Migration and the Pursuit of Education in Southern Mexico

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Educational attainment in rural Mexico is increasingly structured by migration opportunities. The rise in adult US migration increases potential funding for adolescents to stay in school but may also decrease incentives for them to do so. Domestic migration flows can fund schooling locally, and may also support students' own movement for education when opportunities in rural communities are limited. We study these processes using survey and focus group data from rural villages in southern Mexico undergoing rapid changes in migration and education opportunities. We find evidence that education trajectories are intimately linked with adolescents' exposure to migration in their communities, and that gender plays an important role in structuring these effects. We also document the increasing importance of adolescent movement to peri-urban and urban centers to complete secondary education, a pathway of schooling acquisition that is itself influenced by adult migration patterns in their communities.

Introduction

Education and migration opportunities for rural Mexican youth have undergone rapid change over the last three decades. Expansion and investment in schooling, combined with smaller families and changing incentives for keeping children in school, have produced large increases in educational attainment—particularly for girls (Levy 2006; Creighton and Park 2010). At the same time, migration to the United States, which has a long precedent elsewhere in the country, has expanded to include significant movement from southern Mexico (Marcelli and Cornelius 2001; Cohen 2010). Domestic migration from rural Mexico has also risen notably in the last several decades (Arenas et al. 2008; Boucher et al. 2009), again with major movements of southern rural Mexicans to larger towns and northern Mexican states.

Existing scholarship proposes several mechanisms through which community migration networks—or the social ties connecting individuals in sending communities with individuals from that community who have migrated (Massey and España 1987)—may structure children's schooling opportunities. These mechanisms operate through financial resources, logistical and social support, and ideational change. Growing migration flows simultaneously

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reshape the array of adult pursuits available to children and the social support and sanctioning for trade-offs between schooling, local work, or labor migration. Both migration and schooling have histories that are gendered, and thus growth in women's educational attainment and increases in the female composition of migrant networks may have distinct implications for girls versus boys. This study examines how adolescent schooling outcomes in southern Mexico are shaped by international and domestic migration networks, with an emphasis on the gendered nature of these relationships. To do so, we use data that capture a key period during which domestic and international migration rose sharply, allowing us to observe outcomes across the span of this transition. q1

We make two main contributions to existing research. First, we assess adolescents' schooling choices in conjunction with coexisting migration and work opportunities for youth. Extant research largely views migration and schooling as competing outcomes for Mexican youth (Kandel and Massey 2002; Meza and Pederzini 2009; McKenzie and Rapoport 2011). Yet because educational infrastructure and quality have not kept pace with schooling demand in many impoverished parts of the country, domestic migration for schooling is an increasingly salient decision for rural youth (Santibañez et al. 2005; Luschei 2012). Moreover, a family's ability to send children to Mexican cities for schooling rises with remittances received from migrants abroad and/or with logistical and financial support from migrants within Mexico. These dynamics related to potential complementarities of migration and schooling have received increasing attention in other national contexts[1] but remain relatively unexplored in the Mexican case. q2

Second, we propose that the gender composition of adult migrant networks matters for boys' and girls' schooling decisions. Most research that links migration and schooling overlooks the gendered aspects of migration networks, despite evidence that female and male migration flows produce different forms of investment for children and different norms about acceptable adolescent pursuits (Kanaiaupuni 2000; Curran et al. 2005; Cohen et al. 2008). Adolescents' pursuit of schooling, work, and/or migration is influenced not only by labor market opportunities but also by local understandings of choices (and associated risks), which both vary by gender (Curran and Rivero-Fuentes 2003; Boehm 2008; Olvera-Garcia et al. 2014).

We use quantitative and qualitative data to describe the gendered nature of adolescents' choices and how existing migration networks shape them. A survey of 845 rural households in southern Mexico permits examination of the education pursuits of multiple cohorts of adolescents. We focus on behavior occurring between ages 15 and 18 years, a critical time in youths' life course in terms of education, migration, and work choices. While most

[1] See Ansell (2004); Punch (2004); Hashim (2007); Boyden (2013).

Mexican youth now complete *secundaria* (middle school), fewer progress to *preparatoria* (high school); completing at least 1 year of *preparatoria* is thus our key education measure in these analyses. We model education choices for boys and girls as they interact with migration and work opportunities, assessing the relationship between existing male and female adult migration patterns and adolescent outcomes net of a host of individual, household, and community factors. Qualitative data derived from focus groups with teenagers in sample communities shed light on potential motivations shaping boys' and girls' schooling and migration behaviors, which are not observable in our survey data. The focus groups demonstrate youth's clear identification of gendered risks and opportunities associated with domestic and international options. We strive for a complimentary mixed-methods approach, whereby our focus group data are used "to provide a depth of interpretation unavailable from the large-sample data" (Small 2011, 65).

Our study provides a rich analysis of an unresolved question—how is education shaped by migration networks in rural communities?—utilizing a conceptual approach that considers multiple mechanisms and explicitly considers the role of gender in these relationships.

Growth in Education and Migration Opportunities in Mexico

Opportunities in Mexico have changed dramatically in the last three decades. Consistent with development trends in other Latin American nations, the Mexican economy grew rapidly though with considerable volatility between 1975 and 2010 (Moreno-Brid and Ros 2009). During this period, total fertility fell from 6.5 to 2.5, and life expectancy increased from 64 to 76 years. As families grew smaller and the health profile of infants improved, educational attainment increased. By 2009 Mexican men and women aged 24–35 both averaged 10 years of school, compared with 7.7 (men) and 6.9 (women) years for the same age group in 1989 (Gakidou et al. 2010).

Social policy also played a transformative role in promoting greater educational attainment in Mexico. In 1993, a federal ruling extended mandatory education to nine years (completed *secundaria*), and public spending on education increased 40 percent over the next decade (Santibañez et al. 2005). Mexico was a pioneer among several countries—for example, Brazil, Argentina, Turkey, and Bangladesh—in implementing conditional cash transfer strategies to incentivize education (Glewwe and Kramer 2006). Since 1997, the national initiative *Oportunidades* has provided stipends to millions of Mexican households conditional on children's school attendance, with slightly higher stipends for girls. Though credited with modest improvements nationally in children's educational progress (Behrman et al. 2005), *Oportunidades'* impact in rural areas has been substantial, decreasing regional disparities in education across Mexico (Levy 2006; Creighton and Park 2010).

Though elementary schooling completion is nearly universal in Mexico and completion of middle school is increasingly common, regional variation persists in the transition to high school (*preparatoria*) and beyond. In the poorer southern states of Oaxaca and Chiapas—where communities in this study are located—only 9.8 percent and 10.2 percent, respectively, of the adult population has completed at least 1 year of high school, compared to 17 percent for Mexico overall (INEGI 2011a). These variations result from a lack of education services as well as from limited family resources and/or lower demand for children's schooling (Behrman et al. 2005; Santibañez et al. 2005). Some children must relocate if they wish to continue past middle school as many rural communities lack high schools. Further, although education is technically free through grade nine, many families must cover significant expenses for children's transportation, uniforms, books, and school celebrations (Kandel and Kao 2001); education also carries the opportunity cost of foregone youth earnings (Levison et al. 2001). q3

Over the past several decades, Mexican rural communities have also experienced large increases in out-migration. Between 1970 and 2005, US emigration increased sevenfold (Hanson and McIntosh 2010); a large proportion of these flows were rural in origin. During this same period, domestic migration relocated much of the rural population to Mexico City, regional hubs in Central and Northern Mexico, and urban centers on the US-Mexico border (Arenas et al. 2008). Historically, males have led the way in international migration, in part because US immigration policy has favored males over females, and in part because of fears about female safety and propriety (Boehm 2008; Cohen et al. 2008). By contrast, females have a long history of domestic movement dating to the 1940s (Arías 1995; Szasz 1999; Curran and Rivero-Fuentes 2003).

