6 Indigenous girls in Guatemala: Poverty and location

Kelly Hallman and Sara Peracca, with Jennifer Catino and Marta Julia Ruiz

Although enrollment rates are increasing in Guatemala, educational attainment continues to be among the lowest in Latin America as a result of late entry, repetition, and early dropout. Vast inequalities in access and attainment—linked to ethnicity, gender, poverty, and geography—remain. Adult literacy, estimated at 85 percent in Latin America, is just 70 percent in Guatemala (UNDP 2004).

While indigenous peoples generally have less schooling than nonindigenous peoples throughout Latin America, ethnic differences are greatest in Guatemala, where indigenous adults have less than half the schooling of nonindigenous adults (2.5 years of education compared with 5.7 years) (Hall and Patrinos 2005). Recent trends show the ethnic gap narrowing among younger people, but large inequalities remain. Among 10- to 19-year-olds, the indigenous literacy

145

rate is 82 percent that of nonindigenous people (74 percent compared with 90 percent) (Shapiro 2005).

Gender differences in literacy and education are also large in Guatemala. The female-to-male literacy ratio is 0.77 among adults and 0.86 among 15- to 24-year-olds. Although the girl-to-boy primary enrollment ratio of 0.95 in 2000 indicates great improvements, the gender ratio of primary completion for 15- to 24-year-olds is substantially lower, at 0.82 (INE 2000).

Indigenous females are by far the most disadvantaged group. Only 39 percent of 15- to 64-year-old indigenous women are literate (compared with 68 percent of indigenous males, 77 percent of nonindigenous females, and 87 percent of nonindigenous males), and just two-thirds of 10- to 19-year-old indigenous females are literate (compared with 80 percent of indigenous males and 90 percent of nonindigenous females and males) (Shapiro 2005).

To address the unequal status of indigenous peoples worldwide, the UN General Assembly proclaimed the International Decade of the World's Indigenous Peoples in December of 1994. At the end of that decade, the situation of indigenous peoples relative to their nonindigenous counterparts in Latin America had not changed greatly—and in some cases it had gotten worse (Hall and Patrinos 2005). In the five Latin America countries with large indigenous populations (Bolivia, Ecuador, Guatemala, Mexico, and Peru), poverty rates for indigenous people did not change markedly in those 10 years. Guatemala is the only country where the rate of poverty fell for indigenous people, and there it fell less than it did among nonindigenous people (declines of 14.2 percent for indigenous people compared with 25.7 percent for nonindigenous people).

Indigenous people make up 42 percent of Guatemala's population. They reside primarily in rural areas and are politically underrepresented and very poor. Three-fourths of indigenous people and 40 percent of nonindigenous people in Guatemala are poor (INE 2000). Three-quarters of the rural population live in poverty, compared with 32 percent of the urban population. The richest 10 percent of the population receives 48.3 percent of all income (UNDP 2004). Being indigenous leads to at least a 10 percent greater likelihood of being poor in Bolivia, Ecuador, Guatemala, Mexico, and Peru (Hall and Patrinos 2005).

Indigenous people face many barriers. Not only do they have lower levels of educational attainment, but they also gain lower returns than nonindigenous people for each year of schooling attained (Hall and Patrinos 2005). These lower returns are believed to be due to lower quality education, longer periods of unemployment, and discrimination in wages and access to jobs. Indigenous females in Guatemala are particularly disadvantaged in earning potential due to low levels of education and geographic- and gender-related cultural barriers that limit access to jobs (Steele 1994). Lack of Spanish literacy is believed to be another impediment to their earning potential, social participation, and overall well-being (Stromquist, Klees, and Miske 1999).

Guatemala experienced 36 years of civil unrest, which left few resources for social programs, including education. Although conditions are slowly improving, school enrollment remains low overall and unequal by gender and ethnicity. Since the 1996 peace accords, the government has declared education critical to achieving equity, national unity, economic modernization, and international competitiveness (Andersen 2001). It has recognized the disadvantages of ethnic minorities and girls and set a goal of promoting primary enrollment and grade completion among these groups.

Various pilot programs have been tried and shown to be effective, including the scholarship program targeted at rural girls in the early 1990s (Stromquist, Klees, and Miske 1999). Most have had limited impact, however, because they have not been implemented countrywide. Some are expensive, and government support has not been consistent. Recently, the government has focused on increasing primary enrollment in rural areas, with the main initiatives designed to increase the availability of bilingual education. These efforts have reportedly raised rural enrollments (Andersen 2001).

Government expenditure for education remains consistently low in Guatemala, at less than 2 percent of GDP. This figure compares poorly with the 3.6 percent average for Latin America and the 4.6 percent average for the lower middle income group of countries to which Guatemala belongs (Edwards 2002). The U.S. Agency for International Development reports, however, that the Berger administration has identified social investment, including education, as one of the main contributors to the national goal of employment and well-being for all Guatemalans and that gains are starting to be achieved at the national policy level (USAID 2005).

Data used

This chapter uses nationally representative data to examine the educational situation of young people in Guatemala, comparing indigenous females with indigenous males and with nonindigenous females and males. While several studies have been conducted on this topic (for example, Shapiro 2005; Edwards 2002; Steele 1994), most do not include a systematic examination of both the distinct and the interactive effects of ethnicity, gender, poverty, and geography. This has limited our understanding of the underlying causes of variations in educational opportunities and achievement. Our approach analyzes these factors and their interactions, enabling specific recommendations about how policies and programs can be more appropriately targeted to address educational inequalities.

We use the 2000 Guatemala Living Standards Measurement Survey—in Spanish, *Encuesta Nacional Sobre Condiciones de Vida* (ENCOVI)—to examine the determinants of school enrollment, progression, and educational attainment among 7- to 24-year-olds. We start at age 7, since this is the compulsory age of primary school enrollment in Guatemala and corresponds to the lower age threshold for which the

ENCOVI asked respondents about schooling.[1] By age 24 most Guatemalans have finished their schooling, so we use this as the upper age limit for our analysis. The survey includes a detailed consumption/expenditure module, which allows poverty levels to be calculated. The National Institute for Statistics collected the data between 1999 and 2000. The sample is nationally representative and consists of 11,170 households (3,544 urban and 7,626 rural).

We examine differential patterns of school enrollment, including whether children were ever enrolled in primary school, their age at school entry, whether they were ever enrolled in secondary school, their reasons for nonenrollment, and their school-work status. For females we also model the possible co-related outcomes of enrollment and marriage using a bivariate probit model. On educational achievement, we examine completion of primary school, grade attainment for age, and over-age for grade status. In the multivariate analysis we use reduced-form regressions to analyze the effects of gender, ethnicity, poverty, and residence, controlling for age, father's and mother's education, household size, and region of residence. We do not model school-specific variables, because school choice is endogenous. All analyses are weighted to account for sampling probabilities.

Ethnicity in the ENCOVI is determined by self-identification. Although classifying individuals by self-perception instead of language ability or observed indicators of ancestry (appearance, dress, and so on) may lead to a lower estimate of the indigenous percentage of the population (see, for example, Smith 1992), this method is currently the most accepted and widely used. The result, 42 percent, may therefore represent a lower-bound estimate of the indigenous population. The vast majority of indigenous people in Guatemala classify themselves as one of a large number of ethnicities considered Mayan. The term *Ladino* is used in Guatemala for people, mainly Mestizos, who identify themselves as having Spanish heritage. In this chapter the terms *Mayan* and *indigenous* are used interchangeably, as are *Ladino/a* and *nonindigenous*.

We use the Guatemalan national poverty lines of $0.67 per person per day in 2000 for extreme poverty and $1.52 per person per day in 2000 for poverty. In 2000 these levels reflected the minimum expenditure needed to purchase a nutritionally adequate basket of food items (extreme poverty) and the minimum amount needed to purchase food and other basic items (general poverty). These lines were developed jointly by the National Statistical Institute, the national planning agency (SEGEPLAN), and the Universidad Rafael Landivar, with technical assistance from the World Bank. Governmental, nongovernmental, and academic organizations have accepted these lines as the most appropriate measures of poverty in Guatemala (Shapiro 2005). Based on these measures, 43.8 percent of the population is nonpoor, 40.5 percent is medium-poor (below the poverty line but above the extreme poverty line), and 15.7 percent is extremely poor. This implies that 56.2 percent of the population lives below the official poverty line.

---

1 In Guatemala primary schooling is intended for children aged 7–12 years (grades 1–6) and secondary school for young people aged 13–18 years (grades 7–12).

