural areas. Never-enrollment rates for rural and urban women are 63

percent and 20 percent, respectively; their low enrollment rates in rural areas are shown clearly in Figure 2.2. There are also some region-specific variations in school enrollment. Enrollments are high for youth in Aden, Taiz and Ibb, Sana'a City and the East. Rates are low for women in the North (Sana'a, Sa'adah, Ma'rib, Al Jawf, and Amran) and for rural youth in the West (Hajjah, Al Mahwit, Al Hodeidah, Dhamar, and Remah).

As indicated by the regional variation in enrollment rates, many factors can affect educational enrollment. According to the 1998 National Poverty Survey, 30 percent of families did not send their child to school because there was no school nearby and 13 percent of families could not afford school. Seventeen percent of families with girls ages six to nine said they did not want to send their girls to school, while 30 percent of families with girls ages 10 to 14 made this claim. Al-Sharki et al. (2005) argue that girls' families are not necessarily opposed to the idea of their daughters getting an education. Rather, these families object to the logistical circumstances of their daughters obtaining that education, such as the absence of female teachers, co-educational classes, a lack of female-appropriate sanitary and recreational facilities, and the peril of solitary travel to the nearest school. These factors are particularly pronounced in rural areas, which have trouble recruiting female teachers and which lack the volume of students necessary to justify gender-segregated classes or the construction of easily-accessible schools. Al-Sharki et al. imply that if some of these logistical circumstances changed, more families would decide to enroll their girls in school.

The Government of Yemen's attempts to increase enrollment of disadvantaged groups has witnessed limited progress. Comparing data from the 1994 census and a 1999 poverty survey, the Social Fund for Development (2001) contends that the average enrollment rate has been increasing by only one percent a year, further noting that it would take 40 years to provide schooling for all children six to 15, keeping the same rate. While enrollment has risen for children from wealthier backgrounds, enrollment of poor children actually fell between 1998 and 2005 (World Bank 2007). The Social Fund for Development (2001) argues that Yemen's challeng-

Figure 2.2: Share of Youth Ever Attending School



Source: HBS 2005/2006 and authors' calculations

ing topography and dispersed population makes it hard to reach all groups. This is evident in the low enrollment rates for rural residents and in the regional variation in educational enrollment.

### DELAYED ENTRY, REPETITION, AND EARLY DROP-OUT

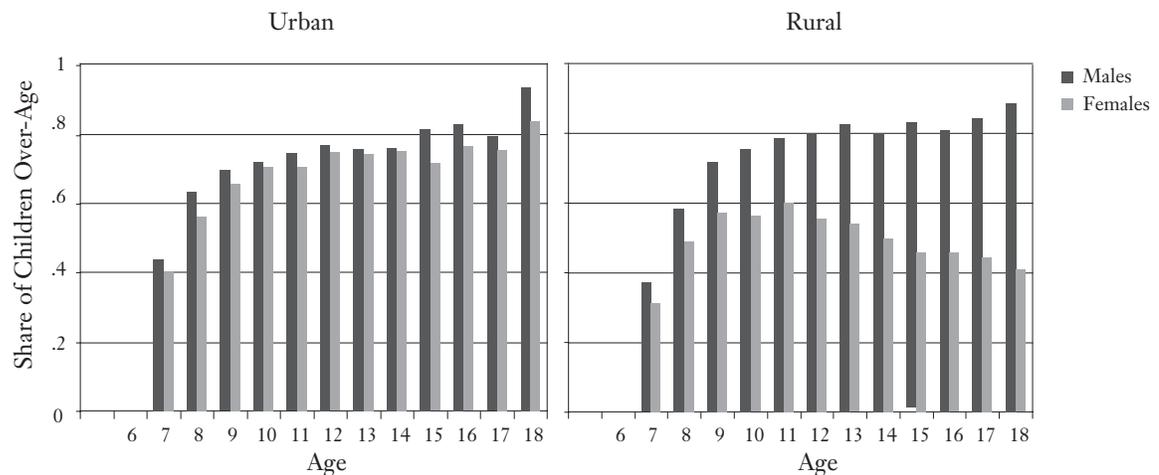
Young people in Yemen who do attend school often do so late, repeat grades, and/or drop out prematurely. Only 40 percent of youth start school at the recommended age of six years and more than 20 percent delay entry until age eight or later (Central Statistical Office 2005/2006).<sup>3</sup> Delayed enrollment constrains educational attainment by cutting short the amount of time spent in school. High rates of grade repetition also constrain the educational attainment of Yemeni youth. These high rates reflect both the low quality of education and the fact that families often accord a lesser priority to education when more pressing needs arise.

As shown in Figure 2.3, the over-age rates in Yemen are stunning. Delayed entry, combined with high rates of repetition, lead a majority of students in Yemen to be over-age for their grade. Following Pa-

trinos and Psacharopoulos' (1996) approach, we calculate over-age rates in Yemen by dividing the number of grades a student has successfully completed by the number of grades a student should have completed based on his or her age and the standard school enrollment age (in this case, six years old). Over-age rates thus include students with delayed entry, students who repeated grades and students who dropped out and then re-enrolled. By age eight, 60 percent of Yemeni boys are over-age and more than half of Yemeni girls are over-age. Over-age rates increase for most groups as students get older—indicating that students either repeat grades or that they move in and out of education. Both phenomena illustrate that the opportunity cost of education in Yemen is high and its benefit viewed as low.

Over-age rates for rural girls stand out as surprisingly low. Girls in rural areas are much more likely to be at the appropriate age for their grade than any other group. As all other groups become more likely to be over-age as they get older, rural girls demonstrate a marked decline in over-age rates after their 11<sup>th</sup> birthday. This phenomenon most likely

Figure 2.3: Share of Children Over-Age



Source: HBS 2005/06

reflects a selection bias—since few girls are enrolled in school in rural areas, those that are enrolled most likely either stay on track or drop-out. Moreover, rural girls who drop out of school most likely do so for permanent reasons, such as getting married or a family decision to no longer send their girls to co-educational schools, and thus are not likely to re-enter education at a later time.

Young people in Yemen who enroll in school often do not stay for very long. Figure 2.4 shows the share of students in each age group who are enrolled in school. These figures illustrate that girls are again disadvantaged, but rural girls have by far the lowest outcomes of any group.

We use Meyer’s (1990) hazard model to determine the factors that cut short the educational trajectory of these young people, as measured by years of education. (See Table A1 in Annex I for the results of this model. All subsequent tables referenced can be found in Annex I.) Negative coefficients indicate that the corresponding factor *increases* the length of time spent in education.

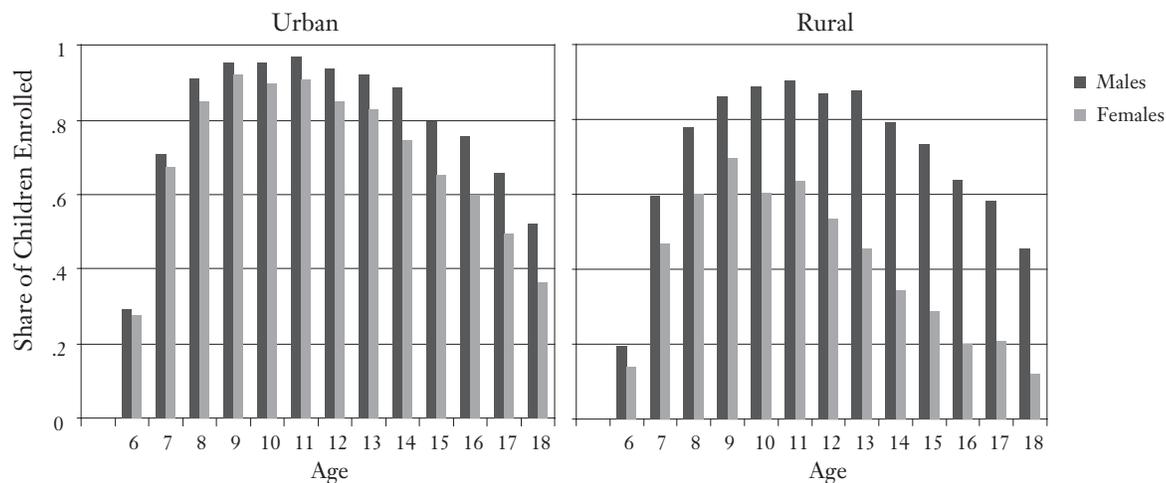
The hazard model shows that gender has a strong negative effect (positive coefficient) on the length of

education. Residing in an urban area has a strong positive effect on women, but a weak positive effect on men. Al-Sharki et al. (2005) note that urban areas are more likely to have female teachers and separate facilities for girls. Girls in urban areas are rarely required to travel long distances to reach their school building. Furthermore, girls in urban areas may not be required to do as much domestic work, such as fetching water and firewood, as girls in rural areas. The strong differences between the educational attainment of urban and rural women indicate the strength of these factors on the ability of girls to enroll in school.

The effect of parental education is dramatically gender-specific. Mothers’ educational attainment strongly affects their daughters’ longevity in school, although this factor has little effect on the educational attainment of their sons. Conversely, fathers’ education has a strong effect on boys but little effect on girls. Thus, policies that increase female education will have a positive intergenerational impact on girls and should be encouraged.

Regional factors are important in determining the number of years of education, but these factors are

Figure 2.4: Share of Children Currently Enrolled in School



Source: HBS 2005/06

particularly important for women. The North fares particularly poorly in terms of women’s educational attainment. Women fare the best in Taiz and Ibb, and in Sana’a. Women have poor educational attainment in Aden, which is surprising given that Aden has fairly high enrollment rates for women.

### EDUCATION QUALITY

Many students—especially women in rural areas—view education as irrelevant to their present and future work. Women in rural areas are expected to learn how to carry out domestic chores such as cleaning, cooking, caring for children, and fetching water and firewood. Thus, many families deem formal education for girls as a barrier that only delays the development of skills they will need in the future (Al-Sharki et al. 2005).

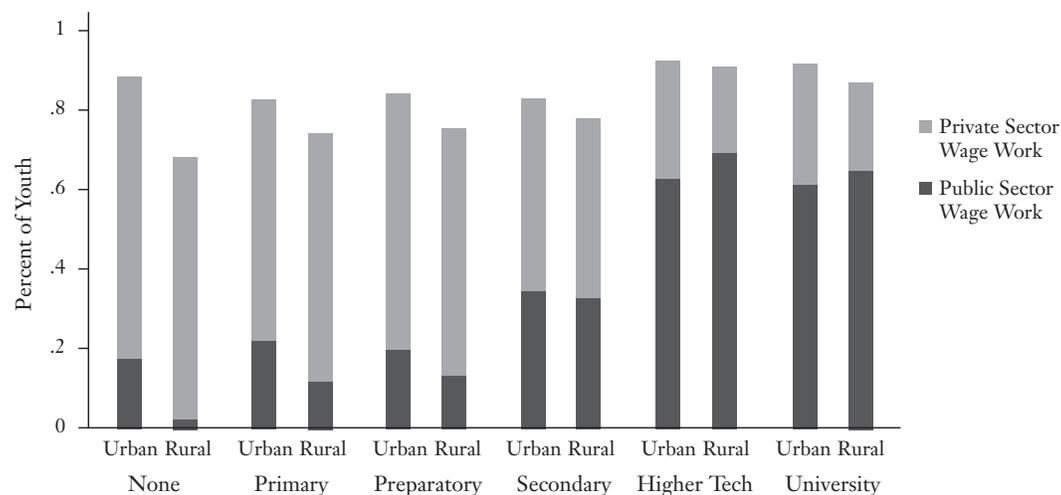
In any case, the education system in Yemen fails even those who are ready and willing to learn. Overcrowding in schools is common, with urban areas having an average of 90 students per classroom (Social Fund for Development 2001). Yemen’s shortage of educational facilities has forced the Ministry of Education to admit 50 percent of its students into

schools housed in unsuitable structures, including tents, caves, or the open air (Social Fund for Development 2001). Further, as many as 60 percent of teachers of basic education are unqualified for their positions (World Bank 2007). Teacher absenteeism rates are high. Teaching methods are limited to rote memorization from textbooks issued by the Ministry of Education and do not focus on developing critical thinking or other job-related skills (World Bank 2007). Because of these systemic deficiencies, the poor quality of education means that even well-educated youth are gravely unprepared for the job market.