Linking Education and Migration

As a result of economic growth, sizeable investments in education infrastructure, the changing geography of labor opportunity, and attendant adult migration patterns, the community and household context in which children are raised has changed substantially in southern Mexico. Whether, and how, these patterns influence boys' and girls' education and migration outcomes is our empirical question of interest. Theoretically, the relationship between such contextual change and children's schooling and migration outcomes operates through multiple pathways and at multiple levels. Several lines of scholarship from across the social sciences inform current thinking about these relationships. Figure 1 offers a simplified theoretical framework to integrate these links.

Research conducted in regions with sizeable migration outflows—including communities across parts of Latin America, Southeast Asia, and Southern

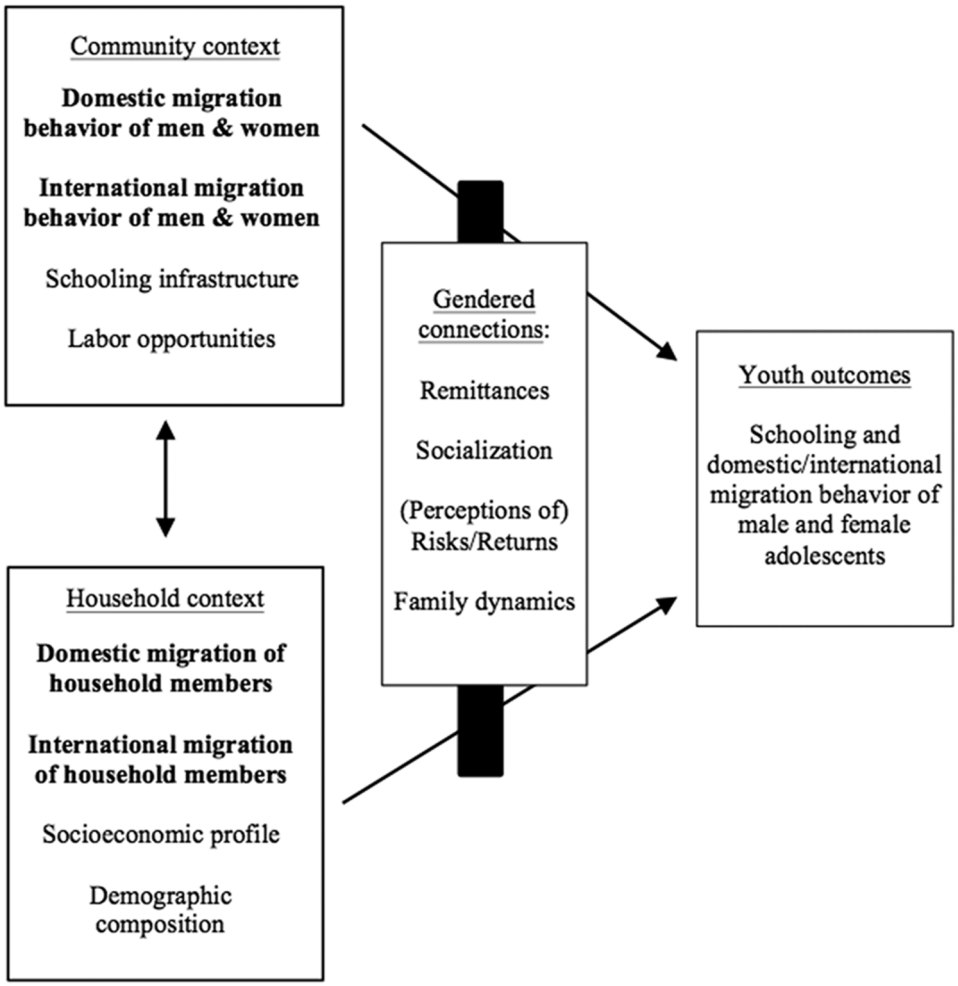

FIG. 1.—Linking migration and education

Africa—conceptualize adolescents' schooling and migration outcomes (*right*) as a function of individual and household attributes, as well as the structure of information, social norms, labor, and schooling opportunity in the larger community (*left*).[2] Scholarship from across the social sciences proposes several mechanisms that link migration from communities and households to the outcomes of youth reared in those communities and households (*center*): migrant monetary remittances, the family context, socialization toward mi-

[2] See Parreñas (2005); Hashim (2007); Meza and Pederzini (2009); Korineck and Punpuing (2012); Zúñiga (2014).

gration or schooling (social remittances), and the perceived risks and returns associated with each pursuit. We detail these arguments below, highlighting how these relationships are structured by gender.

A long-standing economic argument is that community migration networks shape adolescent schooling and migration behavior through monetary remittances. Monetary remittances enable increased investment in schooling by relaxing budget constraints and increasing the potential financing of youth migration to urban centers for continued schooling. Empirical support for these arguments exists across a number of contexts, including rural Mexico.[3]

Notably, both the amount of money remitted and how remittances are used likely vary by gender (Ramírez, Domínguez, and Morais 2005; Sorensen 2005). In the Mexican case, men tend to send more money than women, though not necessarily a larger proportion of their earnings (Massey and Basem 1992; Cohen 2010). Women's remittances are more likely to support children's educational expenses, while men's remittances are more often directed toward personal investments in land or housing (De La Cruz 1995). Additionally, remittances may be disproportionately spent on girls' (vs. boys') education in Mexico (Antman 2012).

An alternative economic argument highlights household labor allocation and substitution, through which adult migration may depress schooling outcomes due to increased domestic obligations of children and/or increased responsibilities of nonmigrant caretakers that reduce oversight of children's schooling progress (Meza and Pederzini 2009; Antman 2012). Scholarship initiated in development and family psychology (Suarez-Orozco et al. 2002; Falicov 2007) contends that migration's impacts on family dynamics may further reduce children's progression in school. Studies highlight the emotional stress associated with parental absence, which can reduce children's behavioral and academic engagement.[4] q4

Given cultural expectations surrounding mothers as caretakers, children may feel more abandoned by a mother's migration (Parreñas 2005; Dreby 2010), which may translate into poorer education outcomes for children in mother-away households. Conversely, Dreby and Stutz's (2012) study of Oaxacan families finds that children with migrant mothers have higher educational aspirations than children of migrant fathers, in part because these children are motivated academically by their mothers' "migration as sacrifice." Moreover, the educational advancement of their children is more likely to be an explicit goal of migrating internationally for migrant mothers versus migrant fathers (Terrón-Caro and Monreal-Gimeno 2014).

[3] See Edwards and Ureta (2003); Hanson and Woodruff (2003); Yang (2005); Lu and Treiman (2007); Nobles (2011).

[4] See Booth (1995); Salgado de Snyder (2003); Korineck and Punpuing (2012); Zúñiga (2014).

A complementary set of arguments emphasizes ideational change initiated by exchanges between community members and departed or returned migrants. In addition to monetary transfers, migrants export ideas and behaviors back to sending communities as "social remittances," a term developed by Peggy Levitt based on her observation of the transnational circulation of norms, practices, identities, and social capital between the Dominican Republic and the United States (Levitt 1998, 2001). These exchanges may affect youth perceptions about opportunity, identity, and the anticipated value of schooling, particularly as the proportion of community members with migration experience expands (Meza and Pederzini 2009). In the case of Mexico, scholars refer to a "culture of migration" whereby migration becomes a widespread, normative, and expected route to upward economic and social mobility (Kandel and Massey 2002). If children are socialized to value migration and to anticipate it for themselves, and if employment opportunities in the destination community (i.e., United States) do not reward education, then the presence of large migration flows will depress education aspirations among youth (Kandel and Kao 2001; Nobles 2011). By contrast, domestic migration networks that socialize children toward middle-class opportunities in Mexico's urban centers may generate increased demand for additional schooling (Boucher et al. 2009).

