

Schools, schooling and children's support of their ageing parents in rural Nepal

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ABSTRACT

Intergenerational transfers play an important role in individuals' lives across the lifecourse. This paper reviews theories on intergenerational transfers and social change to inform our understanding of how changes in the educational context that arise from the spread of mass education influence children's support of their parents. By examining multiple aspects of the educational context in rural Nepal, 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. Multilevel logistic regression was used to estimate the relationship between schooling, exposure to schools, and the likelihood of couples giving to their parents. It was found that schooling and exposure to schools have independent and opposite effects on the support of older parents. Higher levels of schooling for husbands were 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. The findings provide evidence that multiple motivations for intergenerational support exist simultaneously and are related to social context through different mechanisms.

KEY WORDS – education, social context, Nepal, care giving, intergenerational relationships.

Introduction

Intergenerational transfers (exchanges of money, time, goods and services) play an important role for most individuals across their lifecourse – to some degree virtually all parents support their children and many adult children help their parents in their older age. Because intergenerational transfers are so pervasive, numerous sociological theories touch on them. For instance, many of the theories that describe behaviours ranging from elder care to childbearing implicitly or explicitly incorporate the role of intergenerational familial support. Children's support of their ageing

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parents is gaining increased attention. One impetus is that support of older people is a concern in many different settings. In wealthy countries, some in middle-age face serious financial and time strains as they care simultaneously for elderly parents and dependent children (Grundy and Henretta 2006; Hamil 1994; Lam 2006; Loomis and Booth 1995). Several decades of delayed childbearing have contributed to the growing numbers of adults facing this double burden (Edmonston 2006; Preston, Himes and Eggers 1989). In poor countries, changing social norms are leading to a decline in familial support for older people, but governments have not installed wide-reaching replacement social support programmes.

The research reported in this paper advances our understanding of intergenerational support in three ways. First, it has provided a theoretical framework for understanding how changes in the social context influence children's support of their parents. Theories about intergenerational transfers, the modes of social organisation framework, and about wealth flows have been examined for their contributions to an understanding of the relationship between educational context and adult children's support of their older parents. Second, by examining aspects of both husbands' and wives' education, this paper provides new information on the motivations underlying children's support of their parents. Third, by investigating both experiences with and mere exposure to schools, the findings shed light on the broader, complex relationship between educational context and individual behaviour.

The theoretical framework

There are substantial research literatures on both the link between social context and individual behaviour (Alexander 1988; Caldwell 1982; Durkheim [1933] 1984; Thornton and Lin 1994) and on adult children's support for their ageing parents (Becker *et al.* 2003; Hogan, Eggebeen and Clogg 1993; McGarry and Schoeni 1997), but little research has brought the topics together. This paper attempts to provide new information about the understudied relationship between the educational context and children's support of their parents. To do so, the theories from these divergent branches of sociology have been combined into a single theoretical framework. For theories regarding social context and individual behaviour, I rely on the modes of social organisation framework and wealth flows theories (Caldwell 1982; Thornton and Fricke 1987; Thornton and Lin 1994). These have been combined with theories of intergenerational transfers (Goldscheider, Thornton and Yang 2001; Hogan, Eggebeen and Clogg 1993; Lee, Parish and Willis 1994; McGarry and Schoeni 1997)

to guide this investigation into how changes in social context influence children's support of their parents. The reader is directed to the cited literature for detailed accounts of the various frameworks, for the following discussion focuses on their intersection.

A key premise at the heart of the cited social change theories is that as more non-family institutions, such as schools, appear in communities, there is a fundamental shift in the social organisation of daily life. This draws individuals out of social networks dominated by family members and into social networks linked to other non-family institutions (Thornton and Fricke 1987; Thornton and Lin 1994). With this shift in daily life, individuals' ideas about certain behaviours and their perceptions of others' ideas about those behaviours begin to change. 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). Many individuals' behaviour then changes in line with the new individualistic attitudes.

Both increasing educational attainment and exposure to schools in the neighbourhood, consequences of this shift in the organisation 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 a greater debt to their parents and will therefore give them more support (Goldscheider, Thornton and Yang 2001). In Nepal, sending children to school is costly – for uniforms, tuition and supplies. Also, when children are in school they no longer contribute to household production, which increases their debt to their parents because they now need to repay the costs of schooling, and also for 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 *et al.* 1997; Silverstein, Parrott and Bengtson 1995).