### LINKS TO THE LABOR MARKET

As Figures 2.5 and 2.6 show, education has only a small effect on whether or not young men work, although it has a strong effect on the *type* of wage work performed by these men. Higher levels of education in rural areas have a modest but clear effect on males’ propensity to participate in wage work, while this effect is smaller for urban males. Males who have completed higher levels of education are much more likely to work in the public sector. As the number of youth in Yemen grows, com-

Figure 2.5: Type of Work of Youth by Educational Attainment: Males



Source: HBS 2005/06

petition for desirable public sector jobs will increase, making it difficult for even well-educated Yemenis to access these positions.

The effect of education on young women is much more pronounced, as shown in Figures 2.7 and 2.8. Few women work for wages, but those who do usually have received some type of higher education. Public sector work dominates all wage work—implying that private sector wage work is all but inaccessible for young women.

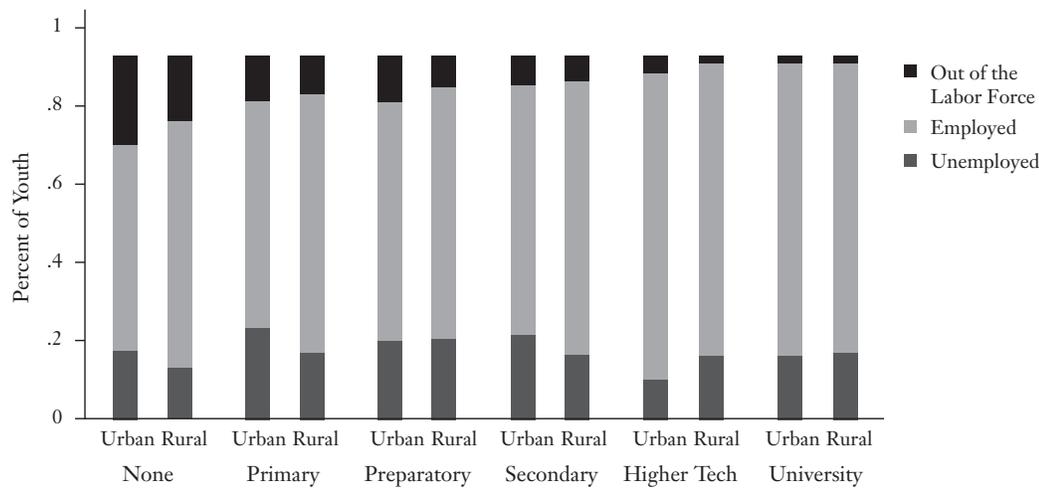
Higher education is not, however, a guarantee of finding a wage job. While it is true that more people with higher levels of education hold these jobs, often youth obtain higher levels of education with the hopes of obtaining such opportunities only to be frustrated by prolonged unemployment after graduation. This story is especially true for Yemeni women.

Unlike other Middle Eastern countries where higher levels of education raise the likelihood that one will be unemployed, data from the 1999 Labor Force Survey (LFS 1999) show the male unemployment rate for youth to be fairly steady regardless of

educational attainment (see Figure 2.6). Although there is some variation, youth unemployment hovers around 20 percent for all educational groups. Labor force participation is correlated with educational attainment—with men of the lowest levels of education (or none at all) showing the greatest propensity to be out of the labor force.

Educational attainment, however, has a dramatic effect on young women’s labor force participation and propensity for unemployment. Very few women with less than a secondary school education participate in the labor force (see Figure 2.8). Women with higher levels of education are more likely to participate in the market and are therefore more vulnerable to unemployment. Thus unemployment is high for women with higher levels of education, especially for those with university degrees. In urban areas, roughly 40 percent of women with university degrees are unemployed while this figure is only slightly lower in rural areas. While only a small number of young women are able to attain high levels of education, those who do are ready and willing to work. However, these young women are shut out of jobs despite their perseverance in seeking posi-

**Figure 2.6: Employment Status of Youth by Educational Attainment: Males**

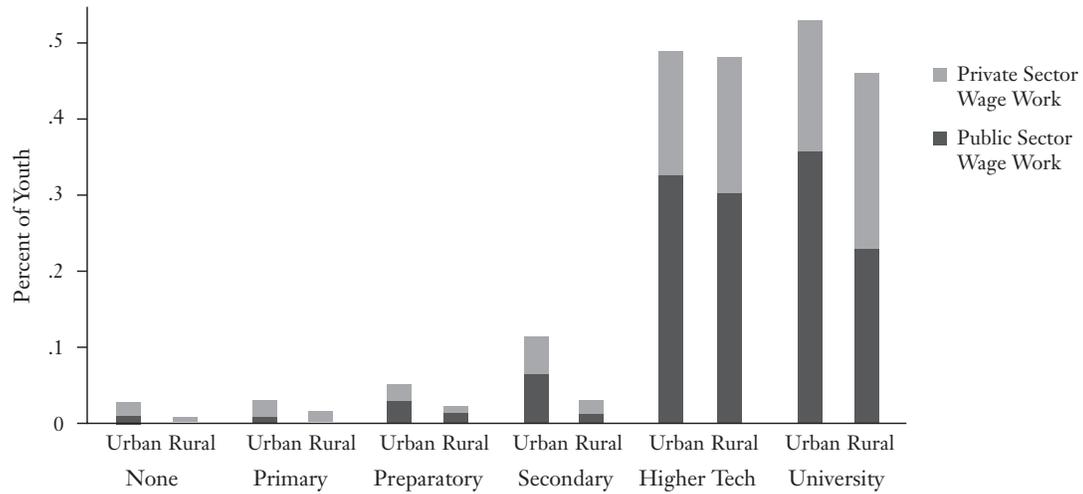


Source: Labor Force Survey 1999

tions, as shown by the high rates of unemployment coupled with low rates of inactivity. This high unemployment might be due to a tightening of the

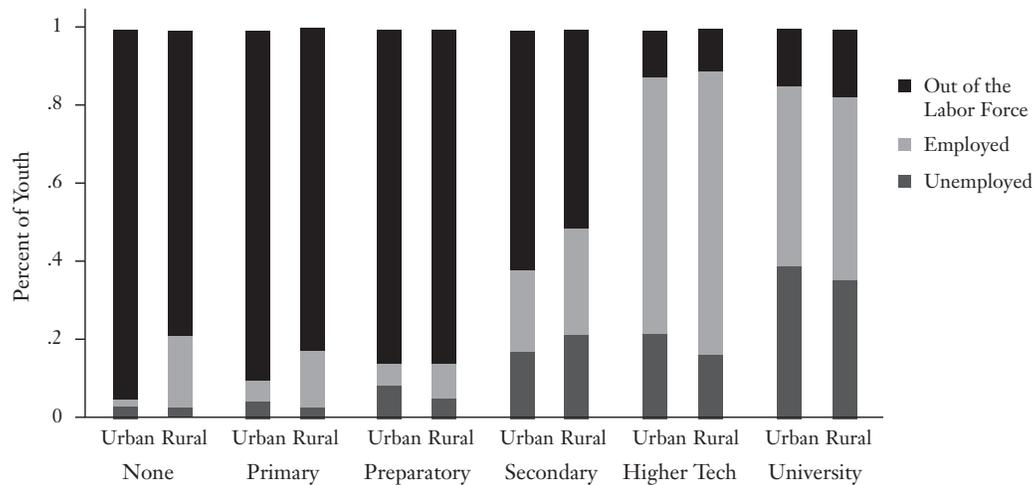
labor market for public sector jobs coupled with the inaccessibility of private sector jobs for women, as shown by Figure 2.7.

**Figure 2.7: Type of Work Among Youth by Educational Attainment: Females**



Source: HBS 2005/06

**Figure 2.8: Employment Status of Youth by Educational Attainment: Females**



Source: Labor Force Survey 1999

### III. EMPLOYMENT AND LIVELIHOOD

In this section we begin by analyzing the three central aspects of employment and livelihood: participation in work and access to employment, formality and informality of the youth labor market, and the wages and income of these youth. We then explore the impact of migration, the importance of remittances, and the impact of qat, which are all central to understanding both the opportunities and challenges that these youth face. In each case, we explore the challenges that youth face and the factors that affect these challenges. We conclude with a policy section that discusses some of the existing efforts of the Yemeni government and provides some suggestions for future policy.

#### LABOR FORCE PARTICIPATION

Our analysis here explores how gender, region, education and a variety of other factors affect youth employment and their participation in paid and unpaid work. Understanding the factors that affect employment and livelihood is essential, because work is one of the most important aspects in the lives of Yemeni youth. Cognizant of the important role that the labor of young Yemeni women plays in the household, in addition to the work that some of these women do for pay outside the home, we analyze paid and unpaid family work, including domestic work, separately. Finally, we examine the possibility of underemployment among working youth by looking at the number of hours worked by those that do engage in paid work.

Participation in various kinds of work and total number of hours worked are constructed based on the activity of the youth during the seven days prior to the survey. The type of work done by Yemenis is divided into five categories in our data: non-market subsistence and domestic work, two types of wage work (agricultural and non-agricultural), and two types of non-wage work (agricultural and non-agricultural). For this analysis we will aggregate together the four latter categories and collectively refer to them as market work, whereas the first category will be referred to as non-market work. By including subsistence and domestic tasks in our definition of work, we are using a more expansive definition of work than the definition used in most labor force statistics. We do so in order to capture the signifi-

cant contribution of Yemeni women to livelihood activities.

Figure 3.1 shows the percent of youth engaged in market work disaggregated by age, gender and region. The very low rates of market work for women are unsurprising, as women are much more likely to engage in domestic and subsistence work. However, young men are far from being universally engaged in market work.

Though the probability that women engage in market work is low, it increases significantly with age, with nearly 20 percent of urban women in their upper 20s reporting doing market work. Market work among urban women is almost entirely non-agricultural, while rural women are engaged in primarily agricultural non-wage work.

When the analysis is broadened to include all work activities, including unpaid non-market domestic and subsistence work, young women of all ages in both urban and rural areas are more likely to be working than young men. In Figure 3.2 we graph the age profile of all youth who are working, including both market and non-market work, again comparing rural and urban areas. This figure demonstrates that women of all ages in both urban and rural areas are more likely to be working than men. This gap, which is particularly large among younger youth, reflects the important role that young women play in household-based subsistence and domestic activities.

Comparing Figures 3.1 and 3.2 it is clear that, while the majority of men who work are employed in market activities, a significant number of men are engaged in non-market work—especially younger men and those in rural areas. For example, over 35 percent of 15-year old rural men report working the previous week using the broader definition of work, while only 20 percent are engaged in market work.

In order to examine the impact of location, gender and a variety of other factors on participation in any kind of work while controlling for age, we use a multiple regression model where the dependent variable is a binary variable equal to one if the individual is working and zero otherwise. As the factors

affecting participation in market versus non-market work are likely quite different, we analyze participation in each of these types of work separately. Table A2 reports the results from this analysis, which was restricted to include only youth ages 15 to 29.

In Table A2, the strong gender division in terms of the probability of working is clearly demonstrated, with gender being the strongest predictor of the probability of working in both market and non-market work.<sup>4</sup> As demonstrated by Figures 3.1 and 3.2, women are much less likely to participate in market work and much more likely to participate in non-market work.