Here too, gender plays an important role in migration-education relationships. The risks and opportunities culturally associated with forms of migration are highly gendered (Kanaiaupuni 2000; Cohen et al. 2008). In contrast to other parts of Latin America and Southeast Asia, pioneer international migration is still less common for young women relative to young men in Mexico (Solís-Pérez and Alonso-Meneses 2009). As a result, female US migration among household and community members is likely to have a larger impact relative to male US migration on the options that girls envision for themselves. Sara Curran and Estela Rivero-Fuentes (2003) find a significant positive effect of domestic female migrant networks on the domestic migration of boys and girls but insignificant effects for male domestic networks. They suggest that this difference is attributable to Mexican female domestic migrants experiencing more stable employment and establishing more permanent residences than men (Arizpe 1985), which in turn provides young, potential migrants with better opportunities. For moves to the United States, Curran and Rivero-Fuentes find that prospective migrants are most influenced by networks of the same sex, and that female networks actually lower the odds of male migration. Female US migrants also tend to be more highly selected on education than male migrants (Feliciano 2008), and thus female adolescents who envision international migration for themselves may not perceive schooling and US migration as mutually exclusive pursuits.

A final and (in the Mexican case) mostly overlooked link between migration and schooling is the growing proliferation of "education migrants"—

children and young adults migrating within country for schooling purposes (Santibañez et al. 2005). Migration for schooling is an increasingly salient choice for rural youth with limited access to high-quality schools in their communities, a phenomenon that has received attention in multiple studies outside of the Mexican context (see, e.g., Hashim 2007 [Ghana]; Ansell 2004 [Lesotho, Zimbabwe]; Punch 2004 [Bolivia]; and Boyden 2013 [Ethiopia, India, Peru, Vietnam]). Domestic migration also facilitates combining schooling with work, as better opportunities for one or both activities often exist in more population-dense areas. In the case of "education migrants," the schooling and migration outcomes for adolescents in the right panel of figure 1 are complementary; this is a departure from the majority of literature portraying migration and education as competing opportunities for Mexican rural youth.

In sum, the presence, prevalence, and gender composition of migration networks may influence the economic opportunity for children to continue schooling, their desire to do so, and the social support for such a decision by families and community members. In rural communities, a child's education can be critically advanced or hindered by the decision to migrate. In light of these possibilities, adolescent decisions about schooling and migration must be understood in terms of gendered constraints in the local context in which such decisions are made.

Research Questions and Study Hypotheses

In pursuit of our research questions regarding the gendered role of domestic and international migration networks on schooling and migration choices of rural Mexican youth, we propose four hypotheses, summarized in table 1. Each hypothesis describes how adolescent schooling outcomes (specifically, completion of at least 1 year of high school) will respond to adult migration patterns. They are motivated by the existing literature and attendant theories regarding net effects of gendered migrant networks on youth's choices. The term "migration network" refers to the proportion of community adults with migration experience; for example, the female domestic migration network refers to the proportion of female adults in a community with domestic migration experience.

TABLE 1
Predicted Effects of Adult Migration Networks on Youth's High School Entry

	Female Adult Migration		Male Adult Migration	
	Domestic	International	Domestic	International
Girls	+	+	Ambiguous	Ambiguous
Boys	+	+	Ambiguous	. . .

Are youth schooling outcomes affected by the domestic *migration of adults in their communities? Does this process differ by who is migrating and, specifically, by migrant gender?*

Hypothesis 1: The female domestic migration network is positively correlated with boys' and girls' completion of some high school, acquired either in the home community or by migrating.

Hypothesis 2: The male domestic migration network is not predicted to have a similar effect.

According to Curran and Rivero-Fuentes (2003), more stable female migrant networks within Mexico provide greater access to regional employment opportunities that reward education, providing incentives for youth to pursue more schooling. These networks can also provide lodging and other assistance to youth who migrate for schooling or work purposes. In contrast, male domestic networks tend to be more transient and provide fewer resources, so we do not anticipate a similar effect.

Are youth schooling outcomes affected by the international *migration of adults in their communities? Does this process differ by who is migrating and, specifically, by migrant gender?*

Hypothesis 3: The male US migration network is negatively correlated with boys' completion of some high school and positively correlated with their choice to migrate to the United States.

Hypothesis 4: By contrast, female US migration networks contribute to a higher likelihood of completing some high school for both boys and girls.

We expect existing male US migration networks to foster a "culture of migration" for boys as shown by previous research (Kandel and Massey 2002). Thus, we anticipate less growth in adolescent male educational attainment when strong male US migration networks are available to support an international employment option. We do not expect similar effects of existing male US networks for girls because of the gendered nature of US migration for adolescents (Curran and Rivero-Fuentes 2003). In contrast, we expect a positive correlation between female US migration networks and both boy's and girls' educational outcomes given the purpose of some female migration to the United States (Terrón-Caro and Monreal-Gimeno 2014), the corresponding tendency for remittances by female migrants to be invested in education (De La Cruz 1995), and/or the tendency for female migrants to themselves be more educated (Feliciano 2008). **q5**

We test these hypotheses using household and focus group data on adolescent migration and schooling behavior spanning the period of rapid increase in outmigration in Southern Mexico.

Data and Methods

Household Survey

The survey, conducted between August 2005 and June 2006, sampled 845 households from nine communities spanning major coffee-growing regions in Oaxaca and Chiapas. The previous decade (1995–2005) in these communities saw rapid changes in terms of schooling (completion of some high school increasing from 3 percent to 18 percent), US migration (increasing from 5 percent to 25 percent of households), and migration to other parts of Mexico (from 20 percent to 40 percent of households). This period of dynamic change makes the studied communities well suited to test the study hypotheses.

In each community, households were stratified based on prior migration experience as conveyed by key community informants as well as on household membership in coffee cooperatives, and a random sample was drawn from each strata. Information was collected on all household members and on all children of household heads, regardless of whether or not individuals were living in the household at the time of survey. This data collection strategy diminishes the possibility of selection bias that would arise if information were only collected on migrants who had returned to the community. For each individual, years of completed schooling and information regarding first and last trip to the United States and/or within-Mexico destinations was collected. California and Florida were the two most popular US destination states, accounting for 30 percent and 20 percent of all international migrants, with the rest spread across 22 other US states. In our sample of rural communities, the majority of domestic movement is to larger towns or capital cities, with a roughly even split between Mexico City, Oaxaca City, and other Mexican cities and towns. Notably, the survey recorded migration for both schooling and nonschooling purposes.

We use descriptive statistics from our sample households to document education and migration trends in the region. In addition, we perform a series of regressions to test for connections between adult migration networks in the community and youth schooling and migration outcomes. We next present details on our regression modeling strategy and our measures.

Modeling Adolescent Schooling and Migration Decisions

We use retrospective survey data to measure adolescent outcomes occurring between ages 15 and 18, a life stage when youth make important decisions about work and schooling. Our analyses draw on a sample of 1,063 persons born between 1983 and 1990, or aged 16–23 years at the date of the survey. We selected this age range for two reasons. First, students who transition from *secundaria* to *preparatoria* typically do so by age 16, and second this range allows us to restrict analyses to individuals young enough to have experienced state investments in education (i.e., *Oportunidades*) and expanding migration op-

tions beginning in the late 1990s. By using the variable of "completed 1 year of *preparatoria*" we are able to include youths who may still be enrolled in high school (ages 16–19). Most students who finish 1 year of *preparatoria* typically complete it, both within the survey and nationally (INEGI 2011a).