Who goes to school? The roles of ethnicity, gender, poverty, and location

At every age indigenous girls in Guatemala are less likely to be enrolled than other demographic groups (figure 6.1). At age 7 only 54 percent of indigenous girls are in school, compared with 71 percent of indigenous boys and 75 percent of nonindigenous girls. For all four gender-ethnicity groups, enrollment peaks between 9 and 11 years of age before declining thereafter, particularly at age 12. This decline is especially large for indigenous girls: at age 16 only 25 percent of indigenous girls are enrolled, compared with about 45 percent of indigenous boys and about half of nonindigenous girls and boys. A child who entered school on time and made regular progress would complete primary school at age 12, but few nonenrolled children between 12 and 18 years have finished primary school, and their grade attainment is very low (table 6.1).

Figure 6.1. Percent currently enrolled at primary level or above by gender, ethnicity, and age
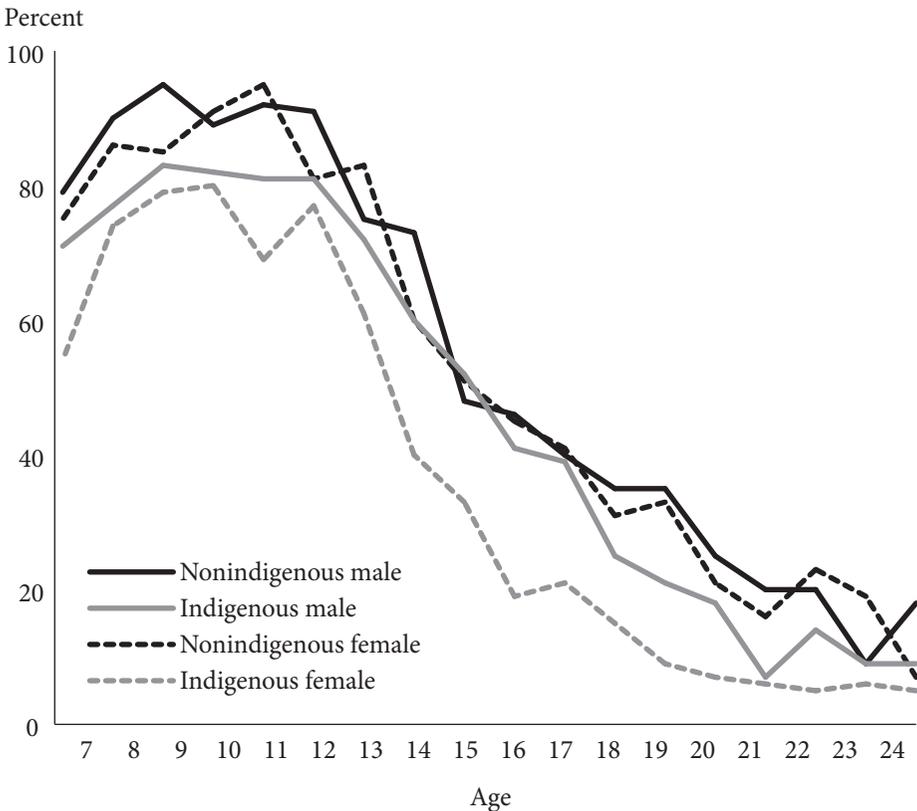
Source: ENCOVI (2000).

Table 6.1. Grade attainment and primary completion for nonenrolled children in Guatemala, 2000

	Age 12	Age 13	Age 14	Age 15	Age 16	Age 17	Age 18
Grade attained							
Indigenous female	1.0	1.3	1.8	2.0	2.3	2.2	2.3
Indigenous male	0.8	1.5	2.2	2.8	3.2	3.2	3.4
Nonindigenous female	1.9	2.5	2.4	3.4	3.9	3.7	5.1
Nonindigenous male	1.9	2.3	3.1	3.6	4.5	4.5	4.7
Completed primary school (percent)							
Indigenous female	4	4	10	12	14	16	20
Indigenous male	2	4	11	22	3	25	29
Nonindigenous female	12	22	16	34	37	36	53
Nonindigenous male	1	16	27	36	48	51	53

Source: ENCOVI (2000).

This implies that the transition from primary to secondary school is not the main reason for the dropoff in enrollment beginning at about age 12.

Who enrolls in primary school?

Indigenous enrollment among 7- to 12-year-olds is about 10 percentage points lower on average than nonindigenous enrollment, and female enrollment is about 5 percentage points lower than male enrollment (table 6.2). Enrollment levels among extremely poor children are almost 20 percentage points lower than among the non-poor. Rural levels are 8 percentage points lower than urban levels. Extremely poor females of either ethnicity, in both rural and urban areas, are the least likely to have ever enrolled.

Primary completion rates for 13- to 24-year-olds are orders of magnitude lower than primary enrollment rates for younger children, and there are large differences across subgroups. Indigenous female completion rates are a little more than a third of Ladina rates, while indigenous male rates are about two-thirds of Ladino rates. Among indigenous people female rates are 58 percent of those of males; among Ladinas female rates are 92 percent of male rates.

Urban primary completion is more than twice that in rural areas, and the urban-rural ratio is largest for indigenous females (3 to 1, 45 percent compared with 14 percent). Urban residence appears to benefit young people in the upper two income categories more than the extremely poor. Within each ethnic group, gender differences are larger in rural than in urban areas.

Extremely poor young people are much less likely to have completed primary school than those in higher income groups: only 11 percent of extremely poor young

people, versus 33 percent of medium poor and 70 percent of nonpoor, have completed primary school. Rural indigenous girls, especially those who are poor, have the lowest primary completion rates. Conditional on entry in primary school, the poor, the indigenous, girls, and rural residents are by far the least likely to complete this level. Interactions among these four factors appear to reduce completion levels even more.

Secondary enrollment patterns are even more skewed. Extremely poor young people are the least likely to have ever enrolled at this level (3 percent). Indigenous girls have the lowest rate of the four gender-ethnicity groups (12 percent). Rural residents have a much lower rate (14 percent) than urban residents (58 percent). Indigenous females who are rural, poor, or both are by far the most disadvantaged. Among this group the urban to rural ratio is more than 6 to 1 (33 percent compared with 5 percent); the nonpoor to extremely poor ratio is 32 to 1.

Limiting the sample to those who have completed primary school reveals that indigenous youths still have a much lower secondary enrollment rate than Ladino youths. Among indigenous youth, however, female and male levels are equal. Rural rates are about half of urban ones. Within rural areas indigenous people and girls, especially those who are extremely poor, are the most disadvantaged. Across the board, the extremely poor are the most disadvantaged.

Levels of school entry are on the rise in Guatemala, but they remain low. While it is encouraging that primary entry does not vary greatly by place of residence, indigenous girls and the extremely poor are still underrepresented. Conditional on ever being enrolled, there are large differences in primary completion by ethnicity, income, and residence. Within each of these categories indigenous girls have the lowest rate. Disparities are even larger at the secondary level, with indigenous, rural, and extremely poor people, especially indigenous girls, having the lowest rates. The role of these factors is explored in more depth in the following sections.

How do gender, ethnicity, and location affect primary enrollment and completion?

At every age indigenous females are much less likely to have ever been in the school system than other groups (figure 6.2). Indigenous female enrollment is rising, however: the gender-ethnicity gap is much smaller for children ages 12 and under than for adolescents and young adults.

If a child had been enrolled in primary school, the ENCOVI survey collected information on age of initial enrollment. If a child had never been enrolled, however, it was not clear whether he or she would enroll in the future. Using only data on children who have enrolled would lead to biased estimates of who would ever enroll. To deal with these censored values, we run Cox proportional hazard models for whether 7- to 12-year-olds have ever enrolled.

Table 6.2. Key educational indicators in Guatemala, by ethnicity, gender, poverty, and residence (percent)

Item	Rural					Urban
	Indigenous female	Indigenous male	Non-indigenous female	Non-indigenous male	Total	Indigenous female
Ever enrolled in primary school, ages 7–12						
Extremely poor	54	58	54	67	57	40
Medium poor	71	73	72	81	74	68
Nonpoor	79	80	84	81	82	87
Total	65	69	73	79	71	71
Completed primary school						
All 13- to 24-year-olds						
Extremely poor	4	12	17	15	11	13
Medium poor	13	30	25	40	27	36
Nonpoor	35	53	59	61	55	56
Total	14	30	36	44	31	45
13- to 24-year-olds who ever enrolled						
Extremely poor	8	16	24	18	16	27
Medium poor	18	33	31	44	32	47
Nonpoor	47	56	62	64	60	59
Total	21	34	42	49	38	53
Ever enrolled in secondary school						
All 13- to 24-year-olds						
Extremely poor	0	5	6	1	3	6
Medium poor	5	13	9	14	10	21
Nonpoor	16	26	38	33	31	48
Total	5	14	19	20	14	33
13- to 24-year-olds who completed primary school						
Extremely poor	8	40	35	6	26	43
Medium poor	34	45	34	36	37	58
Nonpoor	45	49	65	55	57	83
Total	36	46	52	44	46	73

Source: ENCOVI (2000).