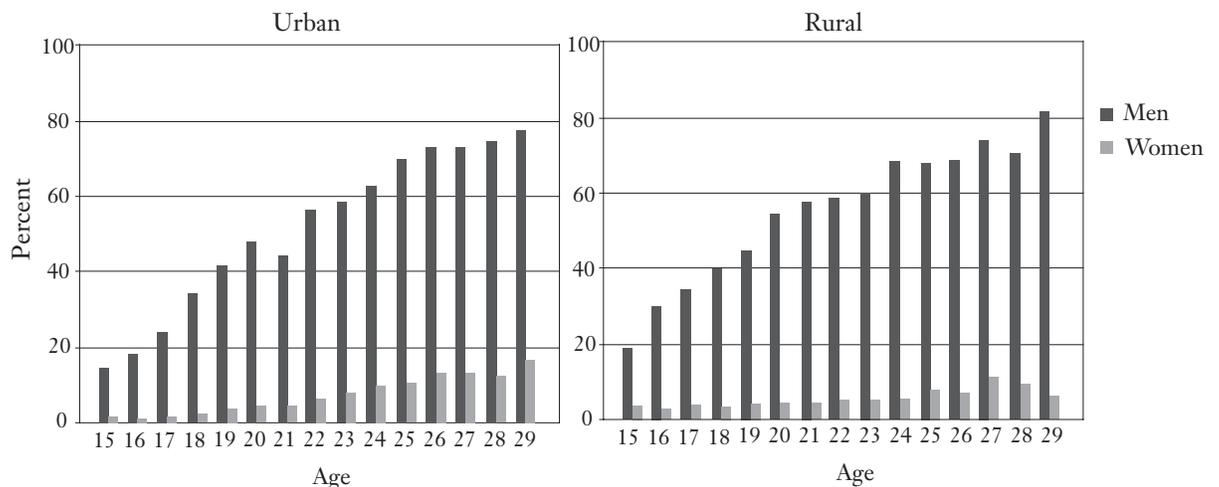
Table A2 illuminates several important factors that affect young men's participation in work. First, education seems to have a non-monotonic effect on the probability of working. While men who have some type of education are more likely to engage in market work than those that are illiterate, high school and university graduates are significantly less likely to be employed in market work than graduates of either primary or lower secondary schools. While this likely indicates a lack of opportunities for these more educated individuals, it may also indicate that

these youth have a higher reservation wage and are therefore more likely to remain unemployed as they search for the right job. In the case of high school graduates, their lower probability of employment may simply be due to the fact that they are continuing their schooling.

Second, men who are married are much more likely to have market work than those that are not married. However, rather than indicating that young men are encouraged to find employment upon getting married, this reflects the importance of market work in making men eligible for marriage. Third, migration has a positive effect on the probability of market work for men, indicating that men likely move to a new area only if they know of an opportunity for employment. Fourth, the probability of market work increases with age and the probability of non-market work decreases with age. This suggests that young men are expected to contribute to subsistence and domestic chores within the household until they secure market work.

Last, the strong regional impact on the probability of market work demonstrates the high variance in employment rates across different regions of the

**Figure 3.1: Share of Youth Engaging in Market Work by Age, Region, and Gender**



Source: HBS 2005/2006

country. Indeed, region is the strongest predictor of market work among men in this multivariate analysis. As an example, the large negative coefficient on the “Aden” variable indicates that men living in Aden are much less likely to be employed in market work as compared to the control group, which is made up of the poor governorates of the North. This analysis indicates that the two poorest regions, the governorates of the North—the excluded group—and the Western governorates (Hajjah, etc.), have the lowest rates of male non-employment. The predominance of agriculture in these two regions as compared to the other regions, with the exception of the Southern region (Al Bayda, etc.), suggests that the difference in the nature of local economies may explain the low levels of non-employment in these two regions. However, less than a third of total employment in the Northern governorates and only 20 percent of employment in the Western governorates is engaged in agriculture, so this is unlikely to be the only explanation.

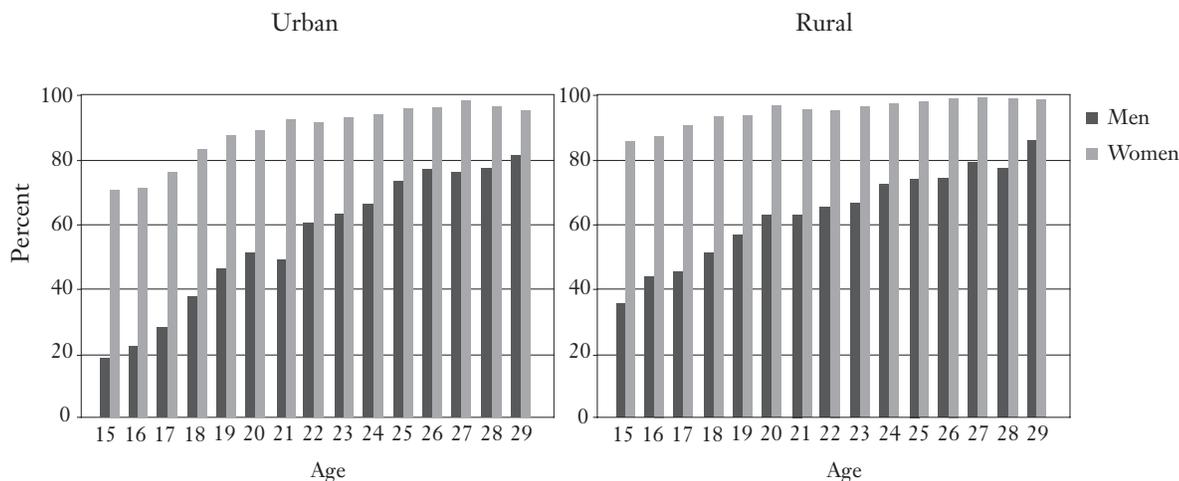
Education, marriage, migration and region also have strong effects on women’s participation in work, as shown in Table A2. For women, education

seems to be a measure of social class as well as a way to gain access to the labor market. Highly educated women provide less subsistence and domestic work and more market work than less educated women. Married women, unsurprisingly, are much more likely to be involved in domestic and subsistence work, as they are typically the primary caregivers of children and hence often confined to the home. Market and non-market work are not typically substitutes for women; women who work for pay also engage in significant amounts of domestic work. However, the higher burden of domestic work for married women clearly precludes significant levels of participation in market work.

Interestingly, similar to men, women who are migrants are significantly more likely to engage in market work. This result is unusual as it suggests that many women may be migrating in search of employment and not only for marriage, which is often discussed as the central reason for female migration.

The variation in female participation in the labor force between urban and rural areas and across the regions of Yemen is indicative of the differing struc-

**Figure 3.2: Share of Youth Engaged in Any Kind of Work (including Non-Market Domestic and Subsistence Work) by Age, Region, and Gender**



Source: HBS 2005/2006

ture of the economies in different parts of the country. Young women in urban areas are less likely to engage in both market and non-market work. This likely reflects the lower subsistence and domestic work burdens in urban areas and the fairly limited opportunities for women to engage in market work outside agriculture. The higher rate of female participation in market work in the northern governorates may reflect the important role that women play in agricultural production in this region. However, only 8 percent of the women in the sample reported engaging in market work and there may be regional variation in the types of work that women consider to be market versus non-market.

In Figure 3.3 we explore the possibility of visible underemployment among employed youth by examining the hours of paid work undertaken by these youth. We find little evidence of underemployment, as the average number of hours worked per week by men of all ages exceeds 40 and approaches 50 for some age groups in both urban and rural areas. Interestingly, women who do participate in market work average over 30 hours of work per week in urban areas, and 20 in rural areas. This indicates

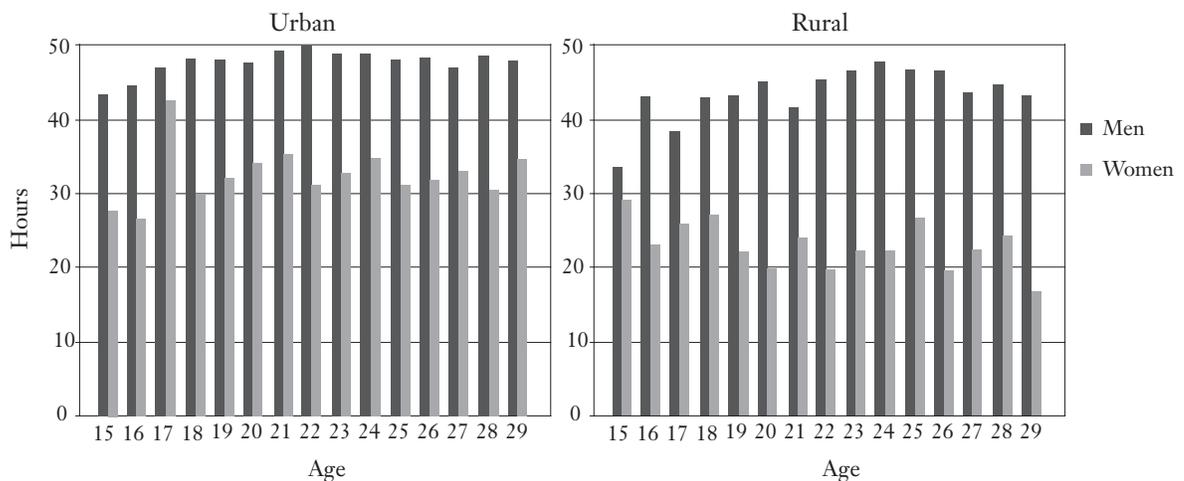
that many of these women are working in full-time positions and not just part-time jobs to supplement family income.

Finally, many Yemeni youth are active in the labor force while they are still in school, which has important implications for the development of human capital. Nearly 20 percent of male students ages 15 to 29 are actively working under the expansive definition of work, providing an average of 35 hours of labor per week. A much higher two-thirds of female students ages 15 to 29 are working an average of 26 hours per week. To the extent that female labor likely represents domestic work and chores, the long hours worked by these women may have deleterious effects on the quality of their education. This may be the case for young men as well, though there is a greater likelihood that they are able to gain a wider range of skills in a variety of work experiences outside the home.

#### FORMALITY AND INFORMALITY OF EMPLOYMENT

There are two different types of formality in paid employment. The first, and more restrictive, definition of formality includes only those positions that

**Figure 3.3: Average Hours of Paid Work for those with Paid Employment**



Source: HBS 2005/2006

provide either health insurance, pension or paid leave, referred to as “formal wage and salary employment.” Less than 10 percent of Yemeni youth have positions satisfying this definition. A second definition of formality provides a better description of the labor market and includes anyone working for a wage or salary.

In Figure 3.4 we compare the shares of youth engaging in market work, youth working for a wage or salary, and youth engaged in formal wage and salary employment. Approximately two-thirds of men engaged in market work earn a wage or salary, suggesting some degree of formality in their employment. However, only 26 percent of employed men in urban areas and 17 percent in rural areas have formal employment that includes some benefits. As the vast majority of these formal positions are with the government or public sector, this suggests that the private sector has been unsuccessful in creating preferable formal positions which would attract highly skilled youth.

Among young women, though the proportion engaged in market work is quite small (under 8 percent), there is a striking difference between urban

and rural areas. In rural areas, the vast majority of market work for women is non-wage work in agriculture. In urban areas, most female market work is wage and salary work, and about half of that is formal. However, nearly 89 percent of urban women’s formal employment is in government, once again showing the limited reach of private sector opportunities.

### YOUTH INCOMES

In this subsection we explore the variety of individual characteristics that affect the earning potential of young people. We study the factors affecting hourly wages and total monthly earnings separately. While examining hourly wages is more standard in this type of analysis, we believe it is also useful to study the total monthly earnings of these individuals to account for the differences in hours worked by sub-group.