We first use a logistic regression to model whether the adolescent completed at least 1 year of *preparatoria* by age 18. Then, to provide a richer depiction of adolescent education, migration, and work trajectories, we use a multinomial logit regression that distinguishes five outcomes. By the age of 18, the adolescent:

1. remains in the community and does not complete at least 1 year of *preparatoria* (omitted category),
2. remains in the community and completes at least 1 year of *preparatoria*,
3. migrates domestically and completes at least 1 year of *preparatoria* outside of the community,
4. migrates domestically for work and does not complete at least 1 year of *preparatoria*,
5. migrates to the United States and does not complete at least 1 year of *preparatoria*.

The categories are exhaustive in this sample of adolescents from rural, southern Mexico but are clearly not exhaustive in the Mexican population at large (e.g., some individuals move to the United States for school or attain education both internationally and domestically; see Zúñiga and Hamann 2009). It is also possible that an individual might migrate both domestically and internationally within ages 15–18 or might engage in domestic migration both for schooling and for work. In the rare occasion when multiple outcomes are reported (2 percent of the sample), we privilege the less common outcome for classification purposes and tested our results for sensitivity to this choice. We found none.

Measures of Migration Networks

Because our interest is in modeling the relationship between the local migration context and youths' completion of some *preparatoria*, we measure migration experience among community adults during the year that the adolescent is 15 years old. We use the household survey data to construct, separately, the proportion of male and the proportion of female community members who were living in another part of Mexico or in the United States in each year. These four gender- and destination-specific measures of network size—or, more specifically, the prevalence of migration among community adults—thus vary both across and within communities depending on the child's age. Notably, variance inflation factor tests (Fox 1997) indicate sufficient data support to estimate coefficients for the four migration terms si-

multaneously. Given the rapid change experienced by these rural communities, the approach reflects the possibility that children of different ages from the same community can experience distinct local structural opportunities and constraints.

The approach also follows previous scholarship that theorizes variation in migration's effects on origin communities based on the gender of the migrant network, using the logic that male versus female migration flows contain different "resources" for the sending community. Indeed, in tests not shown here (available from authors) and consistent with prior research (Massey and Basem 1992; Curran and Rivero-Fuentes 2003; Feliciano 2008), we use the survey data to demonstrate that (*a*) domestic female migration networks are composed of significantly better-educated individuals than domestic male migration networks, (*b*) female domestic migrants are significantly more likely than male domestic migrants to remain in their destination community for at least 1 year (i.e., female migration networks are more stable), and (*c*) female domestic migrants send a smaller amount of remittances, on average, than male domestic migrants; however, gender differences in remittances from the United States are not significant.

Previous studies also emphasize the importance of household migration networks, where flows are typically measured by a binary or count measure of household members' prior migration experience (Cerutti and Massey 2001; Curran and Rivero-Fuentes 2003). However, modeling youth's education outcomes as a function of previous household migration is vulnerable to endogeneity concerns (Woodruff and Zenteno 2007). Moreover, household migration is one mechanism through which the effects of community migration networks should operate.[5] Thus, our preferred specifications omit measures of household migration, though the results (available from authors) are robust to their inclusion.

Household and Community Sociodemographic Measures

The regressions include a number of control measures that are well-known predictors of rural educational attainment. We include measures of the number of older men, older women, and younger children in the household to account for an adolescent's position within the household structure. "Older" and "younger" are measured in relation to the focal youth. As a measure of family-level human capital, a dichotomous variable captures whether any female household member older than 30 has more than three years of education, the sample mean for this population. Because coffee farming

[5] We tested specifications using proxies for household migration generated by interacting the gender- and location-specific community migration network measures with indicators of household structure—specifically, the number of older male or female household members, measured in relation to the focal household youth. These interactions predict the likelihood of migration outcomes in the sample (results available upon request).

provides an important work alternative to schooling and because land ownership is an important proxy for wealth in these communities, we control for the number of coffee hectares the youth's family has in production and whether or not the family belongs to a coffee cooperative (which boosts returns to production).

To capture local schooling opportunity, we include a dichotomous measure identifying whether the community had a high school by the time the adolescent turned 15. Some schools were built during the observation period in this study, creating within-community temporal variation in local educational opportunities. Finally, we control for adolescents' age at time of the survey to adjust for cohort variation in schooling outcomes. All estimates are weighted using inverse probability of sampling weights. The standard errors are clustered at the level of the household.

Focus groups with community youth.—Qualitative inquiry can shed light on the individual motivations of community youth, and the social and cultural processes tied to these motivations—both of which cannot be inferred from our survey data alone. In six of the nine communities, the lead author conducted focus group sessions with community youth, in collaboration with a scholar of qualitative methods with over 30 years of research experience in the region. All sessions were conducted in Spanish, lasted between 30 and 90 minutes and were audio-recorded and later transcribed by a Oaxacan university student. Participants' ages ranged from early to late teens, and boys and girls were interviewed separately in all but one community in order to probe gender-specific norms. Although nearly all adolescents who participated in these focus groups had not themselves migrated, many had friends or family members with migration experience. Some youth were anticipating migration for themselves in the near to medium term—domestically and/or internationally—while others were not.

Focus groups as a method of inquiry are well suited to this context because adolescents' perceptions of schooling and migration opportunities are shaped by both individual and collective norms. The focus group protocol was structured to elicit both collective and personal perspectives, drawing on Hughes and Dumont's (1993) culturally anchored focus group model. Questions probed youth's aspirations and opinions related to education, migration, and work opportunities within their community and outside of it. The leading question for each topic was always asked from the communal perspective, for example: "Is education an important goal for youth in this community? Why or why not?" and "Do many youth in this community imagine that they will migrate from this community at some point? Why or why not?" Although questions were initially posed from a community standpoint, they nearly always elicited commentary and reflection on the individual experiences and aspirations of focus group participants.

Analysis Strategy

As recommended in Krueger and Casey (2009), focus group transcripts were transformed into a series of verbatim, descriptive statements—one or more sentences aligned with a particular topic. Descriptive statements were then grouped into various macrothemes of interest: for example, schooling and migration aspirations, reasons for continuing study, reasons for wanting to migrate, and perceptions of gender differences regarding migration and/or education opportunities. Illustrative quotations selected for this study (translated by the first author, a fluent Spanish speaker) were drawn only from macrothemes that emerged in at least half of sampled communities; other themes that emerged less consistently or emphatically across regions were not included (see table A1).

Results

We present our results in three steps. We first document recent changes in educational attainment and migration flows in the region, drawing on descriptive statistics from the household survey. We then use a set of regressions to test for links between adult migration networks in the community and adolescent schooling and mobility outcomes. Finally, we present results from analysis of the focus group transcripts to complement our survey data with insights about how youth report developing an orientation toward migration, perceptions of local schools as insufficient to meet youth's educational aspirations, and perceptions of schooling and migration opportunities as gendered.

Education Gains and Shifting Migration Trends in Southern Mexico—Descriptive Statistics

Table 2 uses data from the household surveys to construct descriptive patterns of migration between 1995 and 2005. These communities experienced rapid change both in educational attainment and in the probability of

TABLE 2
EDUCATION AND MIGRATION TRENDS BY GENDER

	Attained Some High School (%) (1)		Domestic Migration Experience (nonschooling) (%) (2)		US Migration Experience (%) (3)		Domestic Migration for Schooling Experience (%) (4)	
Age	Men	Women	Men	Women	Men	Women	Men	Women
41–50	4	1	38	9	21	3	1[a]	1[a]
31–40	4	2	38	24	23	3	2[a]	0[a]
26–30	6	7	47	21	26	5	3[a]	5[a]
23–25	14	13	44	29	33	12	10[a]	10
20–22	19	22	50	26	36	9	14	11
17–19	27	36	36	17	19	3	19	14

NOTE.—N = 3,516 (1,673 men, 1,843 women).
[a] Estimate is different from 17 to 19 year-old cohort at $P < .05$. We only estimated this test for column 4.

migration. Column 1 demonstrates dramatic increases in the attainment of at least 1 year of high school for the younger birth cohorts, with the most substantial increase for women. Whereas only a small fraction of men and women in older cohorts attained some high school, in 2005 more than one-quarter of boys and one-third of girls aged 17–19 had done so. These rates of high school participation reflect a nearly fivefold increase relative to those experienced a decade earlier. These increases in educational attainment are due in part to social policies, like the aforementioned *Oportunidades* program, aimed at reducing the financial burden associated with children's schooling (Behrman et al. 2005; Levy 2006). At the time of the survey, 80 percent of households in the sample received federal stipends conditioned on adolescent school enrollment.