	Urban				All			
Indigenous male	Non-indigenous female	Non-indigenous male	Total	Indigenous female	Indigenous male	Non-indigenous female	Non-indigenous male	Total
61	42	60	51	52	59	53	66	57
76	73	69	72	70	73	72	78	74
89	83	86	85	83	84	83	84	84
79	80	82	79	66	71	76	80	74
25	5	24	18	5	14	16	15	11
48	57	63	52	18	33	34	45	33
70	78	83	78	46	60	73	75	70
56	74	79	70	21	36	56	61	47
31	5	25	25	9	18	23	19	16
53	63	66	58	25	37	40	49	39
72	81	84	80	54	62	76	77	73
60	78	80	74	30	40	62	64	53
8	0	15	7	1	5	6	2	3
31	38	42	34	08	17	17	21	16
57	69	72	68	32	38	60	59	54
41	63	66	58	12	20	42	42	32
32	0	64	40	14	39	35	12	28
62	64	66	63	45	49	48	46	47
80	87	84	85	68	63	82	76	77
71	84	82	81	55	55	74	67	67

Figure 6.2. Percent ever enrolled in primary school by gender, ethnicity, and age

Percent
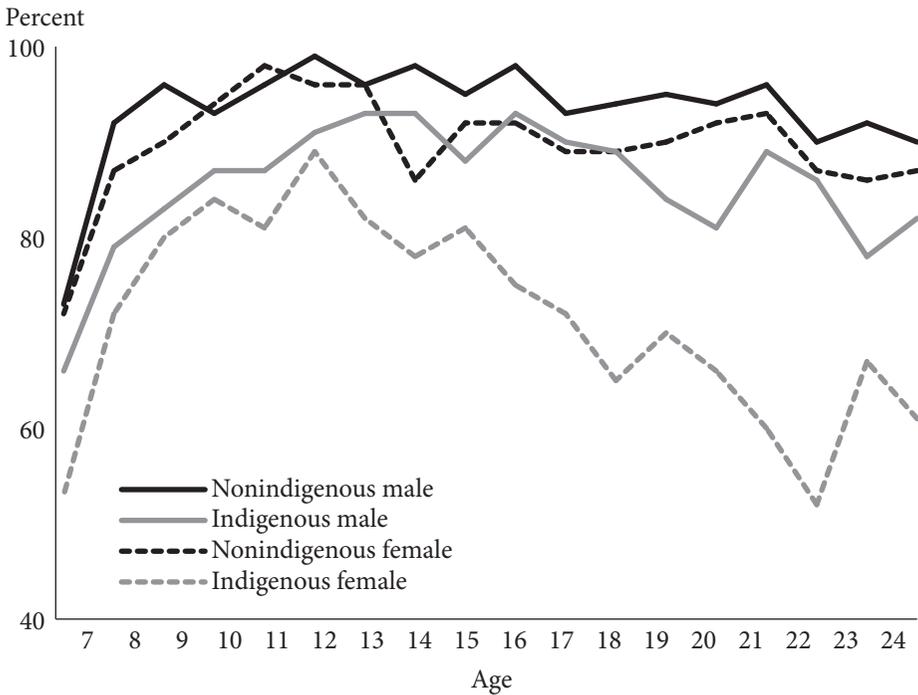
Source: ENCOVI (2000).

The results show several significant effects (table 6.3).[2] Poor children are significantly less likely to have ever enrolled than the nonpoor. Being a poor female also greatly reduces enrollment chances. With the inclusion of interaction terms between ethnicity, gender, poverty, and residence status, being an indigenous female does not significantly reduce the chances of primary enrollment—but the combination of being female and poor (whether indigenous or not) does. Residing in a rural area is not associated with a significantly lower chance of enrolling.

Primary completion is analyzed in a multivariate framework using logistic regression.[3] Indigenous females are less than half as likely as nonindigenous males to have completed primary school (table 6.4). Young people who reside in poor households are much less likely to have finished primary than nonpoor children, and young

_____

2 In all regressions we experimented with dividing the poverty category into extremely poor and medium poor, but for many outcomes the number of extremely poor was too small to result in stable models. We therefore present multivariate results for the binary categories of poor (extremely poor and medium poor grouped together) and nonpoor.

3 Since we do not have the age at which this level was completed, we cannot use the preferred survival model.

Table 6.3. Regression results for determinants of ever enrolled in primary school in Guatemala, 7- to 12-year-olds, 2000 (Cox proportional hazard model)

Independent variable	Hazard ratio	z-stat
Indigenous female (versus nonindigenous male)	1.18	1.92
Indigenous male (versus nonindigenous male)	1.08	0.95
Nonindigenous female (versus nonindigenous male)	1.07	1.35
Poor (versus nonpoor)	0.81	−2.65**
Indigenous female × poor	0.67	−4.16***
Indigenous male × poor	1.00	−0.04
Nonindigenous female × poor	0.84	−2.16*
Rural (versus urban)	0.91	−1.55
Indigenous female × rural	1.05	0.51
Indigenous male × rural	0.90	−1.16
Nonindigenous female × rural	1.03	0.37
Poor × rural	1.08	1.11
Age	0.99	−1.05
Father some primary	1.34	5.83***
Father completed primary	1.36	8.96***
Father primary +	1.50	7.44***
Father education missing	1.42	3.77***
Mother some primary	1.23	3.05***
Mother completed primary	1.32	9.08***
Mother primary +	1.55	7.67***
Mother education missing	1.24	1.08
Household size	0.99	−1.48
Number of observations	6,356	
Probability > χ^2	0.00	

* Significant at the 5 percent level.
** Significant at the 1 percent level.
*** Significant at the .1 percent level.

Note: Regressions weighted for sampling probabilities. Regional dummies also included.

Source: ENCOVI (2000).

Table 6.4. Logistic regression results for determinants of who completed primary school, 13- to 24-year-olds in Guatemala, 2000

Independent variable	All		Those who ever enrolled	
	Odds ratio	z-stat	Odds ratio	z-stat
Indigenous female (versus nonindigenous male)	0.46	−3.95***	0.50	−3.31***
Indigenous male (versus nonindigenous male)	0.73	−1.45	0.72	−1.46
Nonindigenous female (versus nonindigenous male)	0.77	−1.60	0.81	−1.27
Poor (versus nonpoor)	0.58	−2.95***	0.63	−2.36*
Indigenous female × poor	0.88	−0.55	0.90	−0.44
Indigenous male × poor	0.94	−0.28	0.92	−0.39
Nonindigenous female × poor	0.84	−0.85	0.88	−0.60
Rural (versus urban)	0.63	−2.86***	0.64	−2.68**
Indigenous female × rural	0.75	−1.26	0.86	−0.61
Indigenous male × rural	1.32	1.26	1.30	1.15
Nonindigenous female × rural	0.97	−0.14	0.97	−0.15
Poor × rural	0.61	−2.85***	0.59	−2.94***
Age	1.12	10.02***	1.15	11.49***
Father some primary	1.63	4.13***	1.49	3.20***
Father completed primary	2.60	10.79***	2.26	8.84***
Father primary +	6.54	8.68***	5.86	7.83***
Father education missing	1.57	1.76	1.35	1.11
Mother some primary	1.49	2.93***	1.31	1.93*
Mother completed primary	2.72	11.16***	2.41	9.69***
Mother primary +	3.76	4.48***	3.53	4.10***
Mother education missing	0.88	−0.23	1.11	0.17
Household size	1.03	1.76	1.02	1.34
Number of observations	9,122		8,005	
Probability > χ²	0.00		0.00	

* Significant at the 5 percent level.
** Significant at the 1 percent level.
*** Significant at the .1 percent level.

Note: Regressions weighted for sampling probabilities. Regional dummies also included.