For this analysis we necessarily have to focus on only the individuals that engage in labor for a wage, for those are the only individuals for which we can link personal characteristics to earnings. As this represents a restricted group of all individuals doing

**Figure 3.4: Share of Youth Engaging in Market Work, Wage and Salary Work and Formal Wage and Salary Work**



Source: HBS 2005/2006

*The monotonic effect of higher education among men and women, for both hourly wages and total monthly earnings, reflects the importance of education for these youth. Indeed, a young man with a primary education earns 30 percent more than a comparable man with no education, and a young man with a high school education receives approximately 40 percent more than a young man with only a primary education.*

market work (as shown in Figure 3.4), and as this group is likely to be non-randomly selected from among the population, estimates based on this potentially select sample are likely to be biased. Though a variety of techniques exist to “correct” for this selection bias, we do not believe that these techniques are feasible with our data. Indeed, the familiar Heckman selectivity correction approach requires an instrumental variable that affects selection into wage employment but that does not affect the wage itself. Such a variable is not available to us. Most other techniques rely on an assumption of *selection on observables* that would not necessarily hold here.

The estimates provided here for earnings are thus conditional on having been selected into the wage work sample. An important example of the consequences of such selectivity is the high hourly wage reported for women below. Since only women with relatively high earnings potential get selected into the wage sample, the measured wages for these women will be significantly higher than those for a randomly selected woman. Moreover, women who do work for wages in Yemen are most likely to be found in the government, where the wage determination process is based on administrative rules rather than market forces.

Table A3 reports results for the analysis, where the dependent variable is either the log of the hourly wage rate or the log of total monthly earnings. Interestingly, while the effect of gender is significant for the hourly wage rate, with women getting paid more than men, there is not a significant difference

in total earnings between men and women. This results from the fact that, in Yemen, women wage-workers spend fewer hours in such work than men.

The monotonic effect of higher education among men and women, for both hourly wages and total monthly earnings, reflects the importance of education for these youth. Indeed, a young man with a primary education earns 30 percent more than a comparable man with no education, and a young man with a high school education receives approximately 40 percent more than a young man with only a primary education.

While living in an urban area has only a weak positive effect on wages and earnings, individuals living in Sana’a City and the Eastern governorates enjoy much higher wages than young people living elsewhere. Earnings in the Eastern governorates are 70 percent higher than the rest of the country excluding Sana’a City, which itself has earnings that are 30 percent higher than the rest of the country.

## **MIGRATION**

In this section we provide some background on the incidence and patterns of migration and conclude by discussing the implications of this migration on the lives of Yemeni youth. The importance of migration for Yemeni youth is demonstrated in Figure 3.5, where we plot the share of migrants among youth in urban and rural areas. In urban areas, the share of migrants among youth is over 35 percent for both men and women, and in Sana’a City nearly 60 percent of youth are migrants. This high inci-

dence of migration reflects the recent urbanization in Yemen as both youth and families move to urban areas in search of work. As expected, the incidence of migration is low in rural areas. But interestingly, more than twice as many rural young women are likely to be migrants than rural young men. This probably reflects the fact that women are more likely to move to join their husbands' families when they get married.

Most migration of youth is from rural areas, though there is a significant amount of migration among urban areas and a bit of migration from urban to rural areas (Figure 3.6). Migration to Sana'a City from other urban areas reflects the perceived benefits that the capital has in terms of access to employment. As our data has no information on the motivation for migration or the economic conditions of a household before migration, it is difficult for us to speculate on what may be driving migration between urban centers.

As a final effort to get a better sense of the migratory flows of youth in Yemen, we examine the destination of youth migrants by their region of origin in Figure 3.7. While much of the migration is from

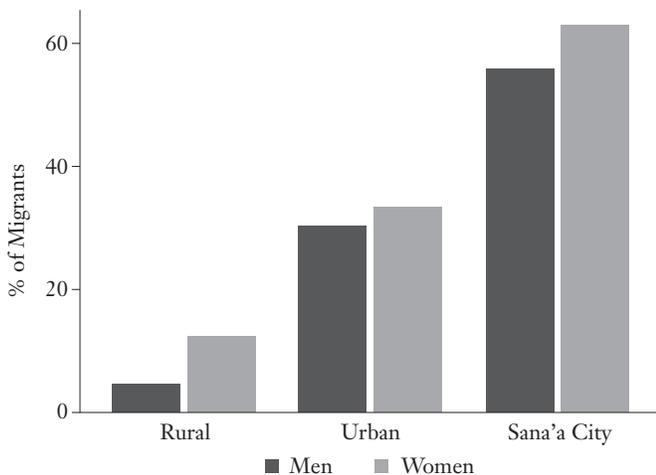
rural to urban areas, there is a lot of emigration from the southern governorates as well as Taiz and Ibb. This is likely driven by the collapse of the southern economy in the wake of the civil war.

Tables A2 and A3, examining participation in work and compensation, include a dummy variable for an individual's migrant or non-migrant status. We conclude by discussing these results briefly. The disadvantage of these migrants relative to the native born population is indicated by their significantly lower wages (Table A3). However, they seem to compensate for these lower wages by working longer hours so that, on net, their total earnings are not significantly different from those who are native born. This suggests that these migrants have access to social networks that give them access to employment sufficient to motivate migration to urban areas.

#### REMITTANCES FROM INTERNATIONAL MIGRATION

Since at least the 1970s, remittances have been an important source of wealth for the people of Yemen as well as for the government. The flow of remittances fell dramatically in the early 1990s when Yemen's special labor relationship with Saudi Arabia

Figure 3.5: Share of Internal Migrants Among Yemeni Youth



Source: HBS 2005/2006

changed and Yemeni workers returned from the Gulf countries during the 1991 Gulf War. However, these flows have recovered somewhat, with nearly 600,000 Yemeni emigrants working throughout the Gulf, the United States and Europe. In 2007, total official remittances to Yemen amounted to 6.7 percent of GDP, making Yemen the fifth largest recipient of remittances relative to GDP in the Middle East and North Africa region (Ratha and Zu 2008).

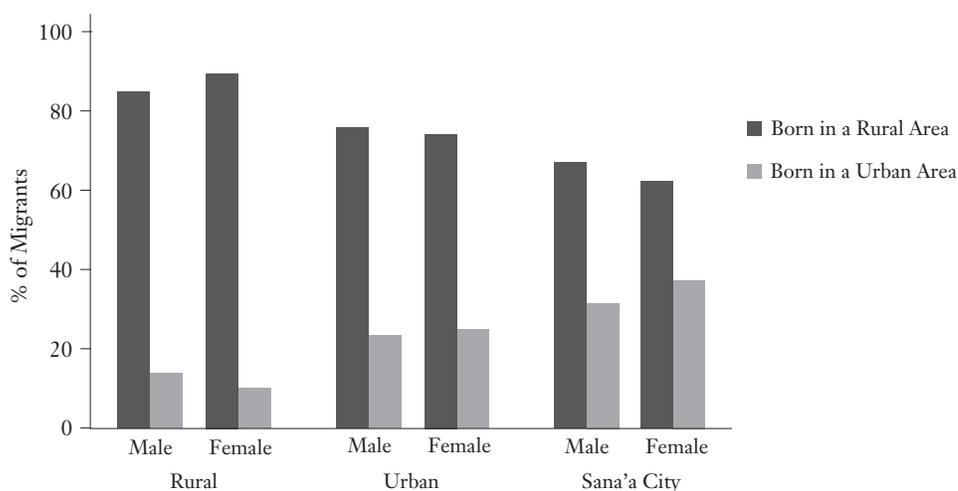
In order to investigate the importance of remittances in the lives of Yemeni youth, we first investigate the total number of households that receive remittances and the relative importance of these remittance flows. In Figure 3.8 we report the share of households and the share of youth-headed households receiving remittances across Yemen. Nearly 50 percent of households in rural areas and nearly 40 percent of households in urban areas receive remittances. Interestingly, youth-headed households are somewhat more likely to receive remittances, possibly because youth with parents working abroad can more easily afford to set up their own independent household.

To ascertain the importance of remittances for youth-headed households that do receive them, we compare the total value of these remittances with the household wage income. In Figure 3.9 we show that among youth-headed households that receive remittances, remittance flows surpass other sources of household wage income in Aden and the rural areas of the southern governorates of Al Bayda, Lahij, Abyan, Ad Dali', Taiz and Ibb. In addition, remittances account for well over half of household wage income in Al Bayda, Lahij, Taiz, Ibb and Sana'a City.

### QAT PRODUCTION AND CONSUMPTION

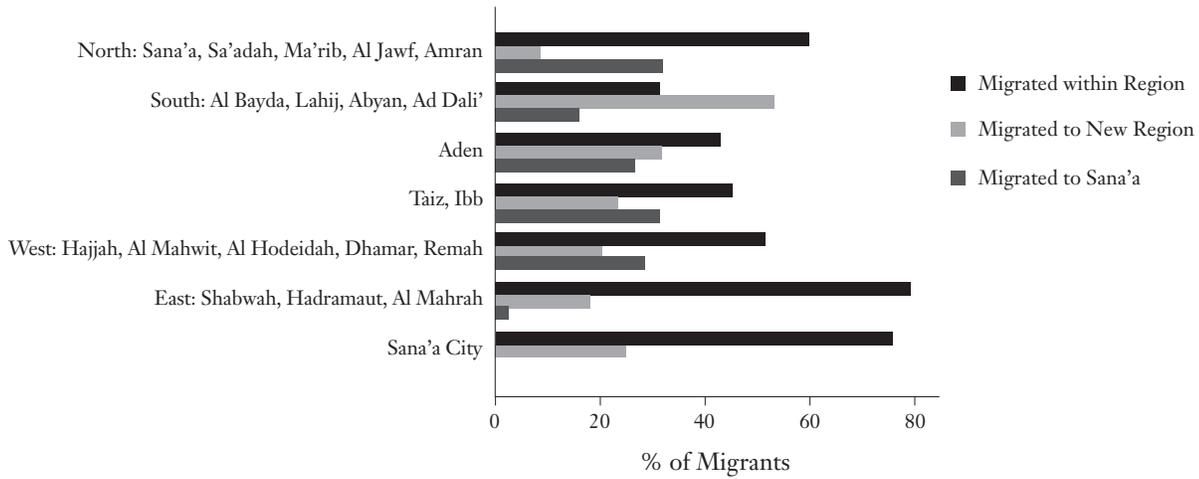
The production and consumption of qat play an important role in the lives of young Yemenis. Since the 1970s, the cultivation of qat has risen dramatically and has provided an important source of rural revenue in the face of falling prices for grain (Colton 2007). Consumption rates of qat are around 60 percent for men and under 30 percent for women.<sup>5</sup> However, several sources suggest that actual consumption rates are significantly higher (Milanovic 2007). One study estimates that 50 to 60 percent of

