Schools, Schooling, and Children's Support of Their Aging Parents

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Abstract

Intergenerational transfers play an important role in individuals' lives across the life course. In this paper I pull together theories on intergenerational transfers and social change to inform our understanding of how changes in the educational context influence children's support of their parents. By examining multiple aspects of a couple's educational context, including husbands' and wives' education and exposure to schools, this paper provides new information on the mechanisms through which changes in social context influence children's support of their parents. Using data from a rural Nepalese area I use multilevel logistic regression to estimate the relationship between schooling, exposure to schools, and the likelihood of couples giving to their parents. I find that both schooling and exposure to schools itself have separate, opposite effects on support of aging parents. Higher levels of schooling for husbands was associated with a higher likelihood of having given support to husbands' parents. On the other hand, increased exposure to schools for husbands and wives was associated with a lower likelihood of having given to wives' parents. Findings constitute evidence that multiple motivations for intergenerational support exist simultaneously and are related to social context through different mechanisms.

Intergenerational transfers (exchanges of money, time, goods, services) play an important role for most individuals across their life course—to some degree virtually all parents support their children and adult children often help their parents in their older age. Because intergenerational transfers are so pervasive, numerous sociological theories touch on them. For instance, theories describing behaviors ranging from elder care to childbearing all implicitly or explicitly incorporate the role of intergenerational familial support.

Children's support of their aging parents specifically is gaining increased attention. Part of the impetus behind this newfound attention is that support of the elderly is an issue of concern in many varied settings. In wealthy countries, baby boomers are facing serious financial and time strains as they are caring for aging parents and dependent children simultaneously (Grundy & Henrette, 2006; Hamil, 1994; Lam, 2006; Loomis & Booth, 1995). Several decades of delayed childbearing has further contributed to the growing numbers of adults facing this double burden (Edmonston, 2006; Preston, Himes, & Eggers, 1989). In poor countries, changing social norms are leading to a decline in familial support for the elderly, but governments have not instated wide reaching social support programs as a replacement.

The research reported here advances our understanding of intergenerational support in three ways. First, I provide a theoretical framework for understanding how changes in social context influence children's support of their parents. I pull together theories on intergenerational transfers, the modes of social organization framework, and wealth flows theories to study the

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relationship between educational context and adult children's support of their aging parents. Second, by examining aspects of both husbands' and wives' education this paper provides new information on the motivations behind children's support of their parents. Third, by investigating both experiences with and mere exposure to schools the findings presented here shed light on the broader, complex relationship between educational context and individual behavior.

Theoretical Framework

Substantial bodies of literature exist on both the link between social context and individual behavior (Alexander, 1988; Caldwell, 1982; Durkheim, [1933] 1984; Thornton & Lin, 1994) and on adult children's support for their aging parents (Becker, Beyene, Newsom & Nury, 2003; Hogan, Eggebeen, &Clogg, 1993; McGarry &Schoeni, 1997). However, little research has brought these two topics together. This paper attempts to provide new information regarding the understudied relationship between the educational context and children's support of their parents. To do so, I combine the theories from these divergent branches of sociology into one theoretical framework. For theories regarding social context and individual behavior I rely on the modes of social organization framework and wealth flows theories (Caldwell, 1982; Thornton & Fricke, 1987; Thornton & Lin, 1994). I combine these theories with those of intergenerational transfers (Goldscheider, Thornton, & Yang, 2001; Hogan, Eggenbeen, & Clogg, 1993; Lee, Parish, & Willis, 1994; McGarry & Schoeni, 1997) to guide my investigation into how changes in social context influence children's support of their parents. I direct the reader to the above cited literature for detailed presentations of these separate frameworks and focus the discussion here on their intersection.

A key premise at the heart of the theories of social change referred to above is that as more non-family institutions, such as schools, appear in communities there is a fundamental shift in the social organization of daily life that draws individuals out of social networks dominated by family members and into social networks linked to other non-family institutions (Thornton & Fricke, 1987; Thornton & Lin, 1994). With this shift in daily life individuals' own ideas about certain behaviors and their perceptions of others' ideas about those behaviors begin to change. More specifically, individuals become increasingly individualistic and emotionally nucleated such that they become more concerned with their own welfare and the welfare of their children, and less concerned with extended families and familial networks. (Caldwell, 1982; Lesthaeghe and Surkyn, 1988). Individuals' behavior then changes to be in line with these new individualistic attitudes.

Both increasing educational attainment and exposure to schools, consequences of this shift in the organization in daily life, may have direct implications for children's support of their parents. Consider first the possible effects of individuals' increasing educational attainment. According to the reciprocal exchange model, as children obtain more education they will have more debt to repay their parents and will therefore give them more support (Goldscheider, Thornton, & Yang, 2001). In Nepal, sending children to school is costly—uniforms, tuition, and supplies cost money. Also, when children are in school they are no longer contributing to household production. This further increases their debt to their parents because they now need to repay the costs of schooling, and also their foregone domestic contributions. Consequently, when children receive more education, they may have larger debts to repay and will therefore increase their transfers to their parents in response to their parents' extensive investment in their schooling (Becker et al., 2003; Henretta, Hill, Li, Soldo, & Wolf, 1997; Silverstein, Parrott, & Bengtson, 1995).

Now consider the effects of increased exposure to schools outside of educational attainment. Exposure to schools includes interactions with those who work at the schools, or with one's

children or neighbors who themselves have experiences with schools. Exposure also includes passive contact such as walking by the building on the way to the market or being exposed to recruitment campaigns (Bongaarts & Watkins, 1996; Caldwell, 1982; Casterline, 2001; Mead, 1967; Zajonc, 1968). As schools spread throughout a community, increasing individuals' exposure to schools, individuals may become increasingly independent from their families and more concerned with their own needs and wants (Caldwell, 1982; Thornton & Fricke, 1987; Thornton & Lin, 1994). One consequence of this increasing individualism may be a decrease in the amount of support children give their parents. Consider the altruistic model of giving. Implicit in this model is individuals' valuation of when parents need help (Hogan, Eggenbeen, & Clogg, 1993; Lee, Parish, & Willis, 1994; McGarry & Schoeni, 1997). As children become more individualistic this valuation may change such that children see fewer instances when it is important for them to consider their parents' needs, thereby reducing the opportunities for altruistic giving.