Increasing educational attainment has been accompanied by rising (and shifting) migration patterns. While columns 2 and 3 of table 2 exhibit the upward trend in both domestic and international migration, within-Mexico migration for schooling purposes also increased significantly across recent birth cohorts (column 4). For example, 19 percent of males and 14 percent of females who were 17–19 years old at the time of the survey had migrated domestically for education purposes; this type of migration was practically nonexistent among cohorts older than 30 years of age. Among the youngest birth cohorts, females were much more likely than males to have migrated for schooling as opposed to work or other purposes.

Migrant Networks and Adolescents' Schooling Outcomes—Regression Results

Next we report on a series of regression analyses to test for links between existing adult migration networks in the community and adolescent schooling outcomes. We first present results from a logistic regression to model whether the adolescent completed at least 1 year of high school between ages 15 and 18 years. To expand this analysis, we then present results from a multinomial logistic regression that offers a more complete picture of adolescent schooling decisions as they complement and/or compete with other migration and work options for youth. All models are estimated separately for male and female adolescents.

Table 3 describes the education and migration patterns of our regression sample of 1,063 adolescents. Approximately one-quarter of both the male and female adolescent sample completed at least 1 year of high school, the outcome of interest in our logistic regressions. Roughly half of the adolescents who complete some high school do so in the local community, while half migrate somewhere else within Mexico to attend school. Notably, 37 percent of males and 57 percent of females neither migrated between ages 15 and 18 nor attained any high school. We use this outcome as the baseline comparison in the multinomial logistic regressions. Overall, migration was far more prevalent among males than females in our sample, 51 percent

TABLE 3
DESCRIPTIVE STATISTICS FOR REGRESSION SAMPLE

	Boys (N = 506)	Girls (N = 557)		
Logit outcome variable:				
Completed at least 1 year of high school (%)	24.2	25.3		
Multinomial logit outcome variable:				
No migration, no high school (baseline) (%)	37.3	56.9		
No migration, some high school (%)	11.7	13.7		
Domestic migration for high school (%)	12.5	11.6		
Domestic migration for work, no high school (%)	24.6	14.2		
US migration for work, no high school (%)	14.0	3.6		
Independent variables:	Mean	SD	Min	Max
Community				
Community female US migration at age 15 (%)	1.4	1.7	.0	6.6
Community male US migration at age 15 (%)	4.9	6.3	.0	24.2
Community female Mexican migration at age 15 (%)	11.0	5.9	1.5	28.4
Community male Mexican migration at age 15 (%)	14.7	6.7	2.0	29.2
High school in community at age 15 (1 = yes, 0 = no)	.27	.44	.0	1.0
Individual:				
Age	19.6	2.3	16.0	23.0
Sex (1 = female, 0 = male)	.52	.50	.0	1.0
Household:				
Number of older women in household	2.3	1.6	.0	11.0
Number of older men in household	2.2	1.4	.0	8.0
Number of younger household members	2.8	1.9	.0	10.0
Total coffee hectares in production for household	3.2	3.7	.0	45.3
Household organized at age 15 (1 = yes, 0 = no)	.48	.50	.0	1.0
>3 yrs schooling for older household female (1 = yes, 0 = no)	.45	.50	.0	1.0

* N = 1,063 for all independent variable statistics.

compared to 29 percent. This is especially true in the migration for work categories, where young males are four times more likely than young females to migrate to the United States and almost twice as likely to migrate domestically for work.

Descriptive statistics for the main explanatory variables (community migration networks) and model controls are also reported in table 3. Community migration networks are measured using the proportion of adults in a youth's community who were living in the United States or who were living elsewhere in Mexico when the respondent was 15 years. On average, youth lived in communities in which 5 percent of adult males were in the United States (range = 0 percent to 24 percent). By comparison, only an average 1.4 percent of the community's adult women lived in the United States (range = 0 percent to 6.6 percent). We observe much larger domestic migration networks (on average, 11 percent of community women and 15 percent of community men); we also observe less variation across communities in the proportion of adults migrating domestically.

Only 27 percent of the respondents had a high school serving their community by the time they were 15 years, underscoring the need for adolescents to migrate domestically to continue their education beyond middle school.

Approximately half of the respondents lived in a household with an adult woman with more than three years of primary education. The average coffee land cultivated in the sample is three hectares, meaning that most individuals came from small-scale producer households.

Migration Networks and Completion of 1 year of High School

Table 4 summarizes results from logistic regressions predicting the odds that boys and girls complete at least 1 year of high school (*preparatoria*) as a function of the prevalence of the adult migration networks in their community, net of other model controls. Mostly consistent with hypotheses 3 and 4 above, we find that male US migration networks suppress adolescent schooling, while female US networks promote them. The association between female US networks and boys' schooling is particularly strong. Specifically, we find that a 1 percentage point increase (equivalent to 0.6 standard deviation units) in the proportion of community adult women with US migration experience raises the odds that boys will complete at least 1 year of high school by 65 percent (odds ratio [OR] = 1.65, standard error [SE] =

TABLE 4
Logistic Regression Predicting at Least 1 year of High School Completion

	Boys	Girls
Community female US migration at age 15	1.648**	1.117
	(.251)	(.134)
Community male US migration at age 15	.937+	.938+
	(.032)	(.033)
Community female Mexican migration at age 15	.916+	1.053
	(.048)	(.041)
Community male Mexican migration at age 15	.999	.938
	(.042)	(.037)
High school in community at age 15	.819	2.125*
	(.305)	(.746)
>3 years of schooling for older household female	2.713**	2.393**
	(.924)	(.769)
Total coffee hectares in production for household	.934	.984
	(.054)	(.034)
Household part of a coffee cooperative at age 15	1.941*	1.213
	(.621)	(.440)
Number of older women in household	.925	.885
	(.087)	(.093)
Number of older men in household	.968	.899
	(.102)	(.099)
Number of younger household members	.890	.901
	(.074)	(.080)
Age	.971	.846
	(.082)	(.095)
Constant	.739	9.994
	(1.499)	(26.803)
Observations	506	557

Coefficients for results reported as odds ratios. Robust standard errors reported in parentheses.
*** $p < .001$.
** $p < .01$.
* $p < .05$.
+ $p < .10$.

0.25); the association between female US migration networks and girls' completion of 1 year of high school is smaller and is not significant. In contrast, both boys' and girls' likelihood of attaining 1 year of high school is dampened by larger male US migration networks (OR = 0.94, SE = 0.03, for both boys and girls).

For domestic migration networks, we find only small and insignificant effects of female networks on girls' schooling (OR = 1.05, SE = 0.04), and null effects of male domestic migration networks on boys' schooling. Interestingly, though only on the margin of significance, a larger domestic migration network of a single sex appears to depress high school attainment for adolescents of the opposite sex. Thus, for these first regressions on high school participation, the evidence is consistent with hypothesis 2 for male domestic migration networks but not for hypothesis 1 related to female domestic migration networks.