**Figure 3.6: Origin of Internal Migrants by Current Location**



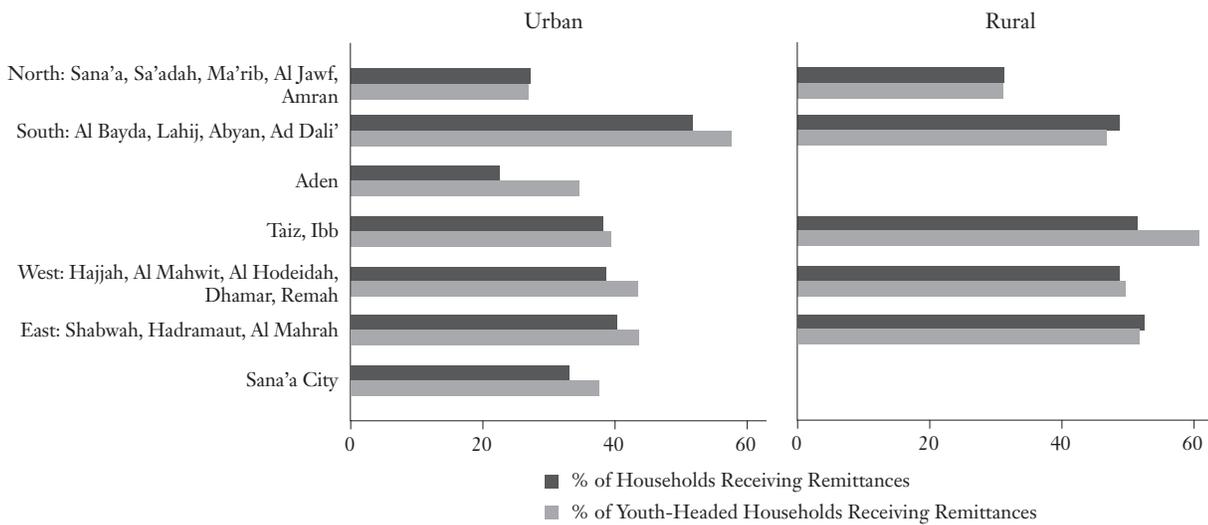
Source: HBS 2005/2006

**Figure 3.7: Destination of Youth Migrants by Region of Origin**



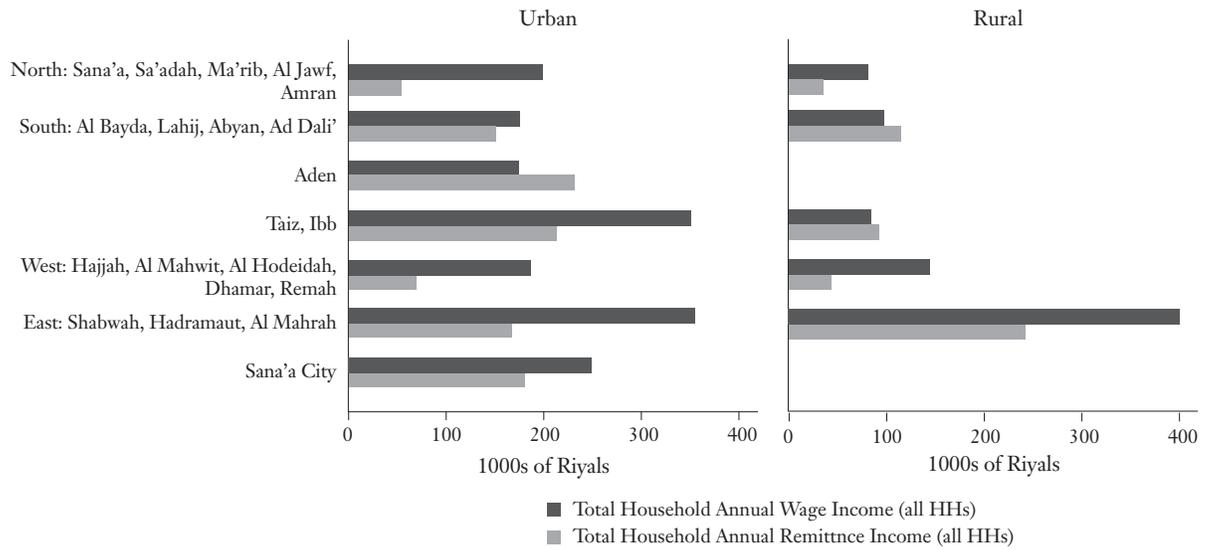
Source: HBS 2005/2006

**Figure 3.8: Share of Households Receiving Remittances**



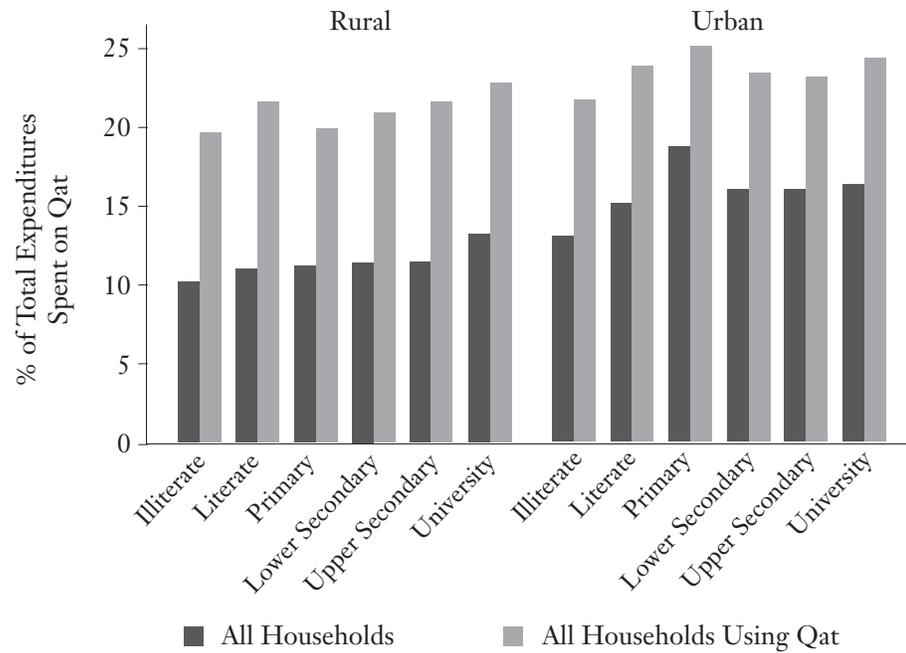
Source: HBS 2005/2006

**Figure 3.9: Incomes for Youth Households Receiving Remittances**



Source: HBS 2005/2006

**Figure 3.10: Expenditures on Qat Among Youth-Headed Households**



Source: HBS 2005/2006

women and 80 to 85 percent of men chew at least once a week and the UNDP reports that 70 to 90 percent of men and 30 to 50 percent of women consume qat, though this latter number likely includes those who only chew on special occasions (Kennedy 1987, UNDP 2005).

While qat production may have a positive impact on rural incomes, its consumption has a negative impact on Yemeni youth in two central ways. First, the consumption of qat among youth reduces productivity because significant amounts of time are spent both purchasing and consuming qat. Indeed, one estimate suggests that qat consumption reduces productivity by as much as 25 percent (Government of Yemen 2007). Many people consume qat while working in agriculture, retail, transportation services or construction, which may negatively affect productivity at work.

Second, qat consumption places a sizable financial burden on youth and young families. Though there is little evidence that qat expenditures substitute for food expenditures, expenditures on qat are typically quite large and are likely substituting for other, more productive, uses for this money (Milanovic 2007).

In Figure 3.10 we can see that qat expenditures make up nearly 20 percent of total expenditures among youth-headed households that do consume qat. Interestingly qat expenditures are higher in urban areas, representing over 15 percent of total urban expenditures as compared to 10 percent in rural areas, though this may be driven by consumption of home produced qat (Milanovic 2007). Qat expenditures, even in relative terms, increase with education. This occurs in part because incomes also increase with education; one study has found a rise in the share of qat users for increasing income deciles.

As incomes increase monotonically with education, Figure 3.10 also demonstrates that qat expenditures, even in relative terms, increase with education. This is consistent with the finding of Milanovic (2007), who demonstrates a monotonic rise in the share of qat users for increasing income deciles using the 1998 Household Budget Survey. These findings suggest that qat may function as a mechanism for transferring wealth from the rich to the poor, as small independent farmers are the most important producers of qat (Colton 2007).

#### IV. FAMILY FORMATION

Marriage and family formation have historically been the indicators of the transition into adulthood in Yemen. However, the changing economic and social environment has introduced complications in the ability of youth to marry and have families. In particular, delays in the timing of marriage are frustrating men and a lack of support for childbearing and rearing is creating new challenges for young families.

The rising age of marriage for young men in both rural and urban areas in recent years shows that young men are delaying this important transition. While this is a cause of unhappiness for young men, young women are also experiencing a similar delay which is likely to have a positive development impact. Indeed, these women, who play a strong role in the education of the next generation, had typically cut short their educational and personal development to get married. Thus while delayed marriage is causing angst among young men, it is likely to be a boon for young women and the next generation.

Most young wives rapidly and frequently bear children. Thus, reproductive health, prenatal care, and child outcomes for young mothers are central to the

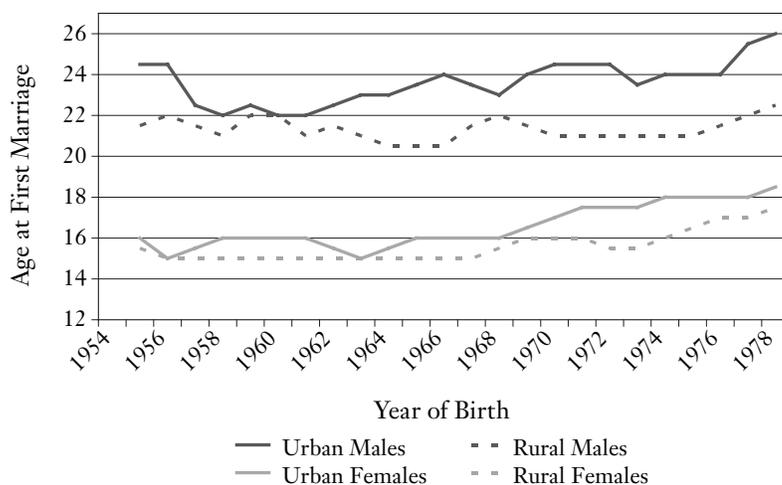
lives of female youth. Although the government of Yemen has made strides to improve access to women's health facilities, young women often struggle to find the support they need to create healthy families.

#### YEMENI WOMEN: EARLY MARRIAGE AND ITS DETERMINANTS

Most Yemeni women marry at a young age. According to the 2003 AFHS, the median age of marriage for women born in 1978 was 19 in urban areas and 18 in rural areas.<sup>6</sup> However, marriages for children as young as eight are reported. A 1992 family law prohibits the marriage of girls under 15, but the law has never been effectively enforced and early marriage is still common (Worm 2007).

Women marry significantly earlier than men, with rural women being particularly prone to early marriage (Figure 4.1).<sup>7</sup> We estimate a hazard model to determine the factors that correlate with early marriage (Table A4). We find that the gap between rural and urban females mostly disappears after accounting for differences in the levels of female education between rural and urban areas. This is unsurprising

Figure 4.1: Median Age of First Marriage for Yemeni Males and Females by Birth Cohort



Note: By using life table techniques, the figures shown above correct for the fact that a certain proportion of each cohort was not married at the time of the survey.

Source: AFHS 2003

as female educational attainment and age of marriage are linked in several ways. First, women, who for other unobserved reasons are likely to marry later, may simply remain in school longer to obtain higher social status. Second, most young women discontinue their education after marriage, either by choice or because their families or husbands do not allow them to continue. Finally, women who do complete either secondary school or university usually get married shortly after they leave school.

In addition to disrupting their education, early marriage has important implications for the health and livelihood of these young women. Early childbirth, especially during the teenage years, dramatically increases the chances of maternal and infant mortality (Rashad et al. 2005). According to the 2003 AFHS, the neonatal mortality rate for children born to teenage mothers was 60 per 1,000 live births, almost twice as high as the rate for children born to mothers ages 30 to 34. Indeed the World Bank claims that a third of maternal deaths can be directly linked to early marriage (World Bank 2007). Further, women who marry young maximize their childbearing years, and thus increase their total fertility.

When coupled with men's age at marriage, early marriage for women becomes even more problematic as it often implies a large age gap between husband and wife. More than 96 percent of Yemeni women marry men who are older than they are, and 50 percent of women marry men who are five or more years older. This age gap may create power imbalances within the household. Early marriage is also troubling because many Yemeni women have no say in who they marry. Of young females married between 1998 and 2003, less than 75 percent agreed to the marriage. While it was uncommon (less than 1 percent) for women to actively disagree with the marriage, the remainder of the women reported that they either were not asked for their opinion (11 percent) or they voluntarily kept silent (14 percent).