Now consider the effects of increased exposure to schools beyond educational attainment. Exposure to schools includes interactions with those who work at the schools, or with one's children or neighbours who themselves have experiences with schools. Exposure also includes passive contacts, such as walking by the building on the way to the market or being exposed to recruitment campaigns (Bongaarts and 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 and Fricke 1987; Thornton and 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 and Clogg 1993; Lee, Parish and Willis 1994; McGarry and Schoeni 1997). As children become more individualistic, this valuation may cause children to 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 may be particularly strong in a setting where neighbourhoods are small and are populated by 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 the open display of behaviours, such as helping children get ready for school, allows other individuals to see how schools actually influence individuals' lives. What Bongaarts and Watkins (1996) called 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 neighbours. 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 behaviours. Individuals with more education have been found to marry later, have fewer children, and to use contraceptives earlier – all characterised in theories of social change as less family-centred or more individualistic (Blossfeld and Huinink 1991; Caldwell 1982; Ghimire *et al.* 2006; Thornton, Axinn and Teachman 1995; Yabiku 2004, 2005). Empirical research has also found that increased exposure to non-family institutions such as schools, health services and markets does in fact correspond with less family-oriented behaviour that limits childbearing, such as contraceptive use (Axinn and Barber 2001; Axinn and Yabiku 2001; Brauner-Otto, Axinn and Ghimire 2007) and marry at later ages (Yabiku 2004). Importantly, these exposure effects have been found to be independent of individuals' direct experience with these same institutions. A growing body of evidence points to the influence of the educational experiences of others in the community, especially neighbours and children, on individual behaviour (Axinn 1993; Axinn and Barber 2001; Becker 1991; Kravdal 2002; McNay, Arokiasamy and Cassen 2003; Willis 1973; Yabiku 2006). This paper examines whether these relationships between schooling and exposure to schools and

family-related behaviours also hold for children's support for their elderly parents.

The setting

Because social norms play a key role in determining patterns of familial support, it is important to consider carefully the specific setting of a study (Silverstein *et al.* 1995; Yang 1996). My observations were made in the Chitwan Valley in rural, south-central Nepal, which has recently undergone rapid social change. Until the 1950s, the valley was covered with virgin jungle and only sparingly inhabited by indigenous ethnic groups (Guneratne 1994). During 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 the valley was cultivated and a small town, Narayanghat, was forming, but the vast majority of residents were employed in agriculture and continued to use traditional methods of production.

In 1979 the first all-weather road that links Narayanghat to India and to cities in eastern Nepal was completed. Then 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 transport hub for the entire country. This led to the rapid expansion of schools, health services, wage labour, markets, and mass transportation (Axinn and Yabiku 2001; Pokharel and Shivakoti 1986). Between the time of the jungle clearance and 1995, 145 schools were built in Chitwan. Particularly during the 1950s and 1960s, the number of schools increased rapidly (Axinn and Yabiku 2001; Brauner-Otto 2007). As a result, although during the early 1950s across all neighbourhoods it took on average over three hours to walk to the nearest school, by 1970 the mean travel time was less than 20 minutes. In 1995, the mean travel time to a school was less than 10 minutes, with the range across neighbourhoods being from seconds to one hour (Axinn and Yabiku 2001). The spread of schools was not uniform throughout the valley – openings occurred at different times in its various parts – which was important for the proposed research because it allowed examination of variations across time and space. The 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 because residents are more likely to start their own business ventures in the community (Caldwell 1982).

Dramatic changes in individual behaviour followed these physical and community changes. For example, individuals' level of education has increased over time. School enrolment rose from virtually zero during the 1960s to 100 per cent of both sexes entering first grade by 1996 (Beutel and Axinn 2002). Both the percentage of individuals who had ever attended school and the years of schooling have increased greatly over the last 60 years. Data from the *Chitwan Valley Family Study* (CVFS) (detailed later) shows that among those born between 1932 and 1941, less than 15 per cent attended school and the mean number of years of attendance was less than one. Among those born between 1972 and 1981, however, almost 90 per cent attended school and the mean duration of enrolment was almost nine years. Since in Nepal the last year of high school is the 10th grade, this means that by the 1980s many of those who attended school were able to complete primary *and* secondary education.