Source: ENCOVI (2000).

people in rural areas are much less likely than urban children to have done so. Restricting the sample to those who ever enrolled in primary does not change the results in any meaningful way.[4]

Our multivariate results yield a number of new and important findings (see table 6.16). Controlling for various individual and household characteristics, being indigenous and female does not itself reduce primary enrollment, but the combination of being indigenous, female, and poor does. Conditional on primary enrollment, being indigenous and female lowers the chances of completing primary school. Indigenous females and those who reside in rural areas are less likely to enroll in secondary school, but these effects are not significant for primary completers. Among enrolled students, being indigenous and female does not significantly lower grade for age (encompassing starting late, repeating grades, and dropout followed by reenrollment), but being indigenous, female, and rural does. Controlling for other factors, indigenous males appear disadvantaged in secondary enrollment relative to nonindigenous males. Poor nonindigenous females have lower chances of entering primary school than nonindigenous males and low grade for age when enrolled.

Poverty is the most consistent indicator of educational disadvantage, reducing chances of entering the school system and advancing within it. Rural residence does not inhibit primary enrollment (consistent with reports of increased access to primary education in rural Guatemala in the late 1990s), but it reduces the likelihood of both primary completion and secondary enrollment. For children still enrolled, living in a rural area does not significantly affect grade for age. The combination of being poor and residing in a rural area, however, is linked to lower chances of primary completion and secondary enrollment, as well as lower grade for age.

Why don't girls complete primary school?

School attendance is compulsory in Guatemala for children starting at age 7, but not all children enroll at this age (table 6.5). Parents' decision about when (and whether) to enroll their child in school has important implications for the child's future educational progress and achievement. The figures in table 6.5 are censored because not every person who will ever enroll has already done so. It is nevertheless useful to compare age at entry across gender, ethnicity, and age groups. For 7- to 24-year-olds who have ever enrolled, indigenous children start school about half a year later than nonindigenous children. (Note that cohort age trends cannot be discerned from table 6.5 because the outcome is censored.) For indigenous girls differences in starting age by poverty status are wide: girls from extremely poor households who enrolled did so 0.7 years later than girls from medium-poor households and 1.2 years later than

---

4 We do not attempt to correct for the selectivity of who entered primary school since we do not have instrumental variables that would influence school entry but not retention. Moreover, even if relevant data such as school quality were available, it would be inappropriate to include them in our reduced form models, because school quality is determined by school choice, which is endogenous.

Table 6.5. Age of entry into primary school in Guatemala among those ever enrolled

Age	All young people				Indigenous females		
	Indi-genous female	Indi-genous male	Non-indigenous female	Non-indigenous male	Extremely poor	Medium poor	Nonpoor
7–9	7.1	6.9	6.8	6.8	7.4	7.0	6.6
10–12	7.5	7.5	7.1	7.2	8.0	7.5	6.7
13–15	8.0	7.7	7.2	7.1	9.0	7.8	7.2
16–8	7.8	7.9	7.1	7.2	8.9	7.6	7.4
19–21	7.8	8.0	7.2	7.3	8.8	7.9	7.4
22–24	7.8	8.0	7.2	7.2	8.8	8.0	7.1
Total	7.6	7.6	7.1	7.1	8.3	7.6	7.1

Source: ENCOVI (2000).

Table 6.6. Percentage of students ever enrolled that entered primary school late in Guatemala

Age	All young people				Indigenous females		
	Indi-genous female	Indi-genous male	Non-indigenous female	Non-indigenous male	Extremely poor	Medium poor	Nonpoor
8–9	26	16	8	10	38	25	11
10–12	38	36	17	20	53	37	12
13–15	43	41	19	19	65	40	20
16–18	40	44	16	20	65	36	30
19–21	46	46	21	20	68	49	33
22–24	45	47	20	21	91	46	25
Total	38	36	17	18	56	37	22

Source: ENCOVI (2000).

nonpoor girls. Primary entry age for nonpoor indigenous girls is about equal to that of nonindigenous children.

A little more than a third of indigenous children (compared with a fifth of La-dino children) entered school later than the compulsory legal age (table 6.6). We re-strict this outcome to young people 8 and older, because there may be some 7-year-olds in the survey who had not yet enrolled. As with age at primary entry, it would be misleading to interpret cohort changes from these data since they are censored. Among indigenous girls, those who are poor are much less likely to begin school on

time. More than half of extremely poor indigenous girls, a third of medium poor indigenous girls, and a fifth of nonpoor indigenous girls start school late. The proportion of nonpoor indigenous girls starting late is roughly equal to the average for nonindigenous children.

Along with the occurrence and timing of initial enrollment, continuation in school (retention), and grade repetition are the basic factors determining educational attainment. A child's rate progressing through school is important not only for grade attainment but also for determining the child's chances of advancing to the next level in the schooling cycle. Repetition also has implications for individual children and families in higher opportunity costs (lost wages and household labor) for each grade attained. It also reduces the efficiency of the schooling system by reducing classroom space available to new entrants and by increasing age heterogeneity within grades, making teaching more difficult (Patrinos and Psacharopoulos 1995).

The survey data do not provide detailed information on grade repetition and dropout followed by reentry. The only repetition data available are for currently enrolled students who were asked whether they were repeating their current grade. Analysis of these data by Edwards (2002) shows that the overall repetition rate is 21.9 percent for first grade, 14.2 percent for second grade, and an average of 12.8 percent across all six grades of primary school. Edwards does not find large ethnic or gender differences (though his analysis is not disaggregated by gender, ethnicity, poverty, and rural location), but he does find that nonpoor children have much lower repetition rates. Many researchers view such high repetition levels as a clear sign of serious deficiencies in the Guatemalan educational system.

Further insight into the degree of over-age students is gained by examining grade for age. Here we construct the grade-for-age index used by Psacharopoulos and Yang (1991). The progress of a young person in the school system is assessed using the formula:

$$\text{grade for age} = (G/A - E) \times 100,$$

where G is grade attained (grade completed, not years in school), A is age, and E is the compulsory school entry age of 7 years. Young people with a score less than 100 are making inadequate progress due to late entry, repetition, or dropout and re-entry. We limit this outcome to children 8 and older, because the value is undefined for 7-year-olds.

Table 6.7 presents the values of this index for young people currently enrolled in school. Indigenous children have much lower grade-for-age indices than nonindigenous children. Among indigenous people, girls' grade-for-age levels are worse than boys' through age 15. Starting at age 16, however, Mayan girls' grade-for-age index is higher than Mayan boys'—possibly because only the most academically qualified indigenous girls remain in school past age 15.

Table 6.7. Grade-for-age index among currently enrolled students in Guatemala

Age	All young people				Indigenous females		
	Indigenous female	Indigenous male	Non-indigenous female	Non-indigenous male	Extremely poor	Medium poor	Nonpoor
8–9	53.0	67.4	88.1	79.0	34.1	54.8	73.3
10–12	53.1	55.5	77.8	77.0	34.3	53.9	80.1
13–15	56.6	63.0	79.6	82.1	35.6	57.9	78.2
16–18	73.9	65.7	85.0	83.9	—[a]	66.8	84.7
19–21	73.9	68.1	87.3	81.6	—[a]	—[a]	—[a]
22–24	—[a]	62.0	75.9	72.6	—[a]	—[a]	—[a]
Total	56.0	61.7	81.9	79.6	34.3	55.9	78.6

a. Cell size < 30.

Source: ENCOVI (2000).

Figure 6.3. Percent of indigenous girls currently enrolled by poverty status
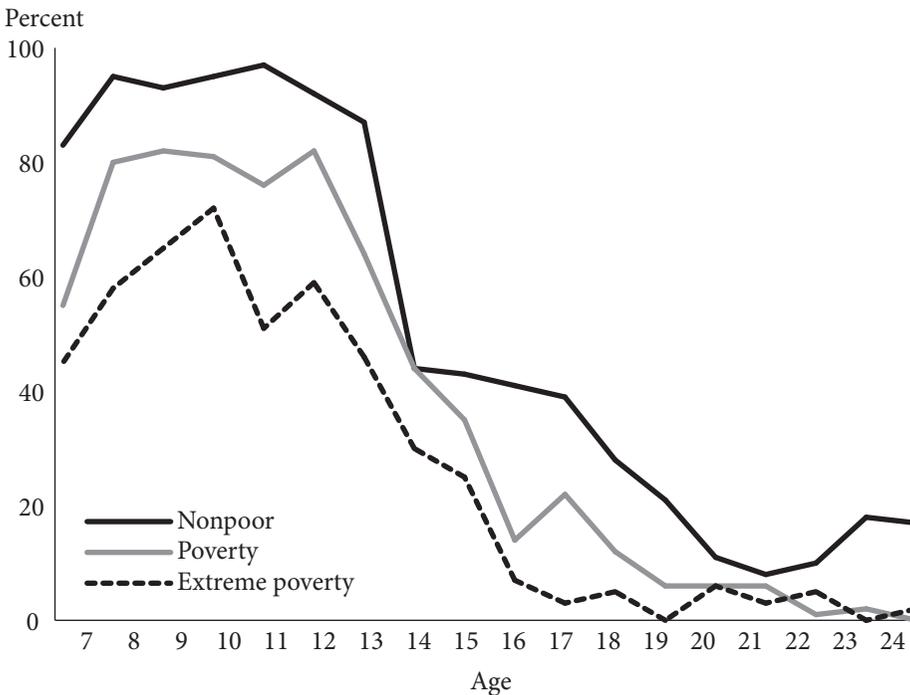
Source: ENCOVI (2000).