#### **YEMENI MEN: DELAYED MARRIAGE AND "WAITHOOD"**

Younger cohorts of Yemeni males, especially urban males, show signs of delaying marriage. As Figure

4.1 shows, the average age of marriage has gradually increased for both sexes in both urban and rural areas, with the age of marriage for urban males showing a significant jump among recent cohorts. The average age of marriage for urban males born in 1960 was 22 years of age. This average rose to 24 for cohorts of urban males born in 1966 through 1975 and, finally, to 26 for cohorts born in 1977 and 1978. In contrast, the average age of first marriage for rural males rose only slightly during this time period. For cohorts of rural males born between 1960 and 1978, the average age of marriage rose only two years, from 21 to 23. While the increase in the marriage age for urban males in Yemen is not as large as in other parts of the Middle East, such as Egypt or Iran, the increase is nonetheless important (Assaad and Ramadan 2008, Salehi-Isfahani and Egel 2007).

The hazard model above shows that education has a significant effect in determining marriage ages, even after we control for rural-urban differences. In contrast to females who delay marriage if they have more education, education seems to *lower* the age of first marriage for men. Literate men get married later than illiterate men, but higher levels of education decreases the age of marriage. In particular, men with a primary, secondary and university education marry earlier than illiterate men. Education may signal to the bride's family the potential suitor's future wages. Furthermore, since education is tied to family background, men with more education are more likely to originate from better off families. This is in sharp contrast with the situation in Egypt, for instance, where education significantly raises the age at marriage for men. The main interpretation in this case is that although education raises a man's earning potential and therefore makes him more able to marry, it also raises his marriage expectations in terms of the education and socioeconomic status of the wife he and his family aspire to. It appears that this second factor is not very strong in Yemen, where the education of potential brides is likely to be less important.

Regional effects play a strong role in determining the marriage age of males. These effects are stronger than the effects for women, but they follow the same regional patterns. Men in more "modern" regions of

the country, including Aden, Taiz and Ibb and the East, marry later than men in other regions.

The strong difference in marriage ages for urban and rural males reflects a phenomenon common in other Middle Eastern countries in which men delay marriage while they attempt to establish themselves in the workplace (Salehi-Isfahani and Dhillon 2008). Rural men in agricultural areas often marry young, following the norms of traditional agrarian societies. Their families assist them in making the transition to adulthood, since they too have followed the same patterns. Men in urban parts of the country, however, find that their expectations for the future clash with the expectations set forth by a traditional culture. These men try to establish themselves by obtaining wage work, but they often have trouble obtaining steady work. Without certainty about their future, these men delay marriage as they wait for things to come together in their professional lives. This period of anxious waiting has been dubbed “waithood” (Dhillon and Yousef 2007, Singerman 2007). As educational attainment grows, urban migration continues, and the job market tightens, waithood is going to become an in-

creasingly prevalent phenomenon in Yemen, as urban men struggle to establish themselves in a world different from that of their parents.

#### LIVING ARRANGEMENTS

In Yemen, marriage does not necessarily mean the start of independent lives since many newlyweds do not form nuclear households but remain with their parents or move in with their in-laws. Virtually all unmarried youth in Yemen live in their parental households. The 2003 AFHS shows 96 percent of unmarried men living with either their parents or another relative and over 99 percent of unmarried women doing so. This universality highlights the importance of the family in Yemeni society and hints at the scarcity of affordable housing and opportunities for employment outside of the family network for unmarried young people. After marriage, most young men bring their brides into their parents’ households. Over 60 percent of married young men live with their parents, and only 36 percent of married young men are heads of households. Somewhat surprisingly, there is little difference in living arrangements for rural and urban youth. About 52 percent of young urban married men live

**Table 4.1: Living Arrangements for Married Youth (Percent of Married Youth, 15-29)**

	Males		Females	
	Urban	Rural	Urban	Rural
Nuclear Family (Independent Living)	34.0	40.0	49.0	48.5
Parents	62.4	58.1	13.4	11.4
In-Laws	2.0	1.7	37.5	40.1
Other	1.5	0.2	0.2	0.1

Source: AFHS 2003

with a relative, compared to 58 percent of young rural married men. Young rural men are more likely to be heads of households (40 percent) than young urban men (34 percent). Outside of this rural-urban divide, we find virtually no regional differences in living arrangements for married men.

As shown in Table 4.1, nearly 40 percent of married young women live with their in-laws compared to 60 percent of married young men living with their parents. This discrepancy is primarily due to the fact that women tend to marry older men, making it more likely for these men to be able to afford independent living in nuclear households. In fact nearly 50 percent of young married women live in such households compared to only 36 percent of young men.

As noted earlier, young families in Yemen begin childbearing early and space their children closely, leading to the very high fertility rate in the country. Moreover, women who have their first child at a young age often do not receive prenatal care. According to the 2003 AFHS, only 57 percent of women who had their first child as teenagers received prenatal care, compared to 65 percent of women who were between 20 and 29 at their first birth and 80 percent of women who were over 30 at their first birth. A significant reason for the low rates of prenatal care seems to be a lack of access to health facilities. Living in a rural area dramatically reduces a woman's chance of receiving prenatal care, regardless of age. A significant proportion of young women reported barriers to receiving prenatal care, especially in rural areas. Over 20 percent of young mothers in rural areas reported that they did not receive prenatal care because the services were too far away or unavailable altogether. Only 5 percent of young mothers in urban areas reported the same problems. Another 13 percent of young mothers in both urban and rural areas reported that prenatal care was too expensive. Furthermore, Worm (2007) notes that one of the major challenges in access to prenatal care is a lack of qualified female physicians, especially in rural areas.

Infant and child mortality rates are especially high for young mothers. According to the 2003 AFHS, the neonatal mortality rate for teenage mothers was

60 per 1,000 live births, almost twice as high as the neonatal mortality rate of 34 deaths per 1,000 live births for children born to mothers ages 30 to 34. The infant mortality rate for teenage mothers was 109.8 deaths per 1,000 live births, compared to 71.5 for mothers ages 30 to 34. Finally, the mortality rate for children under five was 133 deaths per 1,000 live births for teenage mothers compared to 97.7 for mothers ages 30 to 34.

#### REPRODUCTIVE HEALTH POLICIES IN YEMEN

Worm (2007) notes that the Government of Yemen has publicly acknowledged women's health challenges and has made many attempts to reduce fertility in Yemen. However, she notes that family planning is a sensitive political issue and many attempts at reforming population policies have met with debate and opposition. The unified Yemeni government enacted its first population legislation in 1991 when it endorsed the National Population Strategy, which was later developed into the Population Action Plan. This plan focused on furthering women's educational and employment status, improving their access to health care, and reforming family law as a means of empowering women and delaying their fertility. This plan sparked competition and spirited debate between political parties about women's health issues (Worm 2007).

At the international level, Yemen participated in multiple international conferences on population issues, including the 1994 Cairo International Conference on Population and Development and the 1995 Beijing Fourth World Conference on Women. Yemeni officials at these conferences were hesitant to interfere with parental power, condone abortion, or support the provision of sexual education to adolescents, but they reluctantly signed onto agreements made at these conferences (Worm 2007).

The period between 1991 and 1996 was marked with turmoil and contentious debate regarding women's health issues. The Ministry of Health issued multiple conservative decrees on the topic, including the 1995 Five Year Health Plan and the 1996 Shari'a Guidelines for Family Planning. These Plans focused on building facilities and neglected other methods of lowering fertility rates such as

promoting contraceptive use. The guidelines included conservative measures such as limiting contraceptive use until after the birth of a woman's third child and only if the husband agrees. The rest of the government pressed for a more holistic ap-

proach at curbing the fertility rates. In 1996, Yemen held another National Population Policy Conference in which they created a new, more progressive Population Action Plan (Worm 2007).

## V. POLICY IMPLICATIONS AND RECOMMENDATIONS

The Yemeni government recognizes the enormous challenges of achieving greater youth inclusion in the face of huge increases in the youth population. It has adopted an integrated childhood and youth strategy to attempt to tackle these challenges. The full implementation of this strategy, however, is constrained by a severe shortage of resources and limited institutional and administrative capacity.

In February 2006, the Government of Yemen launched the National Children and Youth Strategy in collaboration with UNICEF and the World Bank, reflecting a commitment on the part of the Yemeni government to improve circumstances for youth. Yemen is the only nation in the Middle East to have set forth this type of strategy. The World Bank calls the strategy a “huge positive step” toward a better understanding of youth issues and the creation of plans to assist youth (World Bank 2007).

The goals of the national youth strategy are to assess the status of children and youth in Yemen and analyze the specific risks that affect each age group, especially in relation to achieving the Millennium Development Goals (MDGs). The strategy also strives to identify policies that affect youth and to assess their effects, with a large focus on developing inter-sectoral collaboration and a holistic approach to youth issues.<sup>8</sup>

The government’s strategy has yet to have far-reaching effects in Yemen. The overall consensus among Yemenis is that the strategy is on the right track but, because of capacity issues, it will never be fully implemented.

### BASIC AND SECONDARY EDUCATION DEVELOPMENT STRATEGIES

Through the 2002 Education Development Strategy and the 2007 Secondary Education Development Strategy, the Government of Yemen has declared its dedication to improving the education system in Yemen and meeting the MDGs.

The government has gone some way in implementing these strategies. In September 2006, Yemen abolished school fees for girls in grades one through six and for boys in grades one through three (World Bank 2007). In theory, this should eventually increase the educational attainment of youth by re-

ducing the never-enrollment problem. However, a School Fee Abolition Impact Survey conducted in 2007 determined that the abolition of fees had little effect on school enrollment for the poorest households (World Bank 2007). According to the thesis set forth by Al-Sharki et al. (2005), this result was to be expected. Al-Sharki et al. argue that under-enrollment is determined more by structural and quality factors than by the direct cost of schooling.

Also in 2007, the Ministry of Education adopted a Conditional Cash Transfer (CCT) program, with the goal of encouraging the retention of girls in grades four through nine. Any girl who is enrolled or who re-enrolls in grades four through nine is eligible to receive a transfer. The transfer is conditional on maintaining at least an 80 percent attendance rate and a passing grade. The CCT was piloted in two governorates during the 2007/08 academic year (World Bank 2007). While the impact of the CCT program is yet to be assessed, it is unlikely to address by itself the structural barriers to girls’ education.

Because the lack of female teachers has been identified as one of the primary obstacles for girls going to school in rural areas, the government has been trying to address this issue in multiple ways, including giving female teachers who are willing to locate in rural areas additional incentives such as housing benefits and salary premiums. These attempts have generally proven unsustainable as few female teachers remain in the remote villages for very long. Currently, the government is attempting to qualify female secondary school graduates from the villages themselves as teachers, to the extent that such graduates are available.

Yemen’s participation in the Trends in International Mathematics and Science Studies (TIMSS) test in 2007 shows the Ministry of Education’s commitment to monitoring and improving quality (World Bank 2007). Yemen’s participation in the tests increases the transparency of the nation’s education system and perhaps puts pressure on the MOE to increase quality. Unfortunately, in 2008, Yemen was the lowest-performing country, with fourth graders obtaining lower average scores in fourth grade mathematics and science tests than all 35 other participating countries (Martin et al. 2008, Mullis et al.

2008). Worthy of note, however, is that Yemen was one of eight countries where girls' achievement surpassed that of boys in fourth grade mathematics (Mullis et al. 2008).

### **THE TECHNICAL EDUCATION AND VOCATIONAL TRAINING STRATEGY**

The primary focus of Yemen's Technical Education and Vocational Training Strategy was to shift from a supply-driven approach to a demand-driven orientation. The strategy identifies a number of goals including diversification of offerings, better established links to labor market needs, devolution of managerial responsibility to the training center level to allow for better responsiveness, and diversification of funding sources.

The technical and vocational education and training (TVET) system is currently very small and absorbs only 3.2 percent of secondary school enrollment. There are also concerns that the system is still essentially closed to young women.