In rural Nepal, family ties and support have generally been very strong, especially towards the husband's family. For most of the ethnic groups that lived in Chitwan before the spread of mass education, a married son and daughter-in-law would live with the son's parents, but this pattern is no longer universally followed. The CVFS data indicates that in 1996, fewer than one-third of married couples lived with the husband's parents (less than three per cent lived 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 per cent of all individuals in the CVFS strongly agreed that a married son should take care of his parents, less than 40 per cent felt similarly regarding a married daughter.

Also important for the research presented here, there is evidence that the changing social context in Nepal is related to changes in attitudes and behaviour regarding support for older people. 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 ageing parents and less likely actually to live with their parents (Pienta, Barber and Axinn 2000, 2001). Despite the rapid changes in the social context and living arrangements, Chitwan remains a poor, rural area and most of life takes place in small, open communities. Chitwan's settlements or neighbourhoods are small and consist of individuals and families that have regular contact with one another and intimate knowledge of each other's lives. A typical neighbourhood or *tol* has five to 15 households at a crossroads and is surrounded by farmland. Schools and other community services, where they exist, tend to be located at the same crossroads. Most activities, such as getting ready for school, occur in the outdoor courtyard of each house, in plain view of neighbours. Neighbours will also

meet and interact regularly at the common water source and on the grazing land.

Empirical predictions

This paper tests two hypotheses based on the outlined theoretical framework. The first is that 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 attend school for more years may have larger debts to repay their parents and may therefore give more support to their parents than children who went to school for only one year or less. Because the debt will need to be repaid to the parents who sponsored the child's education, a relationship between the education of an individual and the support given to his/her own parents is expected, but not for support given to his/her in-laws. The second hypothesis is that adult children who lived near schools will be less likely to give support to their parents. Exposure to schools, excluding direct enrolment but including informal interactions with others who have had direct exposure, will present new ideas about the family and instil more individualistic attitudes. Increased individualism may lead to less support of parents because individuals feel less altruistic.

Data and methods

The data for the analysis were drawn from the *Chitwan Valley Family Study* (CVFS), which was designed to investigate the relationship between social context and family formation behaviours. It deployed survey and ethnographic methods to obtain detailed measures of community context and individual life histories. In 1996, the CVFS collected information from residents in a systematic sample of 171 *tols* in the west of the valley. The study area is triangular and bounded on one side by dense jungle inhabited by tigers and rhinoceros, on the second side by one of the largest rivers in Nepal, and on the third side by the major highway that links Kathmandu and India. The CVFS interviewed every resident between the ages of 15 and 59 years in the 171 sampled neighbourhoods. Because of the large age differentials between spouses, the ages of the final sample of 5,271 people ranged from 13 to 80 years. The overall response rate was 97 per cent. All interviews were conducted in Nepali, the most common language. Individual-level surveys collected information on intergenerational

transfers and the parents' characteristics. Life-history calendar (or diary) techniques were used to collect reliable information regarding residents' education, labour-force participation, and family behaviours (Axinn, Pearce and Ghimire 1999). The CVFS also collected details of a wide variety of the resources available in the neighbourhoods since 1954.

Data from 1,487 married couples, with both spouses aged 16 or more years and having lived away from his/her parents at some point in their lives, were analysed. These inclusion criteria were adopted for three reasons. First, although some children leave their natal homes for work or school opportunities, the vast majority leave when they marry. Nepalese society is generally patriarchal in structure (Acharya and 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. The analyses were therefore limited to married couples. Secondly, to investigate support for parents, it was necessary to restrict the sample to those who had lived apart from their parents. Virtually all married individuals aged 16 or more years reported living away from their parents at some point, so this was not a very restrictive condition.¹ Thirdly, the sample was restricted to those aged 16 or more years because that is the age most individuals finish high school. Because I was 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. Each husband and wife was linked as a couple to create the unit of observation which incorporated full histories for both husbands and wives. Twenty-nine men in this sample had two wives and two men had three wives. In these situations, information from the first wife's interview was used. I also tested models that excluded these couples using data from the second or third wives and found no substantive differences from the results presented below.