The presence of a high school in the community by the time an individual is 15 years old notably increases the odds that girls will complete at least 1 year of high school education (OR = 2.13, SE = 0.75), while we do not see this effect for boys. This finding is in line with previous research pointing to girls' greater responsiveness to local school availability (Parker and Pederzini 2000; Glewwe and Kremer 2006) and has important implications for gender differences in education as schools are constructed in rural areas across Mexico. At the household level, a more educated older female in a household has positive effects on high school attainment for both girls (OR = 2.39, SE = 0.77) and boys (OR = 2.71, SE = 0.92).

Schooling, Work, and Migration Outcomes: Multinomial Logistic Regression Results

Table 5 summarizes results from multinomial logistic regressions that more flexibly model adolescent behavior as a set of mutually exclusive schooling, migration, and/or work options. While findings are broadly consistent with the patterns that emerge in the logistic regressions in table 4, this more nuanced specification offers some distinct insights regarding the complex and gendered links between community migration networks and youth educational attainment.

Consistent with the logistic regression results, we find a positive cross-gender association between community-level US migration networks and adolescents' high school attainment. Again, consistent with hypothesis 4, larger female US migrant networks increase the likelihood that boys will attain at least 1 year of high school, either in their community (residual resistance ratio [RRR] = 1.66, SE = 0.32) or by migrating within Mexico for school (RRR = 1.42, SE = 0.27) while simultaneously decreasing the likelihood of boys' domestic and international migration for work. Although the logistic regression results indicated only a modestly positive and insignificant

association between female US migration networks and girls' schooling outcomes, a different story emerges in the multinomial results. Specifically, the multinomial outcomes differentiate between high school attained by youth in the home community (where female US migration networks appear to have no effect on girls' schooling) and high school attained via youth's own domestic migration (where female US migration networks have a substantial and significant effect on girls' schooling, RRR = 1.39, SE = 0.19). This more nuanced result is in accordance with hypothesis 4.

By contrast, results in table 5 indicate that the dampening effect of male US migration networks on boys' and girls' high school attainment appears to operate primarily through decreasing the likelihood of migration within Mexico for schooling purposes. Meanwhile, male US networks simultaneously increase the likelihood that boys themselves will migrate to the United States by age 18 (RRR = 1.11, SE = 0.05). These findings support hypothesis 3 regarding how male US migration networks contribute to reductions in schooling attainment and more US migration especially for adolescent boys.

The multinomial results also provide more detailed information on the relationship between adult domestic migration patterns and adolescent outcomes. For both male and female youth, the proportion of community adults of the same gender with domestic migration experience is associated with local attendance of high school and with migration within Mexico for work. In other words, a larger proportion of adult women migrating domestically increases the likelihood that girls who stay in their community will complete some high school (RRR = 1.17, SE = 0.06) and increases girls' likelihood of domestic migration for work (RRR = 1.16, SE = 0.06). Similarly, larger community-level male domestic migration networks have a positive (though smaller and not statistically significant) effect on boys' within-community high school attainment (RRR = 1.06, SE = 0.06) and significantly increase the likelihood of boys' within-Mexico migration for work (RRR = 1.17, SE = 0.06). Again, these two results for female and male domestic migration networks align very closely with the predictions of hypotheses 1 and 2, with the main deviation being in the positive but not statistically significant effect of male domestic migration networks on boys' high school attainment.

Youth perceptions of education and migration opportunities—focus group results.—Qualitative appraisals by community youth regarding their schooling, migration and work opportunities—and the ways that these opportunities are gendered—offer important insight regarding individual motivations shaping the migration and education trends described with our survey data. Table A1 displays the most salient themes emerging from focus groups with adolescents, including the frequency with which each theme emerged across the six communities and the nine sets of focus group interviews.

TABLE 5
MULTINOMIAL LOGIT REGRESSION OF SCHOOLING, MIGRATION, AND WORK OUTCOMES (COMPARISON GROUP: NO MIGRATION, NO HIGH SCHOOL ENTRY)

	No Migration, Some High School	Domestic Migration for High School	Domestic Migration for Work, No High School	US Migration for Work, No High School	No Migration, Some High School	Domestic Migration for High School	Domestic Migration for Work, No High School	US Migration for Work, No High School
	Boys				Girls			
Community female US migration, age 15	1.660**	1.422+	.837	.871	.961	1.390*	.974	1.224
	(.319)	(.273)	(.136)	(.176)	(.179)	(.192)	(.128)	(.211)
Community male US migration, age 15	1.015	.915	1.004	1.106*	.936	.919+	.989	1.019
	(.040)	(.052)	(.037)	(.049)	(.053)	(.044)	(.035)	(.054)
Community female Mexican migration, age 15	.893	.932	.966	.957	1.168**	1.014	1.162**	1.055
	(.064)	(.059)	(.049)	(.056)	(.063)	(.044)	(.059)	(.102)
Community male Mexican migration, age 15	1.060	1.017	1.173**	1.086	.879*	.976	.937	.941
	(.063)	(.061)	(.061)	(.065)	(.046)	(.054)	(.045)	(.088)
High school in community at age 15	1.406	.432	.760	1.215	6.415***	.680	1.672	2.987*
	(.628)	(.242)	(.394)	(.668)	(2.943)	(.385)	(.660)	(1.608)
>3 years schooling for older household female	3.681**	2.092+	1.264	.619	1.473	4.332**	.982	1.330
	(1.861)	(.893)	(.374)	(.244)	(.561)	(2.294)	(.325)	(.776)

Total coffee ha in production for household	.902	.945	.944	1.044	.935	1.032	1.040	1.070*
	(.074)	(.070)	(.052)	(.041)	(.080)	(.040)	(.034)	(.033)
Household part of coffee cooperative at age 15	1.910	2.488**	.917	3.054*	1.042	1.532	1.231	.649
	(.949)	(.870)	(.297)	(1.368)	(.509)	(.693)	(.367)	(.429)
Number of older women in household	.963	.886	.862	1.236	1.042	.777+	1.231*	.813
	(.120)	(.103)	(.112)	(.179)	(.135)	(.118)	(.130)	(.135)
Number of older men in household	.869	.901	.934	.627**	.791	.945	.789+	.865
	(.129)	(.127)	(.120)	(.101)	(.139)	(.128)	(.099)	(.190)
Number of younger household members	1.038	.820+	1.037	1.116	.911	.920	1.044	1.188
	(.125)	(.084)	(.095)	(.115)	(.120)	(.088)	(.084)	(.139)
Age	1.211	.894	1.155	1.190	.875	.847	1.070	.934
	(.192)	(.126)	(.130)	(.135)	(.156)	(.125)	(.124)	(.146)
Constant	.002+	4.670	.006*	.001*	3.802	2.724	.020	.069
	(.006)	(14.791)	(.016)	(.004)	(16.510)	(9.283)	(.053)	(.225)
Observations	506	506	506	506	557	557	557	557

Coefficients for results reported as relative risk ratios. Robust standard errors reported in parentheses.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

+ $p < .10$.

Economic factors featured prominently in adolescents' reflections on the opportunities available to them. At the household level, youth stated that families' lack of financial resources was a central reason many young people in their village don't continue their studies. At the community level, youth pointed both to insufficient schooling infrastructure and limited economic opportunities as primary drivers of migration both for schooling and for work. The physical dangers associated with migration and border-crossing also emerged as a prominent theme, including the perception that these physical risks are heightened for women; perhaps not surprisingly, table A1 shows that this theme emerged most frequently (though not exclusively) in the focus groups with women. Also emerging along gendered lines, boys were more likely to mention that their parents encouraged them to study in order to escape the hardships of agrarian work, perhaps because these responsibilities are more likely to be passed down to male members of the family. Other themes in table A1 emerged fairly evenly across gender lines.