In the strategy, the TVET system is slated for expansion, with the goal of reaching 15 percent of students in secondary and higher education. This expansion should be viewed with caution, as the Ministry of Technical Education and Vocational Training has started to establish TVET facilities across the country, with little regard to demand or expense. The Ministry has promised to reform the system, but little progress has been made towards these reforms although construction of new facilities continues at full speed (World Bank 2007). Ensuring that the system is demand-driven and responds to the needs of the market is likely to be a huge challenge given the existing incentives and organizational structure of training providers.<sup>9</sup>

### **POLICY ISSUES RELATED TO EMPLOYMENT AND LIVELIHOOD**

Here we discuss three types of policies that we believe are essential in addressing many of the difficulties faced by youth in the employment and livelihood transition. While the Yemeni government has already made progress on two of these policies, increasing foreign investment and reducing qat consumption among youth, more work still remains to be done. The third recommendation—passing la-

bor market reforms to encourage small and medium size firms to join the formal economy—has not been seriously pursued, though we believe that these reforms are important for making the Yemeni private sector internationally competitive.

First, in order to expand the size of the private sector and create jobs, Yemen needs to continue to improve its ability to attract foreign investment. Some progress has been made in recent years and the benefits will only be realized in the next five to ten years. Indeed, in 2006, as part of a new economic development program, Yemen attracted \$5 billion in development aid, with over half coming from the countries of the Gulf Cooperation Council (GCC) (MDG Monitor 2008). This economic development program has improved investment laws and conditions for foreign investors in an effort to increase investment from countries in the Gulf and throughout the world (Javedanfar 2005).

A major reason for low levels of foreign investment in Yemen in recent times is the uncertain security situation. The importance of security in attracting foreign investment is highlighted by the decline in foreign investment, particularly in the South, after the bombing of the U.S.S. Cole in 2000 and the Limburg, a French supertanker, in 2002. The frequent kidnappings of foreigners in the 1990s had a similarly negative impact on investment in the tourism sector in particular. Despite recent efforts to improve security, such as the banning of guns in cities, there have been several recent fatal attacks on tourists in high profile tourist areas such as Ma'rib and Shibam. Further, the attack on the U.S. embassy in 2008 in the typically secure capital of Sana'a is a strong reminder of the security difficulties that foreign companies may face if they choose to invest in Yemen.

Second, policies designed to encourage private sector firms to formalize would likely be beneficial for both these firms and for young people. These private sector firms currently have difficulty attracting the highest caliber of young people, which is essential for their success in a competitive international marketplace. In fact, the government is nearly the sole provider of these preferred formal positions. Thus, efforts to reduce the cost of formality for

these private sector firms—through either tax incentives as has been done elsewhere in the region or by partial subsidization of health care or pensions—would be potentially beneficial to firms and youth alike.

Though President Saleh has made a significant effort to reduce qat consumption by banning its use during official meetings and in government buildings and by publicly reducing his own qat consumption to only one day a week (Friday), youth consumption of qat still remains quite high and socially acceptable. The President's approach and the efforts of other organizations, such as the Combating Qat Damage Association, to publicize the negative health impacts of qat are unlikely to be sufficient. Indeed, combining these efforts with more active policies to at least reduce the *frequency* of consumption as well as discourage qat consumption among the very young (many children begin chewing as young as at age four or five) would be advisable.

#### **SOCIAL SUPPORT SYSTEMS**

Yemen has an extensive yet inadequate social support system. The main agency delivering social assistance, the Social Welfare Fund, has a budget of 0.5 percent of the GDP, 20 times less than what is spent on subsidizing petroleum products. In contrast, South Asian countries spend about 2 percent of their GDP on social protection (World Bank 2007). Moreover, the services and assistance provided by these social protection programs often leak to non-deserving individuals, provide inadequate financing to close the poverty gap for poor families that do receive benefits, and have high administrative costs (World Bank 2007). Other types of social protection such as pensions and benefits for government employees fail to reach youth who have trouble obtaining government positions.

#### **THE WAY FORWARD**

Yemen faces enormous challenges in human development that especially affect its youth population. The government has signaled its awareness of these issues by being the only Arab country to have issued a National Youth Strategy. However, due to major resource and financial constraints and even more limited institutional capacity, this strategy has not

been fully implemented.<sup>10</sup> The following three broad recommendations can guide policymakers in dealing with issues affecting youth inclusion in Yemen. In addition, the role of development assistance is critical in helping Yemen overcome its twin human development and natural resource deficits.

First, use a holistic approach in assisting youth. As we have mentioned throughout this paper, the challenges facing youth are multi-dimensional and interdependent. Instead of focusing on the single dimensions of youth exclusion, the government of Yemen and international donors should focus on strategies that assist youth in multiple ways and across multiple markets.

Second, improve access for women and girls. Women are often implicitly and explicitly discouraged from fully participating in the public sphere in Yemen. Education, health care, and the labor market need to become more conducive to female participation. Schools need to be made safer, more accessible, and, in general, more girl-friendly environments. More female doctors are needed to provide women with adequate health care, and firms must increase the hiring rate of women and strive to create more female-friendly work places. Policymakers should focus not just on the number of women participating but also the percentage of women who are leaders and managers in these fields.

Third, focus on micro-institutional factors. The government of Yemen has focused on large-scale projects such as building schools or health facilities. While there is no doubt that Yemen needs more of these facilities, indiscriminate building of facilities will fail to assist many of Yemen's socially excluded youth unless the rules of the game change. On one hand, parents and youth must get the correct signals about what it takes to succeed in Yemeni society and must be empowered to act on these signals. On the other hand, service providers must get the right incentives to respond to the needs and wishes of their clients. This implies a greater degree of competition among service providers and a reward system that depends on performance.

Finally, given the magnitude of the challenges facing Yemen and its twin deficits in human and natural resources, the country will need to receive con-

siderable assistance from the outside world to ensure a brighter future for its young population. This assistance should come from Western donors as well as from Yemen's oil-rich neighbors in the Arabian Peninsula. A large injection of development assistance on the part of Yemen's richer neighbors would

be an excellent investment in regional stability. The neighboring Gulf countries should also consider adopting more open migration policies with respect to Yemeni labor to relieve some of the intense pressure on Yemen's limited arable land resources and its overcrowded urban labor markets.

## ANNEX I

Table A1: Hazard Model for Years of Education

	Both		Males	Females
	(1)	(2)	(3)	(4)
Female	0.69** (0.01)	0.73** (0.02)		
Urban	-0.66** (0.01)	-0.47** (0.02)	-0.08** (0.02)	-0.95** (0.03)
Migrant	0.18** (0.02)	0.15** (0.02)	0.01 (0.03)	0.23** (0.02)
<b>Mother's Education:<sup>1</sup></b>				
Read & Write		-0.39** (0.02)	-0.04 (0.04)	-1.09** (0.04)
Primary		-0.42** (0.03)	0.07 (0.06)	-1.21** (0.06)
Lower Secondary		-0.66** (0.03)	-0.02 (0.05)	-1.52** (0.05)
High School		-0.81** (0.02)	-0.06 (0.04)	-1.70** (0.05)
University		-0.87** (0.03)	-0.05 (0.05)	-1.73** (0.05)
<b>Father's Education:<sup>1</sup></b>				
Read & Write		0.00 (0.03)	-0.23** (0.04)	0.17** (0.04)
Primary		-0.02 (0.03)	-0.37** (0.05)	0.23** (0.05)
Lower Secondary		-0.09** (0.03)	-0.64** (0.05)	0.28** (0.04)
High School		-0.17** (0.03)	-0.82** (0.04)	0.22** (0.04)
University		-0.34** (0.03)	-1.02** (0.05)	-0.02 (0.04)
<b>Region:<sup>2</sup></b>				
South: Al Bayda, Abyan, Lahij, Ad Dali'	-0.17** (0.02)	-0.11** (0.03)	0.05 (0.04)	-0.38** (0.04)
Aden	-0.32** (0.04)	-0.18** (0.04)	0.1 (0.07)	-0.41** (0.06)
Taiz, Ibb	-0.41** (0.02)	-0.33** (0.02)	-0.05 (0.04)	-0.69** (0.04)
West: Hajjah, Al Mahwit, Al Hodeidah, Dhamar, Remah	-0.06** (0.02)	-0.07** (0.02)	0.10** (0.03)	-0.30** (0.03)
East: Shabwah, Hadramaut, Al Mahrah	-0.07** (0.03)	-0.10** (0.03)	0.09* (0.04)	-0.41** (0.04)
Sana'a City	-0.36** (0.03)	-0.28** (0.03)	-0.05 (0.04)	-0.55** (0.04)
Corrected for Heterogeneity?	Yes	Yes	Yes	Yes
N =	175726	145283	76596	68687
Log-likelihood value	-68989.2	-55825.0	-25680.6	-29248.1

Note: Standard Errors in parentheses.

1: Excluded education group is illiterate.

2: Excluded region is Sana'a, Sa'adah, Ma'rib, Al Jawf, Amran (North).

Table A2: Factors Determining Participation in Market and Non-Market Work Among Youth (15-29)<sup>1</sup>

Dependent Variable for Probit:	Both		Men		Women	
	Engage in Market Work?	Engage in Non-Market Work?	Engage in Market Work?	Engage in Non-Market Work?	Engage in Market Work?	Engage in Non-Market Work?
Female	-1.89** (0.03)	3.12** (0.03)				
Married	0.03 (0.03)	0.18** (0.03)	0.41** (0.04)	-0.06 (0.06)	-0.42** (0.05)	0.30** (0.04)
Migrant	0.05 (0.03)	-0.02 (0.03)	0.07* (0.04)	-0.12 (0.07)	0.10* (0.04)	-0.02 (0.04)
Age	0.07* (0.03)	-0.01 (0.04)	0.14** (0.04)	-0.21** (0.07)	0.02 (0.06)	0.07 (0.05)
Age-squared	-0.00 (0.00)	0.00 (0.00)	-0.00* (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)
Urban	-0.07** (0.03)	-0.26** (0.03)	-0.01 (0.03)	-0.41** (0.05)	-0.17** (0.05)	-0.18** (0.05)
<b>Education:<sup>1</sup></b>						
Read & Write	0.33** (0.03)	-0.06 (0.04)	0.41** (0.05)	-0.30** (0.07)	0.09 (0.05)	0.04 (0.05)
Primary	0.28** (0.05)	-0.10 (0.07)	0.27** (0.07)	-0.18 (0.11)	0.13 (0.09)	-0.02 (0.10)
Lower Secondary	0.41** (0.04)	-0.18** (0.05)	0.43** (0.06)	-0.40** (0.09)	0.23** (0.08)	0.00 (0.08)
High School	0.22** (0.04)	-0.23** (0.05)	0.15** (0.05)	-0.32** (0.08)	0.27** (0.06)	-0.16** (0.06)
University	0.65** (0.05)	-0.40** (0.06)	0.15* (0.07)	-0.18 (0.11)	1.13** (0.07)	-0.50** (0.08)
<b>Region:<sup>2</sup></b>						
South: Al Bayda, Abyan, Lahij, Ad Dali <sup>3</sup>	-0.55** (0.04)	0.22** (0.05)	-0.47** (0.05)	0.55** (0.08)	-0.70** (0.07)	-0.00 (0.06)
Aden	-0.78** (0.06)	-0.02 (0.07)	-0.80** (0.07)	-0.09 (0.18)	-0.62** (0.11)	-0.08 (0.09)
Taiz, Ibb	-0.32** (0.04)	0.12* (0.05)	-0.23** (0.05)	0.15 (0.09)	-0.49** (0.07)	0.08 (0.07)
West: Hajjah, Al Mahwit, Al Hodeidah, Dhamar, Remah	-0.03 (0.03)	0.24** (0.04)	0.09* (0.04)	0.49** (0.08)	-0.25** (0.05)	0.04 (0.06)
East: Shabwah, Hadramaut, Al Mahrah	-0.31** (0.04)	-0.03 (0.06)	-0.23** (0.06)	-0.07 (0.12)	-0.38** (0.07)	-0.07 (0.07)
Sana'a City	-0.29** (0.04)	0.09 (0.06)	-0.34** (0.06)	0.38** (0.11)	-0.21** (0.07)	-0.10 (0.07)
N =	21500	21500	9424	9424	12076	12076
Log-likelihood value	-8476.6	-4690.5	-5451.2	-1709.7	-2739.4	-2843.1

Note: Standard Errors in parentheses.