Table 6.8. Percent over-age for grade among students currently enrolled in Guatemala

Age	All young people				Indigenous females		
	Indigenous female	Indigenous male	Non-indigenous female	Non-indigenous male	Extremely poor	Medium poor	Nonpoor
8–9	66	53	38	41	79	63	53
10–12	81	82	56	59	94	82	57
13–15	88	86	63	61	98	91	68
16–18	77	92	61	69	—[a]	94	60
19–21	75	92	55	70	—[a]	—[a]	—[a]
22–24	—[a]	97	64	87	—[a]	—[a]	—[a]
Total	77	78	54	58	90	79	60

a. Cell size < 30.

Source: ENCOVI (2000).

Consistent with our findings for primary enrollment and entry age, Mayan girls who are nonpoor have grade-for-age levels nearly equal to those of nonindigenous students. Among Mayan girls ages 14 to 20 still enrolled, a large proportion are nonpoor (figure 6.3).

A binary indicator was created for being over-age for grade (table 6.8). Students with grade-for-age index values of less than 100 are defined as over-age. Among enrolled children, more than half of Ladinos and three-fourths of Mayans are older than they would have been had they entered school on time and not repeated grades. Over-age-for-grade status varies widely by poverty status, with 90 percent of extremely poor, 80 percent of medium-poor, and 60 percent of nonpoor Mayan girls over-age. The proportion of over-age nonpoor Mayan girls is about the same as that of nonindigenous boys. Tobit estimates of the grade-for-age index for current students show that poor students have significantly lower grade-for-age levels than nonpoor students (table 6.9).[5] There are also significant interaction effects of being nonindigenous, female, and poor, of being indigenous, female, and rural, and of being poor and rural. Being indigenous and female has a negative but nonsignificant effect on grade for age.

Who enrolls in secondary school?

Enrollment in secondary school is very low, with no group exceeding 60 percent (figure 6.4). Both indigenous females and males fall well below nonindigenous levels. Among

---

5 We also experimented with a logistic estimator for the over-age outcome, but the preponderance of over-age children resulted in an unstable model due to a large number of observations dropping from the regression.

Table 6.9. Grade-for-age index among currently enrolled 7- to 24 year-olds in Guatemala (tobit, lower and upper limit), 2000

Independent variable	Coefficient	t-stat
Indigenous female (versus nonindigenous male)	–4.01	–1.25
Indigenous male (versus nonindigenous male)	–0.76	–0.26
Nonindigenous female (versus nonindigenous male)	2.91	1.70
Poor (versus nonpoor)	–11.86	–4.57***
Indigenous female × poor	–2.57	–0.69
Indigenous male × poor	–1.25	–0.38
Nonindigenous female × poor	–5.72	–2.02*
Rural (versus urban)	–3.39	–1.50
Indigenous female × rural	–9.39	–2.55***
Indigenous male × rural	–4.87	–1.43
Nonindigenous female × rural	1.04	0.38
Poor × rural	–5.15	–2.15*
Age	–0.27	–1.95*
Father some primary	4.72	2.54**
Father completed primary	11.87	9.03***
Father primary +	22.84	11.90***
Father education missing	7.66	1.60
Mother some primary	4.56	1.62
Mother completed primary	12.85	10.44***
Mother primary +	15.77	8.18***
Mother education missing	27.78	2.70**
Household size	–0.39	–1.69
Number of observations	7,726	
Probability > χ²	0.00	

* Significant at the 5 percent level.
** Significant at the 1 percent level.
*** Significant at the .1 percent level.

Note: Regressions weighted for sampling probabilities. Regional dummies also included.

Source: ENCOVI (2000).

18-year-olds, indigenous youths are about half as likely to have attended secondary school as nonindigenous youths. Mayan secondary enrollment occurs at later ages

Figure 6.4. Percent of children ever enrolled in secondary school by gender, ethnicity, and age

Percent
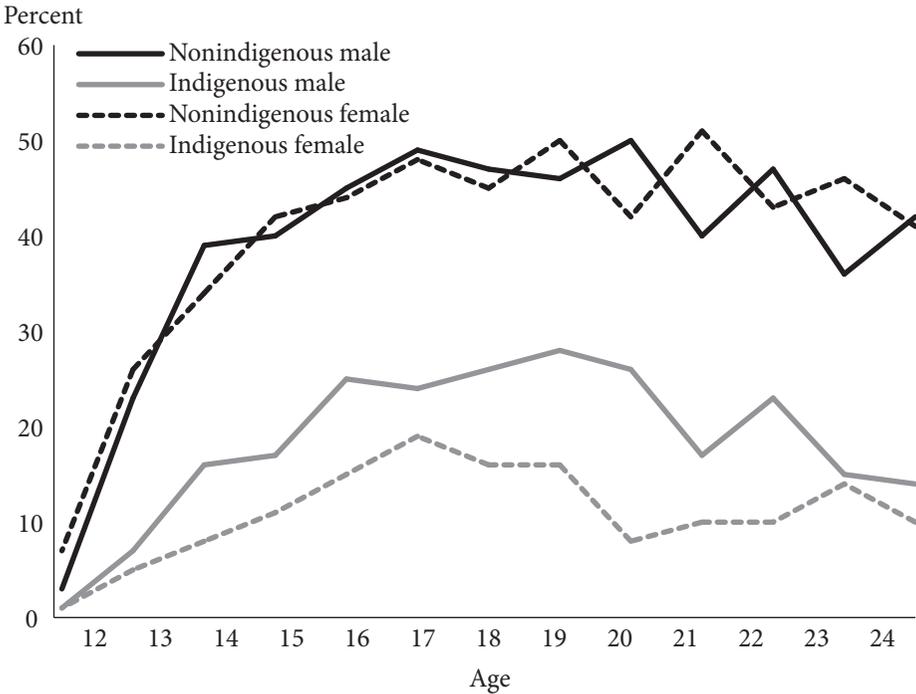
Source: ENCOVI (2000).

and with less uniformity in the transition age between the primary and secondary cycles than does nonindigenous secondary enrollment.

Since this outcome is censored and age at secondary enrollment is available in the survey, survival estimates are used for the multivariate analysis. For all 13- to 24-year-olds, indigenous young people are about 20 percent less likely than Ladinos to have ever enrolled in secondary school (table 6.10). Youths who reside in poor households or rural areas have much lower chances of ever enrolling at this level. We also find significant negative interaction effects between being indigenous, female, and rural and between being poor and rural. Limiting the sample to young people who completed primary school,[6] we find that indigenous males, the poor, and rural dwellers are much less likely to advance from primary to secondary school. In the conditional sample, neither the indigenous female effect nor the interactions between being indigenous, female, and rural or being poor and rural remain statistically significant.

---

6 We do not attempt to correct for selectivity in who completed primary school, since we do not have instrumental variables that would influence primary completion but not secondary enrollment.