An Emerging "Culture of Education" Alongside a Persistent "Culture of Migration"

The youth in our sample report being influenced by a local culture that increasingly emphasizes the value of schooling for life success and as an alternative to agricultural employment. Our focus groups uncovered community teens' perceptions of these shifting normative expectations with regard to educational attainment. As shown in table A1, the majority of youth interviewed in four of the six communities expected to complete high school and pursue postsecondary education, and this did not appear to vary by the presence or not of a high school in the community at time of interview. Many youth (and especially boys) stated that their parents encouraged them to study as opposed to following their footsteps into agricultural fields or across borders. The following quotations by male teenagers from two different study regions illustrate this point:

> "My plan is to continue studying, to have a career. I don't want to work in agriculture because I know how my parents have suffered in the fields. And as my parents have told me, they've given us the opportunity to study so that we have a good quality of life and not suffer the way they did."
>
> "My father tells me that it's too risky [to migrate to the United States], and that for this reason I should continue with my studies, that maybe by studying I can make him proud by becoming a professional."

It is possible that parents are more likely to stress the importance of schooling for their sons given the stronger allure of migration for community boys and men. Though increasing proportions of women migrate to international and domestic destinations, table 2 shows that both types of migration remain more prevalent among men in southern Mexico. The qualitative data suggest that while a "culture of migration" affects both boys and girls, the allure and normative expectations surrounding US migration are more

widespread and strongly felt for boys. Youth repeatedly linked boys' lower interest in studying to migration aspirations. A 15-year-old girl entering high school discussed her perceptions of these gendered divisions among her classmates:

> "The majority of my classmates [who don't plan to enroll in high school] are boys who want to go to the United States or are no longer interested in studying. Now that it's obligatory to enroll in middle school they're doing that, but many [boys] don't even want to finish. Of the girls in my class, only two don't want to study high school. The boys say that they're no longer interested in studying, that they're getting bad grades, and that it doesn't make sense to waste their parents' money. They want to be self-sufficient and work."

Gendered Risks of Migrating

Our focus group data also provide further insight into the patterns in tables 2 and 5 indicating that education and migration choices are distinct for boys and girls. Notably, although all youth reflected on the uncertainties and risks associated with international migration, the dangers of border-crossing were widely perceived to be higher for women, and were more likely to be discussed in the focus groups with women. Perceptions by youth were informed by stories or warnings conveyed by family members or other community members who had migrated. Quotations from adolescent girls in two communities illustrate their perceptions of these dangers:

> "More men [migrate] because the women who have gone, when they come back they tell us of their experiences and how they are treated badly because they are women. Men can defend themselves but women can't, especially if they go alone."
>
> "My brother hasn't let me [migrate], because he says he suffered when he went and he doesn't want the same to happen to me. And it would be worse as a woman."

These quotations highlight the role of social remittances in influencing youths' decisions to migrate (or not) (Levitt 1998, 2001). Such perceptions typically narrow the options for teen girls to domestic migration or staying in their community. These perceptions also underlie the importance of stable networks for their migration choices.

Complementary Pursuits—Migration for Schooling

Although migration and education are typically portrayed as competing options for rural youth, our survey results demonstrated that migration for schooling is an increasingly salient phenomenon in southern Mexican communities. As noted elsewhere (Santibañez et al. 2005; Luschei 2012), schooling infrastructure and quality have not necessarily kept pace with rising educational aspirations in many parts of rural Mexico, and employment opportunities that reward education also remain scarce in these commu-

nities. The need to migrate domestically for education was a recurrent perception expressed by both boys and girls, providing a partial explanation for the increasing salience of 'schooling migration' illustrated in table 2. The following quotations were selected from conversations with teens in three different communities:

> "Some of us would like to continue studying, but sometimes there's not enough money. And since there are no schools close by, parents need to send kids who want to study to Oaxaca [City] or Pochutla, or somewhere else."
>
> "There are schools here that don't have what's necessary. . . . They don't have classrooms that are suitable for studying. The bathrooms and the recreational fields are in bad shape."

"If there were the opportunity to get a job here in town, I think that would be better. But without that opportunity it's necessary to go to the city to keep working, to keep studying, to keep preparing oneself."

Discussion

Education and work opportunities for rural Mexican youth have become intimately linked with both regional and international migration networks. We describe the effects of these contextual changes on adolescent schooling and migration outcomes in a part of Mexico experiencing rapid changes in both types of adolescent pursuits in the time period examined. Our analysis incorporates the complexity of migration networks in terms of gender and destination (i.e., international vs. domestic).

We draw from quantitative and qualitative data to arrive at four conclusions. First, education trajectories are influenced by regional opportunities beginning at an early age; youth in these communities are socialized toward domestic and international migration opportunities and actively consider these options as they plan for the future. Second, though education and migration are typically portrayed as substitutes, the data suggest that migration is now an important complement to education pursuits (i.e., migration for schooling has increased notably). Youth described the motivation to migrate for education as deriving from a perception of local schools, where they did exist, as being substandard in quality, or from the need to find work to help finance continued study. Third, decisions about schooling operate, in part, through resources and information provided by community migration networks. Fourth, the effects of these migration networks are gendered.

We predicted that female domestic migration networks would be positively correlated with boys' and girls' educational attainment, whereas we anticipated no such correlation between male domestic migration networks and youth's schooling outcomes (hypotheses 1 and 2). These predictions were based on previous evidence that female domestic networks tend to be more stable and thus provide more resources relative to male domestic mi-

gration networks (Curran and Rivero-Fuentes 2003). Descriptively, we found evidence that female domestic migration networks do involve longer periods of residence relative to male domestic migration networks; we also found that female networks predict girls' schooling locally and their domestic migration for work. Contrary to expectations, female domestic migration networks did not positively predict boys' schooling and domestic migration behavior, but male domestic migration networks did. The results imply that boys' and girls' pursuit of within-community education and domestic migration might be driven less by the amount of resources available in a particular destination than by local, gender-specific socialization processes. Focus groups assessing boys' and girls' perspectives on migration and schooling opportunities provide further support to a gendered socialization process.

Our predictions regarding the effects of US migration networks (hypotheses 3 and 4) are largely supported by the results. Consistent with a gendered socialization framework, male US migration networks are positively linked to boys' but not to girls' subsequent US migration. In terms of high school attainment, male US migration networks tend to depress schooling outcomes while female US migration networks tend to improve them—particularly for boys, both in terms of attending schools in their local community or elsewhere in Mexico. The positive association between female US migration networks and adolescent education outcomes is consistent with our finding regarding US migrant women's more positive selection on education, and with regional perceptions of female migration as a "sacrifice" that youth should compensate for by working harder academically (Dreby and Stutz 2012).

Our findings have several implications. First, they shed light on the rapidly growing demand for high school education in rural Mexico. Similar to the self-perpetuating, normative socialization cycle that develops in a "culture of migration" (Kandel and Massey 2002), dramatic increases in educational attainment and the norms and expectations that surround these increases may be leading to a self-perpetuating education culture. Our results suggest that migration and education need not be mutually exclusive decisions for rural youth. The complementarity of migration and schooling could be further strengthened by education policies that are sensitive to the unique needs of return migrant children and children living in transnational families, as advocated for by several Mexican scholars (Zúñiga 2013; González and Zúñiga 2014).

Second, while previous research on the impact of migration flows gives limited attention to how youth's opportunities are sensitive to the gender composition of migration networks, we find evidence that who is migrating from the community is relevant for youths' education and migration pursuits. The sizeable positive association between female US migration networks and boys' schooling outcomes is especially interesting in light of most research

(including ours) pointing to the negative influence of male US migration on boys' educational aspirations and attainment. It is a striking example of how a gender-based view of migration networks offers a more nuanced picture of migration-education links.