Measures of children's support of their parents

The 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 used 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 all

TABLE I. Characteristics of the sampled couples: Chitwan Valley, Nepal 1996

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
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.

the measures used in the analyses are presented in Table 1. Sixty-six per cent of the 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 per cent of couples had given to the wife's parents. These measures are not mutually exclusive. 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 the second measure equals zero.³

Measures of schooling (education)

Two measures of the couple's schooling or education experiences were created to test the first hypothesis. According to the theoretical framework, 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 is the number of years of schooling the wife received before she married. The mean years of schooling was less than six years for husbands, and less than three years for wives.

Measures of exposure to schools

To test the second hypothesis, a measure of the couple's 'exposure to schools' was created (that is proximity, not participation or enrolment). Children who lived closer to a school will have had more exposure to non-family organisations, will hold more individualistic attitudes, and therefore will be less likely to support their parents. Whereas the theoretical framework hypothesised 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. One couple-level measure of exposure to schools was created. Information about the locations and years of operation of all schools that ever existed in the study area was collected using the *Neighbourhood History Calendar* (NHC) technique (Axinn, Barber and Ghimire 1997). The data set was not constrained to a defined geographic area, so for each year it was possible to determine how far away each school open in that year was from each neighbourhood. From these data, a dichotomy was created of whether there was a school within a five minute walk of the couple's neighbourhood in the year before they married.⁴ The score was '1' if the couple had a school within a five minute walk from their current neighbourhood in the year before they married and '0' otherwise. Previous research had found that in rural Nepal with its limited transport infrastructure, 'within a five minute walk'

is an appropriate differentiator (Axinn and Yabiku 2001). The mean values of these neighborhood level measures are presented at the individual level in Table 1. Roughly one-third of the couples had a school within a five minute walk of their current neighbourhood in the year before they married.

Controls

When investigating the determinants of inter-personal support, it is clearly important to control for resource availability. Seven measures were developed for this purpose. In Chitwan, household goods and landownership are more meaningful measures of wealth than cash income and they were represented by four variables. The first is a dichotomy that indicated whether a couple owned the land on which their house stood. The second and third are counts of livestock (principally bulls, cows, buffaloes, sheep, goats and pigs) and consumer durables that the couple owned, the latter including radios, televisions, bicycles, motorcycles, carts, tractors, irrigation pumps, 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 storeys in the couple's house. Unfortunately the measures of the couple's current wealth necessarily indicate the values *after* support transfers to the husband's and wife's parents. The household wealth measures are typically stable over time, and the estimated effects were little affected when the wealth controls were removed from the models.

The number of the couple's children at the time of the interview was also included as a measure of resource availability. 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 restricted the number because they have more individualistic or less family-oriented attitudes (Becker 1991; Thornton and Lin 1994). More precisely, the measure is the number of children that the husband fathered. Because 31 men had multiple wives, there were small differences between the number of children that the husband fathered and the number born by the first wife, but the differences did not influence the effect estimates. The final measure of resource availability is non-family work experience. Information from the Life History Calendars was used 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). As with all other dichotomies, '1' indicated the presence of the attribute, and '0' its absence.

Because the proliferation of schools is often accompanied by other non-family organisations which may affect children's support of their parents (Axinn and Yabiku 2001; Caldwell 1982; Casterline 1985, 2001; Cleland and Hobcraft 1985; Gertler and Molyneaux 1994; Hernandez 1981), five controls were created for the number of other non-family organisations within five minutes' walk in the year before the couple married. These indicated whether or not the couple lived near an employer, a market, a health service, movie hall (cinema), or a bus stop. The five measures were summed to create an aggregate index of community characteristics.

Several other controls are crucial in any model of behaviour in low-income agricultural settings: parental characteristics, birth cohort and ethnicity. Six characteristics of the couple's parents were also included, because parents are likely to influence access to schools, the amount of education a child receives, and the amount of support that a child gives to a parent. Two dichotomies indicated if the husband's father ever went to school and ever worked outside the home for pay. These measures are good proxies for family wealth. Another measure was a count of the number of children borne by the husband's mother. There were three comparable measures for the wife's parents.

