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This study is part of a broader project at the Population and Ecology Research Laboratory (PERL) in Nepal that examines the influence of changing social contexts on the timing of marriage, childbearing, and contraceptive use.

PERL was established in 1995 to conduct research on population, social change and the environment; to train scholars in social science research methods; and to create institutional and technical capacity for conducting social science and demographic research in Nepal.

PERL works with Kathmandu University, the Institute for Social and Environmental Research, and the University of Michigan.



## *Gender, Social Change, and Educational Attainment*

### THE GENDER GAP IN EDUCATION

IN THIS STUDY WE EXAMINE THE IMPACT of gender on educational attainment and the ways that social change affects the relationship between gender and educational attainment. In agrarian societies where female roles are defined largely in terms of home and family, parents are likely to have significant incentives to keep their daughters, but not their sons, at home and out of school. The need for girls' labor on the farm and in the household has been cited as a major reason for not sending girls to school, or for sending girls to school for relatively short periods of time, regardless of level of household wealth. Even though parents may desire some amount of schooling for daughters as a means of enhancing their marriage prospects, perceived conflict between women's roles in the family and their roles in education and work motivate parents to truncate their daughters' schooling experiences significantly earlier than their sons' schooling experiences.

### SOCIAL CHANGE AND THE GENDER GAP

As nonfamily social institutions like schools and markets spread, and more of social life takes place outside the family, nonfamily adult roles are likely to become a more significant feature of adult life. With regard to educational attainment, the

consequence is quite likely reduced gender differences in school enrollment. The longer these new nonfamily institutions are part of daily life, the smaller the gender differences we expect to find in the propensity of parents to send their sons and daughters to school and keep them in school.

In this study, we use measures of local social change on several dimensions to examine the impact that social change has on the gender gap in schooling. First, the spread of schools is itself, of course, likely to promote enrollment and attainment. As schools become increasingly available, the costs of sending children to school will decline, and parents will find it easier to enroll their children. Likewise, the longer schools are nearby, the more common school attendance is likely to become.

Second, the spread of wage labor employment opportunities is also likely to stimulate greater educational attainment. School enrollment is an investment in human capital that increases an individual's chances of obtaining a wage labor job and having mobility among jobs. Therefore, as wage labor employment opportunities spread, motivation to enroll in school is expected to increase as a means of securing those jobs. Likewise, we expect motivation to educate children will increase with longer exposure to wage labor jobs nearby.

Third, the spread of markets is likely to increase school enrollment and educational attainment. As markets spread through rural Nepal, goods and services become more widely available, but only to those who have money to purchase those goods and services. Thus, the spread of markets is expected to increase the demand for money, higher demand for money is expected to motivate individuals to pursue wage labor jobs and higher wages among those jobs, and the desire to obtain higher paying jobs is expected to motivate educational attainment. The longer markets are present nearby, the greater the chances that parents will send their children to school and keep their children in school.

Fourth, the spread of improved transportation infrastructure is also likely to increase educational attainment. This is because improved transportation infrastructure facilitates access to schools, wage labor employment opportunities, and markets. By increasing access to these other social institutions, each of which is expected to motivate educational attainment itself, improved transportation infrastructure is also likely to increase school enrollments.

## DATA

The data are from the Chitwan Valley Family Study (CVFS). In 1996, the CVFS collected information on residents of a representative sample of 171 neighborhoods in Western Chitwan Valley. Neighborhoods were defined as clusters of approximately 5 to 15 households. Information about changes in the location of nearby schools, employers, markets and bus services was collected using the Neighborhood History Calendar technique – a combination of archival, ethnographic, and structured interview methods (Axinn, Barber and Ghimire 1997). Although the distance from the average neighborhood in Chitwan to the nearest nonfamily service was well over an hour in the 1950s, by the 1990s the average neighborhood in Chitwan had several different nonfamily services and organizations within twenty minutes' walk.

The CVFS then interviewed every resident between the ages of 15 and 59 in those 171 neighborhoods, and their

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*“The longer a nonfamily service or organization has been nearby, the higher the rate of school entrance is for girls.”*

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spouses, with an overall response rate of 97% and 5,271 completed interviews. We focus on two key dimensions of the educational attainment process: children's entry into school and children's dropping out of school. In order to simplify the analyses, and ensure comparable measurement is available for all those included in the study, we focus on the schooling experiences of firstborn children. The measures of these children's schooling experiences come from interviews with their mothers. The sample of mothers we include in our analysis are those women who were between the ages of 25 and 54 at the time of the interview and had at least one child ( $N = 1,159$ ).