The exposure effects in question here may be particularly strong in a setting where neighborhoods are small and consist of individuals and families who have regular contact with one another and intimate knowledge of each other's lives (Brofenbrenner, 1970; Smith-Lovin and McPherson, 1993; Valente, Watkins, and Jato, 1997). This close living and open display of behaviors, such as helping children get ready for school, allows other individuals to see how schools actually influence individuals' lives. What Bongaarts and Watkins (1996) call the local channels of social interactions are much higher in such a setting than in one where individuals and families lead isolated lives and have little communication with or knowledge of their neighbors. As a result, individuals may be more influenced by mere exposure to schools in these small, open communities.

Previous research has linked both schooling and exposure to schools to various family related behaviors. Individuals with more education have been found to marry later, have fewer children, and use contraceptives earlier—all behaviors characterized in theories of social change as less family-centered or more individualistic (Blossfeld & Huinink, 1991; Caldwell, 1982; Ghimire, Axinn, Yabiku, & Thornton, 2006; Thornton, Axinn, & Teachman, 1995; Yabiku, 2004, 2005). Additionally, empirical research has found that increased exposure to non-family institutions such as schools, health services, and markets does in fact correspond with less family oriented behaviors such as increased contraceptive use to limit childbearing (Axinn and Barber, 2001; Axinn and Yabiku, 2001; Brauner-Otto, Axinn, and Ghimire, 2007) and later age at marriage (Yabiku, 2004). Importantly, these exposure effects have been found to be independent of individuals' experiences with these same institutions. A growing body of evidence points to the influence of the education experiences of others in the community, especially neighbors and children, on individual behavior (Axinn, 1993; Axinn & Barber, 2001; Becker, 1991; Kravdal, 2002; McNay, Arokiasamy, & Cassen, 2003; Willis, 1973; Yabiku, 2006). In this paper I examine whether these relationships between schooling and exposure to schools and family related behaviors also hold for children's support for their aging parents.

Setting

Because social norms play a key role in determining patterns of familial support, it is important to consider carefully the specific setting in question (Silverstein et al., 1995; Yang, 1996). I examine the relationship between social context and intergenerational transfers in the Chitwan Valley in rural, south-central Nepal. This setting is ideal for studying this relationship for several reasons: there has been a dramatic and rapid, yet geographically contained, change in social context with an increase in the number of schools, a similarly dramatic change in individuals' attitudes and behaviors, and intergenerational support has historically played a large role in family life.

Chitwan has recently undergone a period of rapid social change. Until the 1950s this valley was covered with virgin jungle and only sparingly inhabited by indigenous ethnic groups (Guneratne, 1994). In the 1950s the government began clearing parts of the jungle, implemented malaria eradication efforts, and instituted a resettlement plan leading to the migration of many different ethnic groups, including both Buddhists and Hindus. By the late 1970s roughly two-thirds of this valley was cultivated and a small town, Narayanghat, was forming in one corner. However, the vast majority of residents were employed in agriculture and continued to use traditional methods of production.

In 1979 the first all-weather road was completed linking Narayanghat to India and eastern Nepalese cities. Following that two other roads were built—one to the west and one north to the capital city, Kathmandu. Because of Narayanghat's central location, it quickly became the transportation hub for the entire country. This led to the rapid expansion of schools, health services, wage labor, markets, and mass transportation (Axinn & Yabiku, 2001; Pohkarel & Shivakoti, 1986).

Between the time the jungle was cleared and 1995 145 schools were built in Chitwan. Throughout the 1950s and 1960s especially there was a dramatic increase in the number of schools in Chitwan (Axinn and Yabiku 2001; Brauner-Otto 2007). As a result, although on average across all neighborhoods it took over 3 hours to walk to the nearest school in the early 1950s, by 1970 the mean travel time was less than 20 minutes. In 1995, the mean travel time to a school across neighborhoods was less than 10 minutes and ranged from zero to an hour (Axinn and Yabiku, 2001). Important for the research proposed here, these changes in social context, particularly the spread of schools, did not occur uniformly throughout the study area —different changes occurred at various times for separate segments of the valley. This allows me to examine these changes across time and space. Also important is that schools tended to be the first non-family institution built in a community. This may be partly because more educated communities are better able to lobby for other services such as bus stops and health services or the residents may be more likely to start their own business ventures in the community (Caldwell, 1982).

Dramatic changes in individual behavior followed these physical and community changes. For example, individuals' education has increased over time. Educational enrollment has risen from virtually zero in the 1960s to 100 percent of both sexes entering first grade by 1996 (Beutel & Axinn, 2002). Also, both the percent of individuals who ever attended school and the years that people are enrolled have increased dramatically in the past 60 years. Again using the CVFS I found that for those born between 1932 and 1941 less than 15 percent attended school and the mean number of years they did so was less than one. However, for those born between 1972 and 1981 almost 90 percent had already attended school and their mean years of enrollment was almost 9. Since the last year of high school is 10th grade in Nepal this means that for the younger cohorts many of those who do attend school are staying enrolled long enough to complete primary and secondary education.

Family ties and support have generally been very strong, especially towards the husband's family in this setting. Historically, for most ethnic groups living in Chitwan, a married son and daughter in law would live with the son's parents. However, this pattern is no longer universally followed. Again, analysis the CVFS data described below indicate that in 1996, fewer than one third of married couples were living with the husband's parents (fewer than 3 percent were living with the wife's parents). Despite lower rates of co-residence it is likely that familial ties are stronger as they relate to the husband's family than to the wife's. In fact, although 50 percent of all individuals in the CVFS strongly agreed that a married son should take care of his parents, less than 40 percent felt similarly regarding a married daughter.