As described above, in Nepalese communities, daily life and behaviour vary greatly by ethnicity and have changed substantially over time, so there are likely to be strong cohort effects. Dichotomies were created for five birth cohorts for the husband (defined in Table 2). The oldest cohort, born in 1941 or earlier, is the reference group in the analysis. No measure of the wife's birth cohort was included because of colinearity with the husband's measure. Ethnicity in Nepal is complex, multi-faceted and inter-related with religion – a full account of the area's ethnic groups is beyond the scope of this article (for which see Acharya and Bennett 1981; Bista 1972; Fricke 1994; and Gurung 1980). Five dichotomies were created for husband's ethnicity: high-caste Hindu, low-caste Hindu, Newar, hill Tibeto-Burmese and *terai* (lowland) Tibeto-Burmese. Each group has different propensities to support their parents and different access to schools. High-caste Hindu was the reference group in all analyses. Finally, a dichotomy indicated if the husband's ethnicity differed from the wife's, and another indicated that a husband had more than one wife.

Analytic strategy

The relationship between schooling and supporting parents was investigated first, and then the relationship between exposure to schools

and supporting parents. In both cases, the effects of the husband's characteristics were first examined and then the wife's, and the effects on giving to the husband's parents and then to the wife's parents were examined separately. A nested modelling approach was used, which began with a simple model of the key independent variable (schooling or exposure to schools) that included the basic controls enumerated above (parental characteristics, birth cohort and ethnicity). The model was then re-run consecutively with the other controls (the wealth/resource availability and community context measures).

Because the sample members were spatially clustered, several individuals could have been living in the same community and have the same community characteristics, and a multilevel regression model that takes this data structure into account was required. This is provided by the GLIMMIX macro procedure in SAS (SAS Institute 2004). Following the convention of notating vectors of variables and their coefficients (β) in bold, and single variables and their coefficients (β) in regular font, the final model for the effect of having had schooling was:

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

- where: \ln is the natural logarithm
- p is the probability of having given support to parents
- i is the couple and n the neighbourhood
- β_0 is the intercept
- \mathbf{S} is a vector of the measures of schooling
- \mathbf{C} is a vector for the basic control measures
- \mathbf{W} is a vector for the wealth/resource availability measures
- \mathbf{N} is a vector of the neighbourhood or community context variables
- β_{4n} is the intercept for neighbourhood n

and: $\beta_{4n} = \beta_4 + \mu_{4n}$ (2)

where: μ_{4n} is a neighbourhood level random effect

For couple i in neighbourhood 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 the couple gave to either of their parents (p_{in} is the probability (P) that the dependent variable equals 1). These terms were added into the model at the successive stages described above.

For the models of the effect of exposure to schools the equation was similar:

$$\ln(p_{in}) = \beta_0 + \beta_{1n} S^*_{in} + \beta_2 \mathbf{C}_{in} + \beta_3 \mathbf{W}_{in} + \beta_{4n} \mathbf{N}_n \tag{3}$$

TABLE 2. Multilevel logistic regression estimates of relationship between schooling and a couple's support of their parents, Chitwan Valley, Nepal 1996

Variables	Support for husband's parents				Support for wife's parents			
	Husband's schooling ¹		Wife's schooling ¹		Husband's schooling ¹		Wife's schooling ¹	
	Model 1		Model 2		Model 3		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 kids 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 characteristics:								
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
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

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 levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, one-tailed tests.

where: \mathbf{S}^*_n is the neighbourhood level measure of exposure to schools (the * differentiates this component from the vector of schooling described above)

$$\text{and: } \beta_{1n} = \beta_1 + \mu_{1n} \quad (4)$$

$$\beta_{4n} = \beta_4 + \mu_{4n} \quad (5)$$

Results

Schooling

Table 2 presents the multilevel logistic regression estimates of the relationship between schooling, or education received, 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 1.0 represents a positive effect, and one less than 1.0 a negative effect. For clarity, I refer to the likelihood of receiving support, rather than the odds. Only the final models are shown in the tables. The effect estimates for all the independent variables are essentially the same in the final model as in earlier versions. Model 1 shows the effect of husband's schooling on the couple's support of his parents (Table 2). This effect is positive and statistically significant. Each additional year of schooling increased the likelihood of giving to the husband's parents by about seven per cent. 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 per cent 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 investments in their education.

Model 2 shows that the effect of wife's schooling on support of her husband's parents was not statistically significant, providing further evidence 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 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 (Table 2). They show that neither husband's nor wife's schooling was significantly related to giving to the wife's parents. These results are inconsistent with the hypothesis that giving is motivated by debt repayment. The dichotomies for whether the husband or wife had ever attended

school were also tested, but no substantial differences from the results presented below were found.