Finally, our analysis underscores the importance of local context in adolescent schooling and migration choices. Migration is experienced with extraordinary regional heterogeneity in Mexico. Our regression analyses heed variation in the magnitude, destination, and gender composition of flows across time. Both temporal and regional forms of variation matter for schooling and migration decisions, suggesting that adolescents are highly responsive to the local context in which they are raised. Accordingly, social programs that are locally targeted may be more effective in improving or equalizing educational outcomes.

There are important limitations to our research. First, though we focus on structural and social forces that shape adolescents' motivations to pursue a variety of schooling and migration options, the survey data do not allow for an explicit treatment of individual motivations. While qualitative data from community youth revealed several important insights about individual motivations and how these appear to operate via gendered socialization processes, additional mixed-methods research is needed to further explore these processes and other mechanisms linking community migration context and adolescent choices.

Second, the sample captures an agrarian region in Mexico at a point in time in which education and migration patterns were changing particularly rapidly. Thus, while our findings are relevant to other rural areas undergoing similar transformations, the findings may not be applicable to regions with longer-standing domestic and international movements or to urban migrant-sending areas where the mechanisms driving migration have been found to differ (Fussell and Massey 2004). Moreover, because data were collected in 2005/2006, follow-up research on the sample is necessary to reexamine our findings given changes in the last decade in migration and schooling opportunities and/or the viability of community-based agricultural work in our study region (see postscript for preliminary reflections from a 2014 pilot study of four of the sample communities). Continued research on the study region can also assess the extent to which changes in the schooling behavior of adolescents have translated into notable welfare improvements in adulthood.

Third, the regression analyses face the interpretation issues common to observational research. Despite attention to development of an estimation strategy that sidesteps endogeneity concerns associated with direct measures of household-level migration, it is still possible that something at the community level has driven both changes to observed migration networks and adolescent behaviors. Note however, to threaten the interpretations made

here, such an omitted variable must not affect adolescent outcomes through migration networks but through some other mechanism not observed in our analysis. This variable must also predict differences in both the gender composition of the existing adult migrant network and gender differences in adolescent outcomes, making an alternative explanation more challenging to construct.

Southern Mexico has undergone major expansions in domestic and international migration, social policy supporting schooling, and educational attainment. For the period under study, migration and education patterns are intertwined in nuanced ways that appear to vary for adolescent boys and girls based on both the destination and the gender of the migrant networks. An increasing emphasis on the value of education is emerging, particularly for girls. Whether the dynamics documented in this study are transitory or a more permanent reflection of how education and migration are intertwined in rural areas of Mexico remains for future study. Application of a similar approach to other areas of Latin America where migration and social policy supporting education are undergoing significant changes will deepen our understanding of these issues.

Postscript

The late 1990s to mid-2000s, as shown in our study, were a takeoff period for migration and education in Southern Mexican coffee producing communities. Associated phenomena included a significant increase in migration for education opportunities, as well as distinctive patterns of educational attainment and domestic and international migration for male and female youth based both on their perception of risks and opportunities and on previous gendered patterns of migration in their communities.

In the decade since our data were collected, domestic and international migration have continued to play a transformative role in Oaxaca and Chiapas in the lives of rural people (Cohen 2010; Vermonden and Gay 2014; Brettell 2016), human capital investments of youth (Juarez Bolanos et al. 2011; Craig et al. 2014), and patterns of development in rural communities (Robson and West 2013; Wohlegemuth 2014). Though Mexico-US migration declined substantially in the wake of the 2008/2009 US economic recession, migration outflows from southern Mexico held relatively steady compared to other parts of the country (Passel et al. 2012; Migration Policy Institute 2013). Schooling increases have also progressed. By 2010 roughly 80 percent of 15–19 year-olds in Oaxaca completed at least 1 year of secondary school, compared with 74 percent for 20–24 year-olds and 62 percent for 25–29 year-olds.[6] Additionally, the narrowing and transposing of

[6] Authors' calculations using Mexican census data (INEGI 2011b).

the gap between male and female schooling outcomes has also continued. In 2010, 15–19 year-old Oaxacan females were more likely to complete 1 year of secondary school relative to Oaxacan males. By contrast, male completion of 1 year of secondary school exceeded that of females by 6 percentage points among 25–29 year-olds in Oaxaca. Global prices for coffee (the main commodity export from the study communities), which had reached historic lows in the years preceding data collection in 2005/2006, have trended upward overall though with considerable volatility, with large positive prices spikes in 2011 and 2014 (ICO 2016). A more favorable global market for coffee increases the opportunity cost of keeping children in school. At the same time, a relatively weak US economy may have shifted incentives toward schooling in recent years.

In the summer of 2014, two authors of this article returned to four of the Oaxacan sample communities to pilot a follow-up study related to migration, education, and youth job mobility. The field work included the goals of (*a*) identifying whether randomly selected households from the 2005/2006 study were present and willing to help contact household youth that had migrated in Mexico and to the United States and (*b*) probing ongoing patterns of household and community investment in migration, coffee, other agricultural and local business opportunities, and youth education. Over 95 percent of the households surveyed in 2005/2006 were found, and except in one community respondents were willing to help connect us with family members who had migrated.

The pilot study suggested that migration flows of rural youth had expanded, especially for education and salaried work opportunities in municipal centers and smaller cities in the region. The ability of families to communicate with migrants abroad had increased tremendously, with communities now having free wi-fi access and school computers, changing the frequency and the nature of 'social remittances' exported back home. Young women were pursuing post high-school training and university education to secure higher paying employment at higher rates than previous generational cohorts of women in their families. Three of the four communities appeared to have a vibrant balance of local, regional, and international migration that supported continued investment in rural family home lives as well as social institutions including local schools. Only one community, situated along a major road connecting the state capital and the coast, appeared to be languishing based in part on a much higher reliance on international migration and remittances and Prospera, Mexico's conditional cash transfer program (rebranded from Oportunidades) as the primary income sources.

Sustained and expanded federal funding of social programs like Oportunidades/Prospera continues to support domestic education opportunities for contemporary Mexican youth (Attanasio, Meghir, and Santiago 2012). Given the period's reduction in economic incentives to move to the United

States, coupled with volatile coffee prices and the attendant risks of staying in agriculture, it is possible that internal movement for domestic schooling opportunities increased further for youth in the last ten years. This requires further research. One lasting impression of our 2014 visit was that nearly all households interviewed still had at least one member working in agriculture, nine years later. Whether this will be sustained as today's youth age also remains a subject for future research (Charlton and Taylor 2015).

Appendix

TABLE A1
SUMMARY OF THEMES EMERGING FROM YOUTH FOCUS GROUPS ON MIGRATION, SCHOOLING, AND WORK OPPORTUNITIES

	Village 1		Village 2		Village 3		Village 4	Village 5	Village 6	Focus Group Total	Village Total
	Boys	Girls	Boys	Girls	Boys	Girls	Boys/Girls Together	Boys Only	Girls Only		
Families' lack of financial resources to support children's continued study	✓	✓	✓	✓	✓	✓	✓	✓		8	5
Physical dangers of migration (especially for women)		✓		✓	✓	✓	✓		✓	6	5
Migration spurred by lack of economic opportunities in community	✓		✓		✓	✓	✓	✓		6	5
Boys less likely to aspire to higher education and more likely to aspire to migrate	✓	✓			✓	✓		✓	✓	6	4
Expectation to study beyond high school for community youth	✓	✓			✓		✓		✓	5	4
Lack or insufficient quality of community schools spurs internal migration for schooling	✓	✓	✓				✓		✓	5	4
Encouragement from parents to study to avoid hardships of agricultural work	✓				✓		✓			3	3
At time of interview:											
High school in community	Yes		No		No		Yes	No	No		
US migration prevalence	Medium		Low		High		High	Low	High		

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