Of additional importance to the research presented here, empirical evidence illustrates that the changing social context in Nepal is related to changes in attitudes and behavior regarding support for the elderly. Individuals who lived closer to schools, health services, and business areas were less likely to believe that a married child should care for his or her aging parents and less likely to actually be living with their parents (Pienta, Barber, and Axinn, 2000, 2001). This paper builds on this research by investigating the relationship between a specific aspect of social context (the education context) and in kind or financial support of parents.

Despite these dramatic changes in social context and individuals, Chitwan remains a poor, rural area with the majority of life occurring in a small, open community. Neighborhoods in Chitwan are small and consist of individuals and families who have regular contact with one another and intimate knowledge of each other's lives. A typical neighborhood, or tol, consists of 5 to 15 households located at a crossroads and surrounded by farmland. Schools and other community services, when they exist, also tend to be located at these same crossroads. Most activities, such as getting ready for school, occur in the outdoor courtyard of each house, in plane view of neighbors. Neighbors will also meet and interact regularly at the common water source and grazing land.

Empirical Predictions

In this paper I test two empirical predictions based on the above theoretical framework.

1. Adult children who have more education will give more support to their parents. Those who obtain more education will have larger debts to repay their parents and will therefore be more likely to give support to their parents. Children who are sent to school for more years may have larger debts to repay their parents and will therefore give more support to their parents than children who only went to school for one year or less. Because the debt will need to be repaid to the parents who sponsored the child's education, I expect to see evidence of a relationship between the education of an individual and the support given to his/her own parents, but not to support given to his/her in-laws.

2. Adult children who had schools nearby will be less likely to give support to their parents. Exposure to schools, that is exposure that excludes direct enrollment and includes informal interactions with others who have had direct exposure, will present new ideas about the family and will instill more individualistic attitudes within those individuals. Increased individualism may lead to less altruistic support of parents because individuals feel less altruistic.

Data and Methods

To test my empirical predictions I use data from the Chitwan Valley Family Study (CVFS) conducted in rural Nepal. This study, designed to investigate the relationship between social context and family formation behaviors, combines survey and ethnographic methods to obtain detailed measures of community context and individual life histories. In 1996, the CVFS collected information from residents of a systematic sample of 171 neighborhoods in Western Chitwan Valley. The study area itself is triangular in shape—bounded on one side by dense jungle inhabited by tigers and rhinos, on the second side by one of the largest rives in Nepal, and by the major super-highway linking Kathmandu and India on the third side. The CVFS interviewed every resident between the ages of 15 and 59 in the 171 sampled neighborhoods, and their spouses. Because of large age differentials between spouses the age distribution of the final sample ranged from 13 to 80 years old. The overall response rate of 97 percent yielded 5,271 completed interviews. All interviews were conducted in the most common language in Nepal, Nepali (questions presented below are translated). Individual surveys collected

information on intergenerational transfers and parental characteristics among other topics. Life History Calendar techniques were used to collect reliable information regarding residents' education, labor force participation, and family behaviors (Axinn, Pearce, & Ghimire, 1999). The CVFS also collected detailed accounts of a wide variety of neighborhood resources available since 1954.

I analyze data from 1,487 married couples, where both spouses are over age 16 and lived away from his or her own parents at some point in their lives. I limit the sample in this way for three reasons. First, although some children do leave home for work or school opportunities, the vast majority of individual's leave their natal homes when they marry. Additionally, Nepalese society is generally patriarchal in structure (Acharya & Bennett, 1981; Fricke, 1994; Gurung, 1980). Women typically leave their natal home and move in with their husband's family when they marry and most decisions regarding household income are made by the husband. Therefore, I limit these analyses to married couples. Second, in order to investigate support of parents, it was necessary to restrict the sample to those who had lived apart from their parents. Virtually all married individuals over age 16 reported living away from their parents at some point so this is not substantively a very restrictive condition.[1] Third, I restrict the sample to those over age 16 because that is the age most individuals finish high school. Because I am interested in the role of education it was important that everyone in the sample had the opportunity to complete basic schooling.

Information for both spouses was obtained in direct, individual level interviews, not in proxy interviews. I link each husband and wife to create a unit of observation at the couple level which incorporates full histories for both husbands and wives. Twenty-nine men in this sample had 2 wives and 2 men had 3 wives. In these situations I use the information from the first wife's interview. I also tested models excluding these couples from the data and looking at the information for the 2nd or 3rd wives and found no substantive differences from the analyses presented below.

Measures of children's support of their parents

Respondents who had ever lived away from their parents were asked "Have you ever helped your parents by giving them grain, clothes, money, or something else while you were living away from them?" [2] I use this question to create two measures of the couples' support of their parents: whether they gave to the husband's parents and whether they gave to the wife's parents. The first measure is equal to one if the husband reported giving to his parents, and zero if he did not. Descriptive statistics for this, and all measures used in the analyses presented in this table can be found in Table 1. Sixty-six percent of couples reported giving to the husband's parents. The second measure equals one if the wife reported giving to her own parents and zero otherwise. Thirty-five percent of couples had given to the wife's parents. These measures are not mutually exclusive of one another. If a couple gave to both sets of parents then both measures equal one. If only the husband reported giving to his parents then the first measure equals one and second measure equals zero.[3]

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[1]Specifically, 90 percent of all couples in the CVFS had lived away from the husband's parents and 99 percent from the wife's.

[2]It is unfortunate that these questions do not incorporate any information on the volume or frequency of giving nor do they have a temporal component. The CVFS was designed to study transitions in family formation behavior (marriage, childbearing, and contraceptive use) and the questions used here were included with the idea that they would contribute to the understanding of the relationship between social context and those behaviors, not that they would be outcome behaviors of interest.

[3]I also investigated a third measure that combined giving to either spouses' parents. Empirically this measure essentially captured giving to the husband's parents so I excluded it from this paper to present a more parsimonious investigation.