1: Excluded education group is illiterate.

2: Excluded region is Sana'a, Sa'adah, Ma'rib, Al Jawf, Amran (North).

**Table A3: Factors Affecting The Hourly Wages and Total Monthly Earnings of Youth (15-29)**

Dependent variable (in logs):	Hourly Wages			Total Earnings		
	Both	Men	Women	Both	Men	Women
Female	0.16** (0.05)			-0.03 (0.05)		
Migrant	-0.07* (0.03)	-0.07* (0.03)	-0.04 (0.07)	-0.00 (0.03)	-0.01 (0.03)	0.08 (0.07)
Age	0.04 (0.04)	0.03 (0.05)	0.22 (0.13)	0.07 (0.04)	0.07 (0.04)	0.19 (0.12)
Age-squared	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Urban	0.07* (0.03)	0.06 (0.03)	0.17 (0.14)	0.03 (0.03)	0.02 (0.03)	0.19 (0.13)
<b>Education:<sup>1</sup></b>						
Read & Write	0.16** (0.05)	0.14* (0.05)	0.10 (0.16)	0.23** (0.05)	0.20** (0.05)	0.13 (0.15)
Primary	0.31** (0.07)	0.27** (0.07)	0.67** (0.24)	0.38** (0.07)	0.35** (0.07)	0.54* (0.24)
Lower Secondary	0.48** (0.05)	0.43** (0.06)	0.97** (0.15)	0.55** (0.05)	0.50** (0.06)	1.02** (0.15)
High School	0.74** (0.05)	0.70** (0.06)	1.03** (0.14)	0.81** (0.05)	0.76** (0.06)	1.16** (0.13)
University	1.21** (0.06)	1.19** (0.07)	1.34** (0.13)	1.18** (0.06)	1.15** (0.06)	1.37** (0.13)
<b>Region:<sup>2</sup></b>						
South: Al Bayda, Abyan, Lahij, Ad Dali'	-0.13** (0.05)	-0.13* (0.05)	-0.18 (0.14)	-0.04 (0.05)	-0.03 (0.05)	-0.13 (0.14)
Aden	-0.26** (0.07)	-0.21** (0.08)	-0.60** (0.17)	-0.02 (0.07)	0.03 (0.08)	-0.33* (0.16)
Taiz, Ibb	-0.23** (0.05)	-0.24** (0.05)	-0.21 (0.14)	-0.03 (0.05)	-0.02 (0.05)	-0.19 (0.14)
West: Hajjah, Al Mahwit, Al Hodeidah, Dhamar, Remah	-0.23** (0.04)	-0.25** (0.04)	-0.21 (0.12)	-0.05 (0.04)	-0.06 (0.04)	0.03 (0.12)
East: Shabwah, Hadramaut, Al Mahrah	0.52** (0.05)	0.54** (0.05)	0.26 (0.18)	0.72** (0.05)	0.73** (0.05)	0.43* (0.17)
Sana'a City	0.19** (0.05)	0.23** (0.06)	-0.03 (0.13)	0.30** (0.05)	0.33** (0.05)	0.08 (0.13)
R-squared	0.29	0.26	0.47	0.27	0.25	0.48
N =	5092	4609	483	5097	4614	483

Note: Standard Errors in parentheses.

1: Excluded education group is illiterate.

2: Excluded region is Sana'a, Sa'adah, Ma'rib, Al Jawf, Amran (North).

**Table A4: Hazard Model for Age of Marriage**

	Males		Females	
	(1)	(2)	(3)	(4)
log(40 - age)	3.62** (0.56)	4.85** (0.40)	5.73** (0.52)	4.32** (0.47)
log (age - 7)	4.74** (0.18)	4.75** (0.17)	4.99** (0.13)	5.20** (0.14)
Urban	-0.46** (0.07)	-0.47** (0.06)	-0.33** (0.06)	0.24** (0.07)
<b>Education:<sup>1</sup></b>				
Read & Write		-1.19** (0.12)		-0.71** (0.07)
Primary		0.66** (0.08)		-0.63** (0.09)
Lower Secondary		0.28** (0.08)		-1.50** (0.10)
High School		0.37** (0.07)		-2.28** (0.13)
University		0.94** (0.10)		-3.16** (0.24)
<b>Region:<sup>2</sup></b>				
South: Al Bayda, Abyan, Lahij, Ad Dali'	-0.27** (0.10)	-0.08 (0.08)	-0.32** (0.08)	-0.16 (0.09)
Aden	-0.98** (0.19)	-0.70** (0.16)	-1.02** (0.14)	-0.76** (0.15)
Taiz, Ibb	-0.25** (0.08)	-0.21** (0.06)	-0.38** (0.07)	-0.22** (0.07)
West: Hajjah, Al Mahwit, Al Hodeidah, Dhamar, Remah	-0.12 (0.08)	0.02 (0.06)	0.04 (0.06)	0.04 (0.07)
East: Shabwah, Hadramaut, Al Mahrah	-0.61** (0.12)	-0.41** (0.10)	-0.67** (0.10)	-0.66** (0.10)
Sana'a City	-0.09 (0.12)	-0.07 (0.10)	-0.17 (0.10)	0.11 (0.11)
Corrected for Heterogeneity?	Yes	Yes	Yes	Yes
N =	237325	236541	155359	154760
Log-likelihood value	-15702.5	-15431.2	-21889.5	-21422.4

Note: Standard Errors in parentheses.

1: Excluded education group is illiterate.

2: Excluded region is Sana'a, Sa'adah, Ma'rib, Al Jawf, Amran (North).

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## ENDNOTES

1. See Dhillon and Yousef (2007) and Singerman (2007) for more on the “waithood” phenomenon.
2. The Yemen Family Health Survey was conducted as part of the 2003 Arab Family Health Survey (AFHS 2003) by the Ministry of Health and Population and the Pan Arab Project for Family Health.
3. These calculations are based on responses to the Central Statistical Office’s Household Budget Survey (HBS 2005/2006) which most likely under-estimate the problem of delayed entry in Yemen. Since birth registrations are not required, a child’s age frequently must be estimated upon entry into the school system (Al-Sharki et al 2005). Since the recommended school entry age is six, families might feel pressured to state that their child is six whether or not this is truly the case.
4. In Table A2, a negative coefficient means the corresponding factor makes one less likely to engage in the given type of work – market or non-market.
5. Estimated by comparing the self-reported qat usage rates among youth from AFHS 2003 and HBS 2005/2006.
6. This cohort is the focus because 1978 is the latest cohort with reliable data available.
7. For this analysis, we use the 2003 AFHS to conduct a survival time analysis of the age at first marriage for cohorts of Yemenis born between 1954 and 1978. We then estimate a hazard model to determine the factors that correlate with early marriage. This model confirms our descriptive analysis, which shows rural females marrying earlier than urban females. See Binzel and Assaad (2009 forthcoming) for more details.
8. See: Republic of Yemen, “The National Children and Youth Strategy of the Republic of Yemen 2006-2015, Executive Summary.” [http://www.bankofideas.com.au/Newsletter/Downloads/Executive\\_Summary\\_National\\_Agenda\\_Yemen.pdf](http://www.bankofideas.com.au/Newsletter/Downloads/Executive_Summary_National_Agenda_Yemen.pdf).
9. TVET in other countries, such as Egypt, is commonly known to be of poor quality and to equip graduates with poor workplace opportunities. This affects incentives for young people to enroll in this system.
10. Interviews with several stakeholders suggest that government and donors have earmarked only \$2-3 million (out of an overall budget of approximately \$50 million) toward the implementation of the National Youth Strategy to date.

## ABOUT THE MIDDLE EAST YOUTH INITIATIVE

### Our Mission

*To develop and implement a regional action plan for promoting the economic and social inclusion of young people in the Middle East.*

### Creating Alliances for Maximum Progress

The Middle East Youth Initiative's objective is to accelerate the international community's ability to better understand and respond to the changing needs of young people in the Middle East. By creating an international alliance of academics, policymakers, youth leaders and leading thinkers from the private sector and civil society, we aim to develop and promote a progressive agenda of youth inclusion.

The Middle East Youth Initiative was launched in July 2006 by the Wolfensohn Center for Development at the Brookings Institution in partnership with the Dubai School of Government.

### Connecting Ideas with Action

The initiative blends activities in an attempt to bridge the divide between thinkers and practitioners and utilizes robust research as a foundation for effective policy and programs. The initiative has three complementary pillars:

#### Research and Policy: Pathways to Inclusion

With this initiative, cutting-edge research advances the understanding of economic and social issues affecting young people. The main target group is youth 15 to 29 years old, with a special focus on young men and women who live in urban areas and have secondary or post-secondary education. In addition to addressing needs of older youth, the initiative will also focus on strategies for promoting development of youth 15 years and under in areas such as primary education, skills development and community participation.

The research framework focuses on youth making two major transitions to adulthood: i) the transition from education to employment; and ii) the transition to household formation (marriage and family). Research will concentrate on strategies to achieve inclusion in:

- Quality education
- Quality employment

- Marriage
- Housing
- Civic participation

Our goal is to examine the relationship between economic and social policies and generate new recommendations that promote inclusion.

### Advocacy and Networking: Creating Vital Connections

The initiative aspires to be a hub for knowledge and ideas, open to all stakeholders who can make change happen. Strong partnerships with policymakers, government officials, representatives from the private sector and civil society organizations, donors and the media will pioneer forms of dialogue that bridge the divide between ideas and action. By bringing in the voice and new perspectives of young people, the initiative will revitalize debate on development in the Middle East.

### Practical Action: Life-Changing Impact

Outcomes matter. With a focus on areas with the greatest potential for innovation and impact, the initiative will mobilize partners for practical action that can improve young people's lives. The initiative will help develop policies and program interventions which provide youth with skills, expand opportunities for employment and facilitate access to credit, housing and civic participation.

## ABOUT THE WOLFENSOHN CENTER FOR DEVELOPMENT

The Wolfensohn Center for Development at the Brookings Institution was founded in July 2006 by James D. Wolfensohn, former president of the World Bank and member of the Brookings Board of Trustees.

The Wolfensohn Center for Development analyzes how resources, knowledge and implementation capabilities can be combined toward broad-based economic and social change in a four-tier world.

The following principles guide the center's work:

- A focus on **impact, scaling-up and sustainability** of development interventions
- Bridging the gap between **development theory and practice** to bring about action
- Giving **voice** to developing countries, with high-level policy engagement and
- broad networking
- A **rigorous, independent research** approach that draws from multiple disciplines
- Working in **partnership** with others

## ABOUT THE DUBAI SCHOOL OF GOVERNMENT

The Dubai School of Government is a research and teaching institution focusing on public policy in the Arab world. Established in 2004 under the patronage of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the United Arab Emirates and Ruler of Dubai, the school aims to promote good governance by enhancing the region's capacity for effective public policy.

Toward this goal, the Dubai School of Government collaborates with international institutions such as Harvard University's John F. Kennedy School of Government and the Lee Kuan Yew School of Public Policy in its research and training programs. In addition, the school organizes policy forums and international conferences to facilitate the exchange of ideas and promote critical debate on public policy in the Arab world.

The school is committed to the creation of knowledge, the dissemination of best practice and the training of policy makers in the Arab world. To achieve this mission, the school is developing strong capabilities to support research and teaching programs including:

- Applied research in public policy and management
- Masters degrees in public policy and public administration
- Executive education for senior officials and executives
- Knowledge forums for scholars and policy makers



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