In the analysis of school entrance, the dependent variable measures whether a woman's firstborn child entered school between the ages of 3 and 12, and the timing of that entrance. In the analysis of school exit, which was limited to those firstborn children who did enter school between ages 3 and 12, the dependent variable measures whether they ever exited school by age 15, and the timing of that exit. We use Neighborhood History Calendar measures to operationalize our measurement of the spread of nonfamily organizations and services. These calendars measured the number of minutes' walk from the neighborhood to the nearest school, employment opportunity, market, or transportation service for each calendar year. Schools were defined as the nearest location of nonfamily instruction aimed at children and youth (not necessarily a physical building). Employment opportunities referred to the nearest employer who employs ten or more individuals for pay. Markets were defined as the nearest location of two or more shops where goods and services are sold for money. Bus services referred to the nearest location where a resident could board a public motorized vehicle and ride for a fee.

Figure 1. Number of Schools and Students, 1953–1995

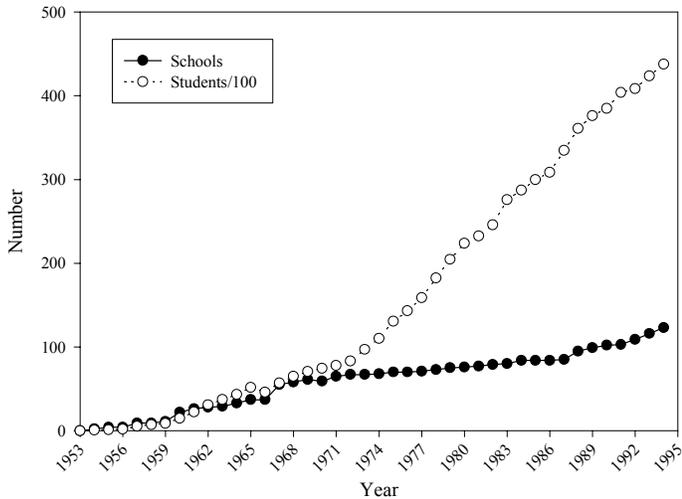
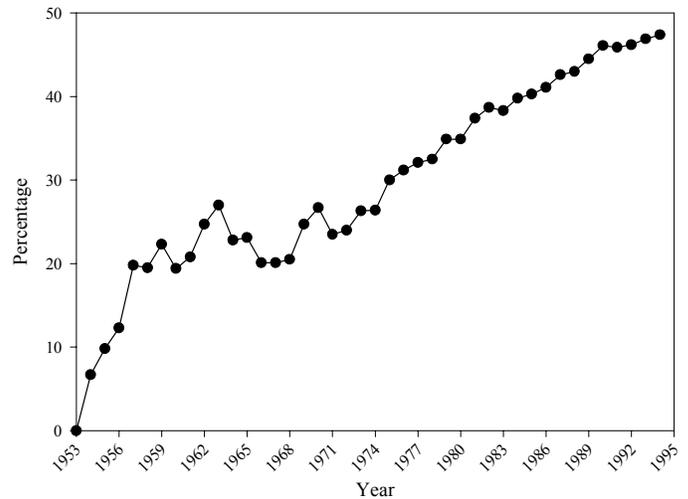


Figure 2. Percentage of Students Who Are Female, 1953–1995



## FINDINGS

The spread of formal education in our Western Chitwan study area paralleled the spread of education through the rest of Nepal. The first school was established in 1954 and both the number of schools and the number of students enrolled in schools increased dramatically in the decades that followed. Figure 1 shows the growth of both the number of schools and the number of students enrolled in those schools between 1955 and 1995. Clearly, the spread of education in the setting has been dramatic, reaching a total of 123 schools and 43,785 enrolled students by 1995.