Measures of schooling (education)

I create two measures of the couple's schooling or education experiences to test the first of my empirical predictions described above. According to the theoretical framework above, the degree of schooling, that is how much schooling a person obtained, may influence their support of their parents. As a result, the measures of schooling incorporate the amount of schooling a person obtained. The first measure is a count of the number of years of schooling the husband had received before he married. The second measure counts the number of years of schooling the wife received before she married. The mean years of schooling for husbands in this sample was less than 6 years and it was less than 3 years for wives.

Measures of exposure to schools

To test the second of my empirical predictions outlined above I create one measure for the couple's exposure to schools (that is proximity, not participation or enrollment). Children who lived closer to a school will have had more exposure to non-family organizations, will hold more individualistic attitudes, and therefore will be less likely to support their parents. Where as the theoretical framework discussed above hypothesized a direct link between one's own education and support of one's own parents, it does not imply such a link for the relationship between exposure to schools and support of parents. Consequently, I create one, couple level measure of exposure to schools. Information regarding the location and years of operation for all the schools that ever existed in the study area was collected using the Neighborhood History Calendar (NHC) technique (Axinn, Barber & Ghimire, 1997). The resulting data is not constrained to be within any specific geographic location, so for each year I am able to determine how far away each school open in that year was from each neighborhood. I use these data to create a measure of whether there was a school within a 5 minute walk of the couple's neighborhood the year before they married.[4] The measure equals one if the couple had a school within a five minute walk from their current neighborhood in the year before they married and zero otherwise. Previous research has found that availability within a 5 minute walk is the appropriate radius of influence to consider in this specific rural context with limited transportation infrastructure (Axinn & Yabiku, 2001). Because these measures use information from the Neighborhood History Calendars they are neighborhood level measures. For simplicity though I display their descriptive statistics at the individual level in Table 1. Roughly one third of couples had a school within a 5 minute walk of their current neighborhood the year before they married.

Controls

Resource availability is certainly an important characteristic to control for when investigating any type of support and I include seven measures in these analyses. In Chitwan household goods and landownership are a much more meaningful measure of wealth than cash income. As a result, I create four wealth measures that reflect this fact. The first measure is a dichotomous measure equal to one if the couples' household owns the land their house is on and zero otherwise. The second and third measures are counts of the number of large livestock and consumer durables the family owns, respectively. The livestock measure includes bulls, cows, buffaloes, sheep, goats, and pigs. The consumer durables measure includes radios,

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[4]Note, the specific neighborhood referred to in this measure is where the couple was living in during 1996, but the year is the for the year before the couple married. I also investigated measures that referred other years, specifically 1996, 1991, and separate measures for when the husband and wife were age 16. The effect estimates were essentially the same for all measures, although the standard errors were bigger the farther back in time the measure referenced. I present the measure for the year before marriage to reduce any potential temporal mis-ordering with respect to the dependent variable. Also note that 60 percent of couples were not living in the same neighborhood in 1996 and when they married (if they were not living in the same neighborhood I only know that this was the case—I do not know the specific neighborhood they were living in prior to 1996). I estimated separate models that included only those couples that did not move and again found similar effect estimates, but with larger standard errors. In all the analyses presented in this paper I include all couples and a control for whether they were living in the same neighborhood in 1996 and the year before they married.

televisions, bicycles, motorcycles, carts, tractors, irrigation pumpsets, gobar gas plants, and farm tools such as threshers, chaff cutters, sprayers, and corn shellers. The fourth measure is a count of the number of stories in the house that the family is living in. Unfortunately, the only measures of wealth I can include in these models are of the couple's current wealth and necessarily measure wealth after the individual gave the support to his/her parents. However, since household measures such as these are typically stable over time I have included them in the models. The estimated effects displayed later are the same if I remove the wealth controls from the models.

As another measure of resource availability I include a count variable equal to the number of children the couple had by the interview. Couples with larger families may not be able to provide assistance to their parents because they have to devote more resources to their own children. It is also possible that couples with fewer children have smaller families because they have more individualistic or less family oriented attitudes and have therefore decided to have fewer children (Becker, 1991; Thornton & Lin, 1994). Technically this measure is of the number of children the husband fathered. Because 31 men had multiple wives there is a slight difference between the number of children the husband fathered and the number the first wife gave birth to. However, these small differences do not influence the effect estimates presented in the tables below.

Another measure of resource availability in this setting is non-family work experience. I use information gathered on the Life History Calendars to create dichotomous measures of the husband's and wife's experiences with non-family work for pay (wage employment, salaried employment, or owning a business outside the home) equal to 1 if the husband (wife) ever worked for pay outside the home and zero otherwise.

Because the proliferation of schools is often accompanied by other non-family organizations which may effect children's support of their parents similarly to schools (Axinn & Yabiku, 2001; Caldwell, 1982; Casterline, 1985, 2001; Cleland & Hobcraft, 1985; Gertler & Molyneaux, 1994; Hernandez, 1981), I include controls for the number of other non-family organizations within a 5 minute walk the year before the couple married. I create five dichotomous variables similar to the measure of exposure to schools but for whether there was an employer, market, health service, movie hall, or bus stop within a five minute walk from the couples' current neighborhood the year before they were married. I then sum these dichotomous measures to create an index of community characteristics (Axinn & Yabiku, 2001; Brauner-Otto, Axinn, & Ghimire, 2007). The index ranges from zero (neither employer, market, health service, movie hall, or bus within 5 minutes) to five (all five services available).

There are several additional controls that are crucial to include in any model of behavior in this setting: parental characteristics, birth cohort, and ethnicity. I include measures of three parental characteristics because parents are likely to influence access to schools, the amount of education someone receives, and the amount of support the children give their parents. I create measures of both the husband's and the wife's parental characteristics to yield six measures in total. Two of these measures are dichotomous measures equal to one if the husband's father ever went to school or ever worked outside the home for pay, respectively. These measures are also good proxies for family wealth. A third measure is a count of the number of children the husband's mother had. I created three comparable measures for the wife's parents.