Table 6.10. Guatemalan 13- to 24 year-olds ever enrolled in secondary school, 2000 (Cox proportional hazard model)

Independent variable	All		Primary school completers	
	Hazard ratio	z-stat	Hazard ratio	z-stat
Indigenous female (versus nonindigenous male)	0.77	−2.38*	0.92	−0.83
Indigenous male (versus nonindigenous male)	0.78	−2.28*	0.82	−2.07*
Nonindigenous female (versus nonindigenous male)	0.96	−0.59	1.04	0.62
Poor (versus nonpoor)	0.60	−3.91***	0.65	−2.95***
Indigenous female × poor	0.74	−1.54	0.92	−0.42
Indigenous male × poor	1.21	1.16	1.34	1.75
Nonindigenous female × poor	0.83	−1.12	0.87	−0.78
Rural (versus urban)	0.50	−7.52***	0.53	−6.80***
Indigenous female × rural	0.68	−2.01	0.94	−0.30
Indigenous male × rural	1.31	1.81	1.21	1.29
Nonindigenous female × rural	1.07	0.55	1.13	0.95
Poor × rural	0.55	−4.69***	0.85	−1.30
Age	0.99	−0.90	0.96	−5.52***
Father some primary	1.60	4.44***	1.22	2.06*
Father completed primary	2.11	9.39***	1.31	3.86***
Father primary +	3.38	12.52***	1.90	7.42***
Father education missing	1.60	2.13*	1.12	0.50
Mother some primary	1.40	3.11***	1.15	1.41
Mother completed primary	2.20	11.25***	1.52	6.66***
Mother primary +	2.86	11.46***	2.02	8.62***
Mother education missing	1.64	1.48	1.36	0.71
Household size	1.01	0.82	1.00	−0.02
Number of observations	9,119		4,410	
Probability > χ^2	0.00		0.00	

* Significant at the 5 percent level.
** Significant at the 1 percent level.
*** Significant at the .1 percent level.

Note: Regressions weighted for sampling probabilities. Regional dummies also included.

Source: ENCOVI (2000).

Why don't girls go to school?

For primary school-age children (7 to 12 years), lack of access (including distance to school, lack of a local school, and lack of an appropriate grade at a local school) was not the most frequently cited reason for not attending school, even among rural children (table 6.11). While girls were more likely to cite distance and transport as obstacles, the prevalence is still low, at about 6 percent for all girls. Lack of money was the single most important factor identified, and its prevalence did not vary by gender or ethnicity. Lack of interest in school was the second most frequently named reason, followed by age—presumably being over-age for grade. After these reasons, females, especially indigenous ones, mentioned household duties as the main cause, while boys cited work. Among indigenous girls, age was more frequently cited by the extremely poor.

Among 13- to 24-year-olds, household duties were most often cited by females, and work was most often cited by males. Nonindigenous females were more likely than indigenous females to cite market work (as opposed to household chores). Lack of money was the second most common issue, with few differences by ethnicity. Lack of interest was the third reason, with the level highest among indigenous females. As with 7- to 12-year-olds, access factors were infrequently stated as the main cause for nonenrollment, even among rural dwellers. Among nonenrolled indigenous females, causes varied by poverty level. The poor were much more likely to cite lack of money and housework, while the nonpoor more often cited market work and lack of interest as the main reasons.

Household labor demands and poverty

The possibility of child labor constraining enrollment is relevant in a country as poor as Guatemala. The reasons stated by Guatemalan children for nonenrollment indicate that poverty and opportunity costs are fundamental deterrents to schooling. Moreover, our multivariate results show that poverty and rural residence are key barriers to schooling, especially for females—and more for indigenous females.

To investigate the work-schooling question in more depth, we construct a variable reflecting activity status the week before the survey. The outcomes consist of four mutually exclusive categories: enrolled in school and not working, combining school with work (not household chores), not enrolled in school but working, and neither enrolled in school nor working for pay. The last category may include young mothers, "hidden" child workers, or children (mainly girls) who spend substantial time on household chores (Mealli, Pudney, and Rosati 2004).

Among 7- to 12-year-olds, indigenous children are much less likely to be attending school exclusively—only 60 percent compared with 80 percent of Ladino children (table 6.12). Mayan children are about twice as likely as Ladino children to combine school and work. Within each ethnic group, the proportion of boys combining school and work is about twice that of girls. Working without being enrolled is the least likely

Table 6.11. Main reason cited for not currently being enrolled in school in Guatemala (percent)

Age/reason	All children						Indigenous females		
	Indi-genous females	Indi-genous male	Non-indigenous females	Non-indigenous male	Urban	Rural	Extremely poor	Medium poor	Non-poor[a]
7–12									
Sick/incapacitated	0.8	5.1	4.2	4.9	4.4	3.2	1.3	0.0	3.8
Unable to pay monthly fee	0.3	0.5	1.0	2.9	0.7	1.1	0.0	0.8	0.0
Housework	10.6	2.1	7.1	1.0	2.1	6.7	11.0	11.0	0.0
Work	1.5	6.3	1.3	4.8	3.3	3.3	1.0	1.7	6.7
Lack of money	39.3	38.3	35.5	38.3	38.1	37.9	38.1	39.6	51.1
Finished studies	0.3	0.4	0.1	0.0	0.0	0.3	0.0	0.7	0.0
Not interested	12.1	16.6	18.3	16.7	20.5	14.3	9.4	16.4	0.0
Require special school	0	0.1	0.1	1.2	1.1	0.1	0	0	0.0
Have to repeat (grade)	0.2	0.4	1.4	2.2	0.5	1.0	0.4	0	0.0
Temporary migration	3.0	0	0.5	0	4.2	0.3	0.5	6.2	0.0
Distance/transport	4.5	1.7	8.5	1.9	4.7	4.0	5.9	1.7	17.0
There is no school	1.8	1.2	0.2	0.1	0.1	1.2	1.6	2.3	0.0
School does not offer that grade	1.0	0	0.3	0.3	0	0.5	0	2.1	0.0
Age	13.3	18.4	15.6	16.1	11.7	16.7	17.0	9.1	12.0
Other reason	11.3	8.9	6.0	9.8	8.7	9.4	13.9	8.5	9.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of observations	371	297	258	226	269	883	205	151	15

category. A quarter of Mayan girls are neither working nor in school. By poverty status, the disparities in activity status for Mayan girls are very large: 83 percent of the nonpoor are exclusively in school compared with only 47 percent of the extremely poor. Of every five extremely poor Mayan girls, two are neither in the labor force nor enrolled in school. The percentage of nonpoor Mayan girls studying exclusively is about the same as that of nonindigenous girls.

	All children						Indigenous females		
Age/reason	Indi-genous females	Indi-genous male	Non-indigenous females	Non-indigenous male	Urban	Rural	Extremely poor	Medium poor	Non-poor[a]
13–24									
Sick/incapacitated	1.5	1.3	1.5	1.1	1.5	1.3	1.2	1.8	1.4
Unable to pay monthly fee	0.2	0.4	0.6	0.9	0.9	0.4	0.2	0.1	0.7
Housework	35.4	0.7	33.0	0.2	12.7	21.6	39.2	36.3	28.5
Work	9.8	50.2	18.0	55.6	34.1	31.2	8.1	8.8	14.3
Lack of money	22.0	24.4	21.7	21.7	24.4	21.3	22.1	23.7	17.9
Finished studies	1.1	1.1	0.6	1.2	1.0	1.0	1.9	1.1	0.3
Not interested	20.4	15.0	12.7	12.8	15.5	14.8	15.9	20.0	26.9
Pregnant	0.7	0.0	1.8	0.0	1.5	0.4	0.6	0.6	0.9
Require special school	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.1
Have to repeat (grade)	0.6	0.3	0.3	0.3	0.2	0.5	0.6	0.6	0.6
Temporary migration	0.2	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.4
Distance/transport	1.0	0.5	0.9	0.6	0.2	1.0	1.5	0.5	1.5
There is no school	2.1	1.7	0.5	0.8	0.8	1.3	1.0	2.3	2.9
School does not offer that grade	0.1	0.5	0.3	0.1	0.2	0.2	0.3	0.0	0.0
Age	2.1	1.3	0.9	0.9	0.5	1.6	2.6	2.4	0.9
Other reason	2.9	2.5	7.0	3.7	6.5	3.3	5.0	1.9	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of observations	1,405	1,099	1,730	1,550	1,959	3,825	385	704	316

a. Number of observations is less than 30.

Source: ENCOVI (2000).