Gender differences in education have been equally dramatic in this setting. In Nepal in general, girls are much more likely than boys not to be enrolled in school: of the children not enrolled in schools, approximately two-thirds are girls. Girls are also more likely to repeat grades and drop out of school. Girls' participation in schooling has lagged behind boys' in spite of a variety of government programs intended to promote their involvement in education. In Chitwan, however, the gender gap in schooling has narrowed much more quickly than in most other regions in Nepal. As Figure 2 shows, only 6.7 percent of Chitwan students in 1954 were girls, but by 1995, 47.4 percent of students were girls.

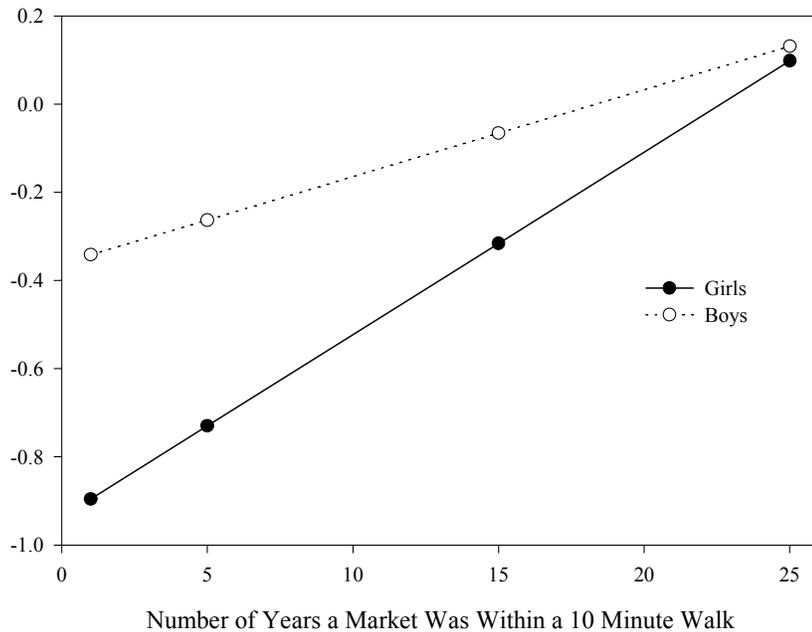
In the multivariate models (available in the full paper), we find that gender has large effects on school entrance: boys enter school at higher rates than girls. For example, boys enter school at rates 51 percent higher annually than girls.

Moreover, the rate of sending a child to school is much higher in neighborhoods where nonfamily services and organizations have been nearby for a longer period of time. For example, the difference between living in a neighborhood that has had a market within a 10-minute walk for 25 years and living in a neighborhood that has had a market within a 10-minute walk for 5 years results in an 81 percent increase in the annual rate of entering school.

The longer a nonfamily service or organization has been nearby, the higher the rate of school entrance is for girls. The relationship between local level social change and gender is illustrated in Figure 3. We plot the predicted values for rates of school entrance by gender when a market has been within a 10-minute walk of the neighborhood for 1 year, 5 years, 15 years, and 25 years. The number of years a market has been nearby has a stronger effect on entering school for girls than for boys. As markets proliferate (i.e., as the number of years that a market has been within a 10-minute walk increases), the gender gap in school entrance declines because the rate of school entrance for girls rises faster than the rate of school entrance for boys.

Gender also has a large effect on school exit, with rates of school exit much lower among boys than girls. Being male reduces the odds of exiting school in any year by approximately 40 percent. We found little evidence that the spread of nonfamily services and organizations affects the gender gap in school exit, as it did for school entrance.

**Figure 3.** Predicted Values for Rates of School Entrance for Boys and Girls, by Presence of Markets (from multivariate hazards models)



Other data from our survey suggest that the reasons for leaving school are linked to gender roles. Among the mothers in the survey whose children attended school and then quit (before the survey), similar percentages of male and female children left school because they had failed (24.5 percent of males and 24.2 percent of females), but other reasons for leaving school differed considerably by gender. For example, 2.4 percent of male children, in comparison to 32.7 percent of female children, left school because they married. In contrast, 16.0 percent of male children, in comparison to 0.7 percent of female children, left school because of a job.

Thus, even in communities in which female school entry rivals male school entry, family formation events, as well as societal expectations regarding women's behaviors and roles within their families, still lead females to end their schooling earlier than males.

#### REFERENCES

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