As described above communities, daily life, and behavior in Nepal have changed dramatically over time. They also vary greatly by ethnicity. I create dichotomous variables for five birth cohorts for the husband: 1979-1972 (ages 17-24 in 1996), 1971-1962 (ages 25-34 in 1996), 1961-1952 (ages 35-44 in 1996), 1951-1942 (ages 45-54 in 1996), and 1941 or earlier (ages 55 and over in 1996). The 1941 and older birth cohort is the reference group for the analysis.

I do not include a measure of wife's birth cohort because it is highly collinear with this measure of husband's.

Ethnicity in Nepal is complex, multifaceted, and interrelated with religion and a full description of the ethnic groups in this setting is beyond the scope of this article (see Acharya & Bennett, 1981; Bista, 1972; Fricke, 1986; and Gurung, 1980 for detailed descriptions). I use dichotomous variables to control for five classifications of husband's ethnicity: high-caste Hindu, low-caste Hindu, Newar, hill Tibeto-Burmese, and terai Tibeto-Burmese. Each group has different propensities to support their parents and different access to schools. High-caste Hindu is the reference group in all analyses. Additionally, I include a dichotomous variable equal to one if the husband's ethnicity is different from his wife's and a dichotomous variable equal to one if the husband had more than one wife.

Analytic Strategy

I test my two empirical predictions separately, first investigating the relationship between schooling and supporting parents, and then the relationship between exposure to schools and supporting parents. When testing each prediction I first look at the effect of the husband's characteristics and then the wife's. I also first examine the effect on giving to the husband's parents and then to the wife's parents. For each prediction I use a nested modeling approach and begin with a simple model that includes the key independent variable (schooling or exposure to schools), and the basic, crucial controls mentioned above (parental characteristics, birth cohort, and ethnicity). I then add in the remaining controls (wealth/resource availability and community context) in consecutive models.

Because the individuals in the study are clustered with several individuals living in the same community who all have the same community characteristics, I estimate multilevel models that take this data structure into account. The results presented in the tables below have all been calculated using the GLIMMIX macro for SAS.

For all models I use multilevel-logistic regression. The final model for schooling is as follows:

$$\ln(p_{in}) = \beta_0 + \boldsymbol{\beta}_1 \mathbf{S}_{in} + \boldsymbol{\beta}_2 \mathbf{C}_{in} + \boldsymbol{\beta}_3 \mathbf{W}_{in} + \boldsymbol{\beta}_{4n} \mathbf{N}_n$$
$$\text{and}$$
$$\boldsymbol{\beta}_{4n} = \beta_4 + \mu_{4n}$$

(equation 1)

for couple i in neighborhood n, where $p_{in} = P[Y_{in} = 1 | \mathbf{S}_{in}, \mathbf{C}_{in}, \mathbf{W}_{in}, \mathbf{N}_n]$; Y_{in} is 1 if couple i in neighborhood n gave to either of their parents depending on the specific dependent variable in question, and 0 otherwise; β_0 is the intercept, $\boldsymbol{\beta}_1$ through $\boldsymbol{\beta}_3$ are vectors of coefficients.[5] $\mathbf{S}_{in}$ represents the measures of schooling for couple i in neighborhood n. $\mathbf{C}_{in}$ and $\mathbf{W}_{in}$ are both vectors that include the basic controls and the wealth/resource availability measures, respectively. $\mathbf{N}_n$ is a vector of the neighborhood level community context variables. $\boldsymbol{\beta}_{4n}$ is the intercept for neighborhood n and μ_{4n} is the neighborhood level random effect. These terms are added into the model in stages as described above

For models of the effect of exposure to schools the equation form is quite similar:

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[5] I follow the convention of writing vectors of variables or coefficients in **bold** type; single variables and coefficients are in regular type

$$\ln(p_{in}) = \beta_0 + \beta_{1n}\mathbf{S*}_n + \beta_2\mathbf{C}_{in} + \beta_3\mathbf{W}_{in} + \beta_{4n}\mathbf{N}_n$$
$$\text{and}$$
$$\beta_{1n} = \beta_1 + \mu_{1n}$$
$$\beta_{4n} = \beta_4 + \mu_{4n} \tag{2}$$

Here $\mathbf{S*}_n$ is a vector of the neighborhood level measures of exposure to schools and all the remaining terms are the same.

Results

Schooling

Table 2 refers to my first empirical prediction and as such presents the multilevel logistic regression estimates of the relationship between schooling, or education, and the likelihood of giving support to parents. The coefficients displayed are the multiplicative effects on the odds of giving support to one's parents. An exponentiated coefficient greater than 1.00 represents a positive effect, less than 1.00 a negative effect and equal to 1.00, no effect on the odds. For ease, I refer to the likelihood of receiving support, rather than the odds, in the discussion. I only show the final model in these tables. The effect estimates for all the independent variables are essentially the same in this final model as when they are estimated in separate ones.

In Model 1 I show the effect of husbands' schooling on the support of his parents. This effect is positive and statistically significant. Every additional year of schooling the husband received increased the likelihood of giving to his parents by about 7 percent. Because these are multiplicative effects, if the husband had 10 years of schooling (completion of high school in this setting) the couple was almost 100 percent more likely to have given to either of their parents than if the husband had no schooling ($1.07^{10}=1.97$). These results are consistent with the theory that children support their parents in part because they feel indebted to them for their parents' previous investments in their, the children's, education.

We see in Model 2 that the effect of wife's schooling on support of her husband's parents is not statistically significant. This is further evidence of the idea that support is offered as repayment —because the husband's parents did not provide the resources for the wife's education, there is no debt the for the couple to repay.

Models 3 and 4 show the relationship between husband's and wife's schooling and support of the wife's parents. Here we see that neither husband's nor wife's schooling was significantly related to giving to the wife's parents. These results are inconsistent with my predication regarding debt repayment as a reason for giving support.

I also tested dichotomous measures of whether the husband or wife had ever attended school and found no substantial differences from the results presented below.