When investigating the relationship between education and support for parents, wealth or general resource availability may partly explain the observed relationship. To address this possibility, several measures of resource availability were entered in the model. Some were significantly related to giving support to the husband's parents. Specifically, it appears that families who owned their land were less likely to give support to the husband's parents, but that couples who had larger houses (more storeys), and husbands whose fathers had paid work prior to marriage were more likely to give support. It may be that these three measures captured different aspects of the relationship between wealth and intergenerational transfers. On the one hand, those who were extremely poor (*i.e.* did not own land) may have had parents who were also poor and therefore had greater need for material support from their children. As Table 1 shows, land ownership is common in Chitwan, with over 80 per cent of the couples owning their house plot. Those families who did not own land were noticeably poorer. On the other hand, those who are more well off (*i.e.* had more house storeys or previously worked for pay) may have had more resources and been more able to offer support.

Having said this, I caution the reader not to place great weight on the evidence from these models about the relationship between wealth and intergenerational transfers. It is difficult to ascertain wealth in the setting, the most appropriate wealth measures are likely to vary by ethnic group (*e.g.* typical housing types differ), and the wealth variables measure the attribute *after* giving had occurred. More thorough investigation of the components and variations of wealth is beyond the capability of the available data. Nonetheless an important finding was that the effect of schooling was independent of the measured wealth effects – not only were all the measures independently significant in the same model, but the effect estimates were virtually identical when included in models without one another.

Exposure to schools

Table 3 presents the multilevel logistic regressions of the relationship between exposure to schools and giving to parents. Model 1 shows the effect on the likelihood that the couple gave support to the husband's parents. Having a school within a five minute walk was not significantly related to giving to the husband's parents. Model 2 shows that the effect on giving to the wife's parents was significant. Specifically, if in the year before they married there was a school within a five minute walk of the couple's home,

TABLE 3. Multilevel logistic regression estimates of the relationship between exposure to schools and couple's support of their parents, Chitwan valley, Nepal 1996

Variables	Support for husband's parents		Support for wife's parents	
	Model 1		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
Lived in neighbourhood in year before married	0.62***	-3.84	1.04	0.34
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
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

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 levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, one-tailed tests.

they were about one-quarter less likely to give support to her parents. This finding supports the second hypothesis, that those with greater exposure to schools were less likely to give support to their parents, perhaps because they had more individualistic attitudes.

Since schools are often accompanied by other community institutions, other points require consideration. First, the effect of exposure to schools on giving support to the wife's parents was found to be independent of the number of other community institutions, and second this control measure was not related to the likelihood that a couple gave to either of their parents. Third, in this setting the possibility that another community characteristic caused the observed effect between schools and individual behaviour is unlikely, because rarely did other non-family institutions exist prior to schools (Axinn and Yabiku 2001). Of course, this does not eliminate the problem of potential endogeneity, but it does help address it. Note that when both the measures of schooling and that for exposure to schools were included in the same model, the results were virtually identical to those presented. It appears that schooling or educational attainment influenced behaviour independently of exposure to schools. The substantially different effects of the two measures indicate that they influence behaviour through different mechanisms, as will be discussed.

Discussion

The framework presented in this paper brings together two distinct theoretical literatures, one that focuses on the intergenerational support of older people, and the other on the effect of social change on family behaviours. The presented investigation of the empirical relationship between social context and intergenerational transfers in rural Nepal has made a small but original contribution to the immense sociological questions about how family and family relationships are connected to a wider social context. By exploring children's support of their elderly parents in a rapidly changing societal context, we gain insights into the changing roles and functions of material transfers and changing familial responsibilities.

The investigation examined two hypotheses about the relationship between social context and intergenerational transfers. First, that increasing schooling (level of education) influences children's support for their parents. The rationale was that children who receive more schooling will increase their support for their parents because they have a larger debt to repay. The analyses provided some support for this hypothesis, in that couples with husbands that had received more schooling had a higher likelihood of giving support to the husband's parents. Previous research on intergenerational support has found evidence of this positive relationship between education and support of older parents (Frankenberg, Lee and Willis 2002; Lee, Parish and Willis 1994), but this study has been able to

examine the separate effects of husbands' and wives' education on giving to the two sets of parents. The link between husband's education and giving support to his parents supports the reciprocal exchange model of intergenerational transfers.