For 13- to 24-year-olds, the divergence in activity status by gender and ethnicity is even greater. Ladino adolescents are about twice as likely as Mayan adolescents to be studying exclusively. Males, especially Mayans, are more likely than females to combine school and work or to work without attending school. Females in each ethnic group are at least five times more likely than males to be neither studying nor in the labor force. Among Mayan females, the extremely poor are half as likely to be

Table 6.12. Work/school activity status among 7- to 24-year-olds in Guatemala (percent)

Age	All				Indigenous females		
	Indi-genous female	Indi-genous male	Non-indigenous female	Non-indigenous male	Extremely poor	Medium poor	Non-poor
7–12							
School only	62.0	57.1	79.7	77.8	47.3	65.3	83.1
School and work	9.9	21.0	5.7	10.5	6.3	12.3	9.5
Work, no school	3.2	6.6	1.4	2.6	5.7	1.9	2.0
Neither work nor school	25.0	15.3	13.3	9.2	40.7	20.5	5.5
13–24							
School only	14.7	14.5	29.1	26.5	10.0	13.9	20.9
School and work	8.0	21.2	10.4	16.9	4.4	7.6	12.3
Work, no school	33.2	58.9	21.7	49.6	29.1	33.4	36.6
Neither work nor school	44.1	5.4	38.8	6.9	56.4	45.2	30.2

Source: ENCOVI (2000).

Figure 6.5. Percent of married indigenous and nonindigenous females, by age
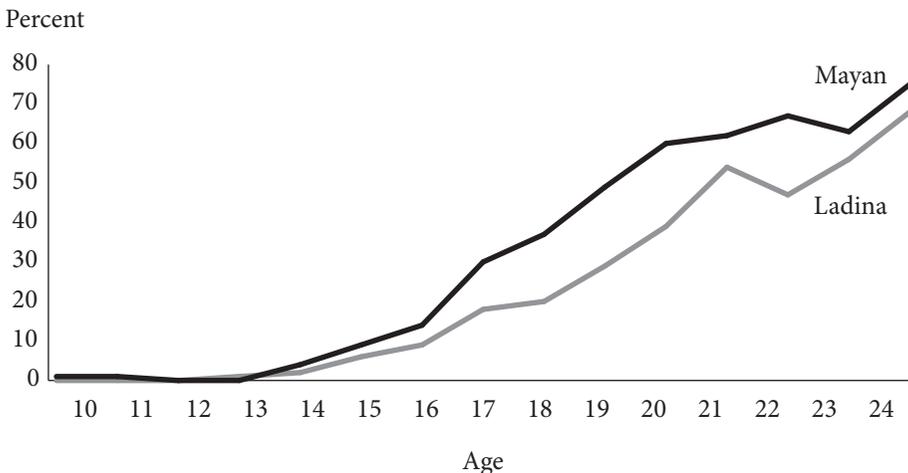
Source: ENCOVI (2000).

studying exclusively and nearly twice as likely as their nonpoor counterparts to be neither working nor in school.

Marrying young and dropping out of school

In developing countries, marriage before age 18 is generally associated with lower rates of school enrollment and education attainment for females (Mensch 2005). Despite the early age of leaving school in Guatemala, females do not begin to marry or bear children until well after the age when school enrollment begins to decline. (Virtually all fertility among this population occurs within marriage, so we examine only marriage as a possible deterrent to schooling.) Age at marriage in Guatemala is younger for Mayan than for Ladina women, and ethnic disparities begin to appear around age 15 (figure 6.5). By age 18 almost 40 percent of Mayan females are married—nearly twice the percentage of Ladina females the same age.

The survey did not include questions on age of school leaving or age at marriage, so it is not possible to construct a variable reflecting the relationship between the timing of these two events. By marital status, however, there are large differences in female enrollment for both ethnic groups: only 3 percent of married 15- to 19-year-old females are enrolled compared with more than 40 percent of the unmarried (table 6.13).

Table 6.13. School enrollment in Guatemala by marital status (percent)

	Unmarried			Married		
Age	Indigenous female	Nonindigenous female	Total	Indigenous female	Nonindigenous female	Total
15–19	30 (623)	52 (1,036)	44 (1,659)	2 (227)	4 (230)	3 (457)
20–24	17 (213)	30 (483)	26 (696)	1 (394)	6 (567)	4 (961)
Total	27 (836)	45 (1,519)	39 (2,355)	1 (621)	5 (797)	4 (1,418)

Note: Number of observations is shown in parentheses.

Source: ENCOVI (2000).

Table 6.14. Marital status by school enrollment (percent)

	Not enrolled			Enrolled		
Age	Indigenous female	Nonindigenous female	Total	Indigenous female	Nonindigenous female	Total
15–19	34 (658)	31 (714)	32 (1372)	3 (192)	2 (552)	2 (744)
20–24	76 (566)	61 (873)	64 (1,439)	10 (41)	19 (177)	17 (218)
Total	50 (1,224)	48 (1,587)	49 (2,811)	4 (233)	6 (729)	5 (962)

Note: Number of observations is shown in parentheses.

Source: ENCOVI (2000).

Table 6.15. Bivariate probit regressions for determinants of continued enrollment and marriage, 15- to 24-year-old females in Guatemala, 2000

Independent variable	Enrolled		Married	
	Coefficient	z-stat	Coefficient	z-stat
Indigenous	−0.11	−0.82	−0.09	−0.67
Poor	−0.26	−1.20	0.17	1.23
Indigenous × poor	−0.06	−0.32	0.04	0.25
Rural	−0.60	−5.50***	0.32	2.64**
Indigenous × rural	−0.01	−0.04	0.08	0.56
Poor × rural	0.02	0.09	−0.23	−1.59
Age	−0.17	−11.02***	0.23	19.60***
Father some primary	0.28	2.11	0.17	1.95*
Father completed primary	0.41	4.34***	−0.49	−5.70***
Father primary +	0.95	7.05***	−0.52	−3.38***
Father education missing	0.29	1.25	−0.66	−2.00*
Mother some primary	−0.22	−1.49	0.71	6.02***
Mother completed primary	0.39	3.78***	−0.70	−7.05***
Mother primary +	0.88	5.55***	−0.57	−3.47***
Mother education missing	0.26	0.63	−0.08	−0.19
Household size	0.01	0.89	−0.06	−4.18***
Constant	2.14	0.00***	−4.38	0.00***
Covariance	−0.67	0.00		
Wald test of $\rho = 0$	102.306			
Number of observations	3,773			
Wald χ^2 (42)	1,152.61			
Probability > χ^2	0.00			

* Significant at the 5 percent level.
** Significant at the 1 percent level.
*** Significant at the .1 percent level.

Note: Regressions weighted for sampling probabilities. Regional dummies also included.

Source: ENCOVI (2000).

However, only 32 percent of nonenrolled 15- to 19-year-old indigenous females are married (24 percent have a child) (table 6.14). These results indicate that early marriage and motherhood are unlikely to inhibit female enrollment directly. Bivariate probit estimates modeling the relationship between current enrollment and marital

status for 15- to 24-year-old women reject the null hypothesis of enrollment and marital status being independent (the test statistic for the Wald test is significantly different from zero) (table 6.15).[7, 8] This implies that the outcomes are negatively related with statistical significance. The results also show that neither being indigenous nor being poor is significantly related to either enrollment or marital status. Residing in a rural area has significant effects for both outcomes in expected directions. None of the interaction terms is statistically significant.

Even if the timing of school leaving and marriage do not directly coincide, it is likely that parental expectations of daughters' future life paths may influence investment in education. Our qualitative research in these communities (Colom and others 2004) reveals that, while parents initially report having the same education aspirations for their sons and daughters, on further probing some state they are reluctant to invest in daughters' education beyond the age of puberty because of high direct and opportunity costs, fear of possible interaction with boys, and a perceived risk of early pregnancy—and because most expected their daughters' future livelihood activities to consist mainly of acting as wives and mothers, roles for which advanced education is not necessarily viewed as beneficial.

Lack of access

Access issues were low among the reasons cited for nonenrollment for all ages. It is possible, however, that a lack of school facilities in rural areas—particularly at the secondary level (Andersen 2001)—may result in other causes for nonenrollment being cited by young respondents. Hall and Patrinos (2005) and Clemens (2004) emphasize that greater access to secondary schooling increases the chances of primary completion. The cost of schooling is also believed to be an important deterrent for secondary enrollment in Guatemala, since fees increase dramatically at this level (Edwards 2002).

Indigenous girls' schooling experiences

Our analysis indicates that indigenous females—particularly those who are poor or live in rural areas—are the most disadvantaged group educationally. They are less likely to ever enroll in school, and, when they do, they start later and drop out earlier. Conditional on enrollment, indigenous girls have the lowest grade-for-age levels. Enrollment trends by age, however, show that the proportion of indigenous females participating in the education system is rising.

---

7 Technically, both continued enrollment and being unmarried are censored variables; we model each here as logistic outcomes, however, since we do not have timing information for either.
8 Restricting the age group in the regression to ages 15–19 yielded very similar results.