When investigating the relationship between education and support for parents, wealth or general resource availability may be one possible alternative explanation for the observed relationship. To address this possibility I include several measures of resource availability in these models. Some of these measures were significantly related to giving support to the husband's parents. Specifically, it appears that families who own their land are less likely to give support to the husband's parents but that those who have more stories in their homes or where the husband had worked for pay prior to marriage are more likely to give support. It may be that these three measures are capturing different aspects of the relationship between wealth and intergenerational transfers. One the one hand, those who themselves are extremely poor (i.e. those who do not own land) may have parents who are poor as well and therefore

have greater need for support from their children. As you can see in Table 1, land ownership is high in this setting with over 80 percent of couples owning the land their house is on. Those families who do not own land are noticeably poorer than landowners. On the other hand, those who are more well off (i.e. those with more stories in their houses or who previously worked for pay) may have more resources and therefore are more able to offer support.

Having said this, I caution the reader against placing great weight upon any conclusions regarding the relationship between wealth and intergenerational transfers from these models. It is difficult to ascertain wealth in this setting, appropriate measures of wealth likely vary by ethnic group (different groups vary in their typical housing structures), and the measures of wealth in these models necessarily occurred after the giving occurred. A complete investigation into wealth is beyond the scope of this paper and these data. What is important regarding the research presented here is that the effect of schooling is independent of these wealth effects— not only are all the measures independently significant in the same model, but the effect estimates are virtually identical when included in models without one another.

Schools

In Table 3 I present results for the multilevel logistic regressions of the relationship between exposure to schools and giving to parents. In Model 1 I show the effect of the couple's exposure to schools on the likelihood that the couple gave support to the husband's parents. Having a school within a 5 minute walk was not significantly related to giving to the husband's parents. When we look at the effect of exposure to schools on giving to the wife's parents (Model 2) that we see that exposure to schools is significantly related to giving support to her parents. Specifically, if the couple had a school within a five minute walk the year before they married they were about a quarter less likely to give support to her parents. These results provide evidence to support my second empirical prediction—those with greater exposure to schools are less likely to give support to their parents, perhaps because they have more individualistic attitudes.

Since schools often exist in conjunction with other community institutions there are several additional points worth highlighting. First, effect of exposure to schools on giving support to the wife's parents is independent of the control measure for the number of other community institutions present at the same time. Second, this control measure itself does not seem to be related to the likelihood a couple gave to either of their parents. Third, in this setting the possibility that another community characteristic is causing the observed effect between schools and individual behavior is unlikely because it is rare that other non-family institutions existed prior to the building of the schools (Axinn and Yabiku 2001). Of course, this does not eliminate the problem of potential endogeneity, but it does help to address it.

Note, when I include both the measures of schooling and exposure to schools in the same model the results are virtually identical to those presented here. It appears as if schooling, or educational attainment, influences behavior separately from mere exposure to schools. The substantially different findings regarding the effects of these measures further illustrates that they influence behavior through separate mechanisms. I discuss this further in the discussion section immediately below.

Discussion

The theoretical framework presented in this paper brings together two disparate bodies of literature, one focusing on intergenerational support of the elderly and one on the effect of social change on family behaviors. The resulting empirical investigation of the relationship between social context and intergenerational transfers is a valuable foray into the vast sociological question of how family and family relationships are connected to a wider social

context. By exploring children's support of their elderly parents in a context currently experiencing dramatic social change we gain insight into the role and function of transfers and about familial responsibilities in a changing time.

The research presented in this paper investigates two specific predictions regarding this relationship between social context and intergenerational transfers. First, that increasing schooling, or education, will influence children's support for their parents. Children may increase their support of their parents if they have more schooling because they feel they have a larger debt to repay their parents given the parents lengthy time and financial commitment to sending their children to school. The analyses presented in this paper provide some support for this hypothesis. Specifically, more schooling for husband's was associated with a higher likelihood of the couple giving support to the husband's parents. Previous research on intergenerational support has also found evidence of this positive relationship between education and support of aging parents (Frankenberg, Lee, and Willis, 2002; Lee, Parish, and Willis, 1994). What is novel in these findings is that I am able to examine the separate effects of husbands' and wives' education on giving to each set of parents, thereby informing our understanding of the complex relationship between education and intergenerational transfers. The link between husband's education and giving support to his parents supports the reciprocal exchange model of intergenerational transfers as one type of motivation or form of support.

The second prediction this paper investigates is that increased exposure to schools will lead to children giving less support to their parents. With the spread of schools people have more interactions with teachers, others who work at the schools, and neighbors who send their children to school. These interactions, and the information and social learning about non-family organizations that occurs during them, may lead to increased individualism which in turn may lead to less support for parents. The analyses presented here provide some support for this relationship as well. Couples with a school nearby were less likely to have provided support to the wife's parents.

The dominant patriarchal structure of families in Nepal may provide some insight into interpreting this finding. Women typically weaken their ties with their natal homes once they marry. The process of individualization likely occurs slowly over time, even over generations, with norms breaking down and changing gradually. Weaker ties may feel the consequences of these changing norms more quickly. So, when couples have historically maintained closer ties with the husband's family, as couples devote fewer resources to supporting their parents it is likely that they will do so to the wife's parents first. As social context continues to change in Nepal, and as more individuals have exposure to schools and other non-family institutions and therefore develop increasingly individualistic attitudes, we may expect to see an effect of this exposure on giving support to the husband's family. Future investigations of the relationship between schools and support for aging parents in Nepal or other similar settings will be important for testing this hypothesis further and seeing how these relationships continue to change over time.

It is important to emphasize that the analyses presented here are simply one piece of evidence to support the proposed hypotheses—they are by no means conclusive. These findings illustrate the complexity of intergenerational transfers. Multiple motivations for supporting aging parents appear to exist simultaneously. This makes it especially difficult to make predictions regarding future trends or forms of intergenerational support. It is not clear how families will respond to increasing levels of education and exposure to schools. Future research designed to identify multiple, simultaneous mechanisms through which social context influences intergenerational relationships is crucial for developing a more comprehensive theoretical framework and improving our understanding of this important dimension of family life.