The second investigated hypothesis is that increased exposure to schools will lead to children giving less support to their parents. With the spread of schools in an area, people have more interactions with teachers, others who work at the schools, and neighbours whose children attend the schools. These interactions, and the information and social learning about non-family organisations 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. 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 be implicated in these associations. Women typically weaken their ties with their natal homes once they marry. The process of individualisation is probably protracted, even over generations, with norms breaking down and changing gradually. The consequences of these changing norms may be most apparent on weaker ties. If, as in Nepal, couples have historically maintained closer ties with the husband's family, as the tendency to devote fewer resources to supporting parents takes hold, it is likely that the reduction affects first the wife's parents. As social context continues to change in Nepal, and as more individuals are exposed to schools and other non-family institutions, and therefore develop increasingly individualistic attitudes, we may expect decreased support to the husband's family to follow. Future investigations of the relationship between schools and support for ageing parents in Nepal and similar settings will be important for testing this hypothesis further, and for understanding how the relationships change over time.

It is important to emphasise that the presented analyses are just one piece of evidence to support the proposed hypotheses – the findings are by no means conclusive but have illustrated the complexity of intergenerational transfers. Multiple motivations for supporting older parents appear to exist simultaneously. This makes it especially difficult to make predictions about future trends or forms of intergenerational support. It is not clear how families will respond to increasing levels of education and exposure to schools. More research to identify the multiple, simultaneous mechanisms through which social context influences intergenerational relationships is required to develop a more comprehensive theoretical framework and to improve our understanding of this important dimension of family life.

In addition to the challenges raised by the complex nature of intergenerational transfers, researchers face several methodological challenges – some have been apparent in this paper. As with all observational data, there are concerns about unobserved heterogeneity, but I have attempted to raise confidence in the findings by employing random effects multilevel models that were designed to address this problem. They have been used in previous research on the relationship between social context and individual behaviour (Angeles, Guilkey and Mroz 1998; Raudenbush and Bryk 2002). Another possible limitation of the analyses concerns the temporal ordering of the measures. It is not possible to determine from the available data when the specific support to parents occurred. It may in fact have occurred before the dates of the recorded exposure to schools and schooling. 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 lessens the risk of mis-specification. In Chitwan, 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 about how social context influences family relationships, the presented analyses have important policy implications for Nepal and comparable countries. Nepal is like several other Asian countries in terms of its physical and economic conditions, age structure, vital statistics, and some of its pressing social policy issues. As a result, the findings from this research may be applicable more widely. The rapid and dramatic social change that has swept through Nepal and other countries over the last 50 years has brought about many changes in the family. Historical systems of care, living arrangements, and familial responsibilities that once centred around or within the family network appear to be changing to look more like Western, individualistic or emotionally-nucleated systems. There has not been, however, a concurrent change in the country's institutions to complement many of the new attitudes and behaviours. With particular reference to the material support and care of older parents, although young people increasingly live alone and do not support their parents as their predecessors did, no non-family institutions have replaced this support—more and more older people live alone and receive little from their non-resident children. Researchers, social scientists and policy makers should all devote substantial efforts to monitoring and understanding how the well-being of older people is being affected by rapid social and economic change.

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NOTES

- 1 Specifically, 90 per cent of all couples in the CVFS had lived away from the husband's parents and 99 per cent from the wife's.
- 2 It is unfortunate that these questions did not incorporate any information on the volume or frequency of giving nor did they have a temporal component. The CVFS was designed to study transitions in family formation behaviour (marriage, child-bearing, 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 behaviours, not that they were the outcome behaviours of interest.
- 3 I also investigated a third measure that combined giving to either spouses' parents. Very few couples gave to the wife's parents but not the husband's. As a result, this measure captured giving to the husband's parents. It was excluded from the current analysis for a more parsimonious investigation.
- 4 The specific neighbourhood referred to in this measure is where the couple lived in 1996, but the year is the year before the couple married. I also investigated measures for other years, specifically 1991, and separate measures for when the husband and wife were aged 16 years. The effect estimates were essentially the same for all measures, although the standard errors were bigger the farther back in time the measure referenced. The measure for the year before marriage was used to minimise temporal mis-ordering with respect to the dependent variable. Also note that 60 per cent of the couples were not living in the same neighbourhood in 1996 and when they married (if they were not living in the same neighbourhood 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 presented analyses, all couples were entered and a control for whether they were living in the same neighbourhood in 1996 and the year before they married.

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