Even with increasing enrollment rates, low enrollment remains a serious problem, particularly starting at age 12. The declines at this age are especially dramatic for indigenous females. While the percentages of indigenous boys and girls enrolled are about equal at age 10 (at about 80 percent), by age 14 they diverge (60 percent of indigenous males compared with only 40 percent of indigenous females). The reasons cited by young people for nonenrollment are dominated by household economic constraints and demands for their labor.

Along with the acceleration in gender-related adult labor roles, age 12 also corresponds to the onset of puberty and parental concerns about daughters mixing with boys. In our qualitative research investigating barriers and constraints to schooling and social participation among indigenous girls and boys in four rural indigenous Guatemalan communities (Colom and others 2004), we find that parents view adolescent girls' interactions with boys as potentially damaging to their daughters' reputations and subsequent marriageability. They also fear that such interactions may put their daughters at increased risk of early, out-of-wedlock pregnancy. (Birth outside of a marriage/consensual union is uncommon and highly stigmatized in rural Mayan communities.)

In addition to using the ENCOVI data to explore whether indigenous female status is a cause of unfavorable schooling outcomes, we also investigated diversity within this group. A noteworthy set of findings is that for most outcomes, differences by poverty status for indigenous females are greater than average gender-ethnicity differences. For primary enrollment, age at school entry, and grade-for-age status, nonpoor indigenous female levels are about equal to those of nonindigenous girls. Their levels of primary completion conditional on enrollment and secondary enrollment conditional on primary completion are about 80 percent of those of nonindigenous girls. In contrast, extremely poor indigenous females have by far the lowest levels of primary entry, primary completion, and secondary enrollment.

Policy implications for getting girls into school

The main reason cited by primary-school-age children in all four gender-ethnicity groups for not being enrolled was lack of money. Among 13- to 24-year-olds, housework was the primary reason given by all females, followed by lack of money and no interest among the indigenous, and lack of money and market work among the nonindigenous. For males regardless of ethnicity, market work, lack of money, and no interest were the three leading reasons cited for not being enrolled. Table 6.16 summarizes the findings from the extensive multivariate analysis in this chapter and shows the importance of the interaction of being indigenous, female, and poor or rural.

What can policymakers do to encourage enrollment? In addition to poverty reduction programs, mechanisms to encourage families to start their children's

Table 6.16. Significant multivariate results on gender, ethnicity, poverty, and geography regressors

Item	Ever primary	Complete primary		Ever secondary		Grade for age
	All	All	Primary enrollees	All	Primary completers	Enrolled
Indigenous female		⇓***	⇓***	⇓**		
Indigenous female × poor	⇓***					
Indigenous female × rural				⇓*		⇓**
Indigenous male				⇓*	⇓*	
Nonindigenous female × poor	⇓*					⇓*
Poor	⇓**	⇓**	⇓**	⇓***	⇓**	⇓***
Rural		⇓**	⇓**	⇓***	⇓***	
Poor × rural		⇓**	⇓**	⇓***		⇓*

* Significant at the 5 percent level.
** Significant at the 1 percent level.
*** Significant at the .1 percent level.

Note: ⇓ indicates that the factor reduces the variable in a statistically significant way. Age, education of mother and father, household size, and regional dummies are included in all regressions.

Source: Tables 6.3, 6.4, 6.9 and 6.10.

schooling at age 7 may lead to fewer competing interests in time allocation as children approach puberty and are compelled to take on more adult labor roles. Our analysis shows that the vast majority of non-enrolled 12- to 18 year-olds had not completed primary school. For girls a gap of about five years was observed between the ages when enrollment levels decline and marriage begins. Our multivariate results did, however, indicate a significant negative relationship between these two outcomes, and our qualitative research (Colom and others 2004) reveals that Mayan parents' expectations of their daughters' future livelihood activities may contribute to low investments in female post-puberty education.

These findings point to the need to better target scholarships and other educational incentive programs. While the current government approach of expanding access to primary education in rural areas is a positive one, it may not be sufficiently precise. Even though extremely poor households are disproportionately located in rural areas, a quarter of the rural households in the survey were nonpoor. Moreover, among the poor, girls are the most disadvantaged.

Expanding access to bilingual education in the early grades has been shown to reduce grade repetition and dropout among indigenous students (Morren 1988;

Patrinos and Velez 1996; Enge and Chesterfield 1996). Currently only a third of rural children have access to such programs (Shapiro 2005).

The government could experiment with innovative programs—some already operating in Latin America—that allow poor rural children to attend school in ways more compatible with their work responsibilities. Examples include video conferencing or correspondence study. Our qualitative research in rural highland Mayan communities reveals that nonenrolled indigenous girls—most engaged in domestic and childcare activities—are severely isolated socially, with church attendance the only form of interaction outside the household (Colom and others 2004). Non-traditional programs that combine instruction with social interaction in safe local community spaces may increase not only girls' educational prospects but also their access to social networks and social support. Acquiring and mobilizing the cooperation of the local community and working with known and trusted Mayan organizations is likely to improve the cultural acceptability, effectiveness, and sustainability of such programs (Stromquist, Klees, and Miske 1999).

References

Andersen, M. 2001. "Guatemala: The Education Sector." Technical Paper 2. World Bank, Guatemala Poverty Assessment Program, Washington, D.C.

Clemens, M. 2004. *The Long Walk to School: International Education Goals in Historical Perspective.* Washington, D.C.: Center for Global Development.

Colom, A., M.J. Ruiz, J. Catino, K. Hallman, S. Peracca, and K.M. Shellenberg. 2004. "Voices of Vulnerable and Underserved Adolescents in Guatemala." Project report prepared for Population Council National Youth Forum, 3 September, Guatemala City.

Edwards, J. 2002. "Education and Poverty in Guatemala." Technical Paper 3. World Bank, Guatemala Poverty Assessment Program, Washington, D.C.

Enge, K.I., and R. Chesterfield. 1996. "Bilingual Education and Student Performance in Guatemala." *International Journal of Educational Development* 16 (3): 291–302.

Hall, G., and H.A. Patrinos, eds. 2005. *Indigenous Peoples, Poverty and Human Development in Latin America 1994–2004.* Washington, D.C.: World Bank.

INE (National Institute of Statistics of Guatemala). 2000. Encuesta Nacional sobre Condiciones de Vida (ENCOVI) [Living Standards Measurement Study]. Guatemala City.

Mealli, F., S. Pudney, and F. Rosati. 2004. *Measuring the Vulnerability of Children in Developing Countries: An Application to Guatemala.* Understanding Children's Work Project. Florence, Italy: Innocenti Research Centre.

Mensch, B. 2005. "The Transition to Marriage." In C.B. Lloyd, ed., *Growing Up Global: The Changing Transitions to Adulthood in Developing Countries.* Washington, D.C.: National Academies Press.

Morren, R.C. 1988. "Bilingual Education Curriculum in Guatemala." *Journal of Multilingual and Multicultural Development* 9 (4): 353–70.

Patrinos, H.A., and G. Psacharopoulos. 1995. "Socioeconomic and Ethnic Determinants of Grade Repetition in Bolivia and Guatemala." *International Journal of Educational Development* 16 (1): 3–14.

Patrinos, H.A., and E. Velez. 1996. "Costs and Benefits of Bilingual Education in Guatemala: A Partial Analysis." Human Capital Development Working Paper 74. World Bank, Washington, D.C.

Psacharopoulos, G., and H. Yang 1991. "Educational Attainment among Venezuelan Youth: An Analysis of its Determinants." *International Journal of Educational Development* 11 (4): 289–94.

Shapiro, J. 2005. "Guatemala." In G. Hall and H. Patrinos, eds., *Indigenous Peoples, Poverty and Human Development in Latin America 1994–2004*. Washington, D.C.: World Bank.

Smith, C. 1992. *Guatemala Indians and the State: 1540 to 1998*. Austin, Tex.: University of Texas Press.

Steele, D. 1994. "Guatemala." In G. Psacharopoulos and H.A. Patrinos, eds., *Indigenous People and Poverty in Latin America: An Empirical Analysis*. Washington, D.C.: World Bank.

Stromquist, N.P., S. Klees, and S.J. Miske. 1999. *Improving Girls' Education in Guatemala: Impact Evaluation*. Report PN-ACA-919. Washington, D.C.: U.S. Agency for International Development.

UNDP (United Nations Development Programme). 2004. *Human Development Report 2004*. New York: Oxford University Press.

USAID (U.S. Agency for International Development). 2005. *USAID/Guatemala: Annual Report Fiscal Year 2005*. Washington, D.C.