In addition to the challenges raised by the complex nature of intergenerational transfers, there are several methodological challenges facing researchers—challenges apparent in this paper as well. As with all observational data, there are important concerns regarding unobserved heterogeneity. However, I hope to increase the readers confidence in these findings by employing methodological techniques, specifically random effects multilevel models, used in previous research examining the relationship between social context and individual behavior that are designed to address this problem that were (Angeles, Guilkey, & Mroz, 1998; Raudenbush & Bryk, 2002).

Another possible threat to these analyses concerns the temporal ordering of the measures used. It is not possible to determine in these data when the specific support to parents occurred. It may in fact have occurred before the measures of exposure to schools and schooling presented in this paper. I did however test multiple specifications of these key independent variables and found consistent results. Perhaps even more importantly, the specific context provides some information that may minimize this risk. In Chitwan, Nepal the vast majority of children live in their natal homes until they are married. Since the specific question used to measure children's support for their parents refers to instances when the child was not living with his or her parents, it is unlikely that these intergenerational transfers occurred before the measures of exposure to schools and schooling.

In addition to increasing our knowledge and informing our theories regarding how social context influences family relationships, the analyses presented in this paper have important policy implications for Nepal and other countries in similar situations. Nepal is similar to other Asian countries in terms of its physical or economic conditions, demographics, and some of the pressing policy issues it faces. As a result, the findings from this research may be applicable to these other countries. The rapid and dramatic social change that has swept through Nepal, and in many other countries, over the past 50 years has brought about many changes in the family. Historical systems of care, living arrangements, and familial responsibilities that once centered around or within the family network appear to be changing to look more like Western, individualistic or emotionally nucleated systems. However, there has not been a concurrent change in institution formation to accompany many of these new attitudes and behaviors. Most specifically related to the topic of care for aging parents, although young people are increasingly living alone and not supporting their parents to the same degree they once were, there are no non-family institutions to replace them—the elderly are living alone and receiving little from their non-residential children with increasing frequency. As researchers, social scientists, and policy makers alike we should devote substantial efforts to monitoring and understanding how the well-being of the elderly are being affected in these rapidly changing societies.

Acknowledgments

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TABLE 1

Characteristics of the sampled couples: Chitwan, Nepal

Variable and categories	Mean	SD	Min.	Max.
Support of parents				
Gave to husband's parents	0.66		0	1
Gave to wife's parents	0.35		0	1
Schooling (education)				
Husband's years of schooling, before married	5.77	5.41	0	22
Wife's years of schooling, before married	2.95	4.47	0	20
Exposure to schools				
School within five minute walk, year before married	0.32		0	1
Resource availability				
Wealth measures (1996)				
Family owns land house is on	0.86		0	1
Number of livestock owned	4.18		0	41
Number of consumer durables owned	1.75		0	8
Number of storeys of house	1.58		1	5
Total number of children born by 1996	3.97		0	15
Ever worked for pay in year before married				
Husband worked for pay	0.53	0.50	0	1
Wife worked for pay	0.20	0.40	0	1
Community characteristics year before married	0.80	1.21	0	5
Parents' attributes (as of 1996)				
Husband's father ever went to school	1.63		0	1
Husband's father ever worked outside the family for pay	0.43		0	1
Number of children ever born to husband's mother	5.78		1	16
Wife's father ever went to school	0.26		0	1
Wife's father ever worked outside the family for pay.	0.41		0	1
Number of children ever born wife's mother	6.12		1	18
Cohort				
Born 1972-1979 (aged 17-24 years in 1996)	0.07		0	1
Born 1962-1971 (aged 25-34 years in 1996)	0.31		0	1
Born 1952-1961 (aged 35-44 years in 1996)	0.27		0	1
Born 1942-1951- (aged 45-54 years in 1996)	0.28		0	1
Born 1941 or earlier (aged 55+ years in 1996)	0.15		0	1
Ethnicity				
High-caste Hindu	0.47		0	1
Low-caste Hindu	0.12		0	1
Newar	0.06		0	1
Hill Tibeto-Burmese	0.18		0	1
Terai Tibeto-Burmese	0.18		0	1
Wife of different ethnicity	0.03		0	1
Has more than one wife	0.02		0	1

Variable and categories	Mean	SD	Min.	Max.
Lived in neighborhood year before married	0.40		0	1

Notes: Sample size 1,487 couples. Figures are proportions unless stated as counts (years or children). SD standard deviation. Min. minimum. Max. maximum.

TABLE 2

Multilevel logistic regression estimates of relationship between schooling and a couple's support of their parents, Chitwan valley, Nepal

| Variables | Support for husband's parents | | | | Support for wife's parents | | | |
| | Husband's schooling[1] Model 1 | | Wife's schooling[1] Model 2 | | Husband's schooling[1] Model 3 | | Wife's schooling[1] Model 4 | |
	OR	z	OR	z	OR	z	OR	z
Years of schooling, before married	1.07***	4.39	1.03	1.34	1.01	0.51	1.02	1.28
Controls: Resource availability:								
Family owns land house is on	0.71*	-1.77	0.76	-1.45	1.00	-0.02	1.00	0.02
Number of livestock owned	0.99	-0.30	1.00	-0.19	0.98	-1.36	0.98	-1.35
Number of consumer durables owned	1.00	0.04	1.03	0.51	1.07	1.42	1.06	1.27
Number of storeys of house	1.24*	1.88	1.22*	1.73	0.99	-0.10	0.99	-0.12
Total number of children born	1.00	0.00	1.00	-0.08	0.98	-0.64	0.98	-0.53
Ever worked for pay year before married:								
Husband worked for pay	1.16	1.20	1.14	1.06	1.02	0.15	1.01	0.07
Wife worked for pay	1.03	0.16	1.00	-0.02	1.09	0.58	1.10	0.61
Community characteristics year before married	0.95	-0.82	0.98	-0.36	1.05	0.87	1.04	0.77
Parental characterstics:								
Husband's father ever went to school	0.87	-0.79	0.98	-0.11	0.74*	-1.77	0.72*	-1.88
Husband's father ever in paid work[2]	1.25*	1.84	1.25*	1.85	1.09	0.70	1.10	0.79
Husband's mother's children ever born	1.02	0.70	1.02	0.90	1.00	0.01	1.00	0.07
Wife's father ever went to school	0.91	0.61	0.97	-0.18	0.99	-0.10	0.96	-0.27
Wife's father ever in paid work[2]	1.18	1.32	1.15	1.14	1.45***	3.09	1.44**	3.03
Wife's mother's children ever born	1.03	1.23	1.03	1.37	1.03	1.62	1.04*	1.70
Cohort:[3]								
Born 1972-1979 (age 17-24 years)	1.61	1.21	2.23*	2.07	0.61	-1.29	0.59	-1.42
Born 1962-1971 (age 25-34 years)	1.73*	1.77	2.48**	3.03	0.47**	-2.45	0.46**	-2.63

| | Support for husband's parents | | | | Support for wife's parents | | | |
| | Husband's schooling[1] Model 1 | | Wife's schooling[1] Model 2 | | Husband's schooling[1] Model 3 | | Wife's schooling[1] Model 4 | |
Variables	OR	z	OR	z	OR	z	OR	z
Born 1952-1961 (age 35-44 years)	1.39	1.19	1.84*	2.27	0.71	-1.24	0.72	-1.23
Born 1942-1951 (age 45-55 years)	0.98	-0.10	1.11	0.43	0.75	-1.16	0.76	-1.13
Ethnicity:[4]								
Low-caste Hindu	0.73	-1.52	0.65*	-2.08	0.61*	-2.30	0.62*	-2.23
Newar	1.01	0.05	1.02	0.07	0.99	-0.05	1.00	-0.01
Hill Tibeto-Burmese	0.81	-1.15	0.78	-1.39	1.16	0.91	1.18	1.03
Terai Tibeto-Burmese	1.08	0.38	0.91	-0.48	1.71**	3.03	1.76***	3.25
Wife of different ethnicity	0.95	-0.17	0.88	-0.39	0.91	-0.30	0.90	-0.33
Has more than one wife	2.27*	1.91	2.41*	2.05	3.05**	3.05	3.05**	3.04
Lived in neighbourhood year before married	0.59***	-4.11	0.62***	-3.81	1.04	0.31	1.05	0.37
ICC (Intra class correlation)	0.17		0.18		0.04		0.04	
Deviance	1693		1702		1844		1843	

Notes: Sample size 1,487. OR odds ratio.

[1]Before marriage.

[2]Outside the family.

[3]Reference group, born 1941 or earlier (aged 55 or more years).

[4]Reference group, High-caste Hindu.

***
Significance level: $p < 0.001$, one-tailed tests

**
Significance level: $p < 0.01$, one-tailed tests

*
Significance level: $p < 0.05$, one-tailed tests

TABLE 3

Multilevel logistic regression estimates of the relationship between exposure to schools and couple's support of their parents, Chitwan, Nepal

Variables	Support for husband's parents Model 1		Support for wife's parents Model 2	
	OR	z	OR	z
Couple had school within five minutes walk[1]	1.14	0.91	0.76[*]	-2.05
Controls				
Resource availability				
Wealth measures:				
Family owns land house is on	0.76	-1.45	1.01	0.07
Number of livestock owned	1.00	-0.23	0.98	-1.28
Number of consumer durables owned	1.04	0.80	1.07	1.41
Number of house storeys	1.22[*]	1.77	0.98	-0.21
Total number of children born	0.99	-0.18	0.98	-0.71
Ever worked for pay year before married				
Husband worked for pay	1.15	1.14	1.02	0.15
Wife worked for pay	0.98	-0.10	1.09	0.57
Community characteristics year before married	0.97	-0.42	1.09	1.48
Parental characteristics:				
Husband's father ever went to school	1.02	0.10	0.75[*]	-1.71
Husband's father ever in paid work outside family	1.24[*]	1.77	1.08	0.63
Husband's mother's children ever born	1.02	0.85	1.00	0.09
Wife's father ever went to school	1.01	0.08	1.00	0.03
Wife's father ever in paid work outside family	1.16	1.23	1.42[**]	2.92
Wife's mother's children ever born	1.03	1.30	1.03[*]	1.65
Cohort:[2]				
Born 1972-1979 (age 17-24 years)	2.41[*]	2.31	0.68	-1.04
Born 1962-1971 (age 25-34 years)	2.63[***]	3.28	0.52[*]	-2.21
Born 1952-1961 (age 35-44 years)	1.83[*]	2.25	0.78	-0.92
Born 1942-1951 (age 45-55 years)	1.09	0.37	0.79	-0.97
Ethnicity:[3]				
Low-caste Hindu	0.63[*]	-2.27	0.59[**]	-2.51
Newar	1.01	0.04	0.98	-0.09
Hill Tibeto-Burmese	0.77	-1.50	1.13	0.76
Terai Tibeto-Burmese	0.86	-0.81	1.67[**]	3.04

Variables	Support for husband's parents Model 1		Support for wife's parents Model 2	
	OR	z	OR	z
Wife of different ethnicity	0.88	-0.38	0.89	-0.37
Has more than one wife	2.46[*]	2.09	3.09[**]	3.08
Lived in neighbourhood in year before married	0.62[***]	-3.84	1.04	0.34
ICC (Intra class correlation)	0.17		0.04	
Deviance	1706		1841	

Notes: Sample size 1,487. OR: odds ratio.

[1] Before marriage.

[2] Reference group, born 1941 or earlier (aged 55 or more years).

[3] Reference group, High-caste Hindu.

[***] *Significance level: $p < 0.001$, one-tailed tests*

[**] *Significance level: $p < 0.01$, one-tailed tests*

[*] *Significance level: $p < 0.05$, one-tailed tests*