Mass Media and Rural Out-Migration in the Context of Social Change: Evidence from Nepal

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ABSTRACT

This work examines the influence of mass media on rural out-migration using historical and contemporary data from a setting experiencing massive social and economic development in the last half-century. Data come from the Chitwan Valley Family Study, an ongoing study of an agrarian region in rural Nepal. Media are hypothesized to affect migration by inducing attitudinal and behavioral changes similar to those of other determinants of migration. As their influence differs from other determinants in important ways, media represent a unique form of influence that should be taken into account. I find that movie and television exposure are significant determinants of out-migration in historical contexts, although television exposure was important in more contemporary contexts. Differences in these effects probably indicate the timing of the spread of each type of media and changing preferences among media consumers.

INTRODUCTION

Scholars of historical and contemporary migration generally agree that economic development promotes rural out-migration (Hatton and Williamson 1994, Massey 1988, Massey 1990, Massey and Taylor 2004). However, the underpinnings of modern migration are not solely related to wage differentials and employment markets. Also relevant is the spread of economic development to rapidly growing developing countries linked to the global market by systems of communication and transportation (Massey 1990). Unlike historical migration patterns, contemporary movements have a greater potential to be affected by the widespread diffusion of modern mass media sources. This difference is important, given the growing awareness that rural out-migration across the world has been accelerating, making internal and international migration from developing regions one of the potentially most important policy issues of the 21st century (Taylor and Martin 2001).

In the process of economic development, a number of interrelated factors contribute to the changing nature of rural life. Economic development is associated with expanded opportunities for work, education, and information acquisition related to non-familial employment, schools, and mass media sources that penetrate into once isolated regions. These changes bring with them new ideas that glamorize urban and Western lifestyles (Caldwell 1982, Goode 1963). Mass media, in particular, are a powerful mechanism for diffusing messages of development idealism regarding the attractiveness of modern society and family life (Thornton 2001). The influence of these factors changes tastes and preferences, raises aspirations, and increases a sense of relative deprivation (Johnson 2000, 2001).

While the importance of the mass media as a pull factor has been acknowledged in the migration literature (Fawcett 1989, Martin and Widgren 2002), there are few empirical studies examining its influence on rural out-migration during the process of economic development. Little is known about whether the media influences out-migration, and the mechanisms by which it does so. In this paper, I fill this gap in the literature by examining migration in Chitwan Valley, Nepal, a rural agrarian region that recently experienced profound social and economic transformations.

The Nepalese context is an interesting setting for studying the effect of mass media on migration. Being one of the least developed countries in South Asia, Nepal's economy relies heavily on remittances sent from foreign labor. It is estimated that in 2003, the equivalent of 604 million USD in remittances was sent to the entire nation. This figure represents nearly double the amount of foreign aid sent to Nepal in that year (Kollmair et al. 2006). Recognizing the effect of mass media on migration and the importance of migration to the Nepalese economy, the *Paurakhi* ("entrepreneur") radio program has been transmitting a weekly series since 2004 that disseminates information relevant to migrants. Topics include job vacancies abroad, information about travel, and experiences of returning migrants (Thieme et al. 2005).

In this study, I take a broad historical view of the effect of mass media on migration. I examine the effect of mass media using explicit measures of exposure to a number of media sources. In the process, I document the influence on migration at the onset of the spread of mass media using data spanning several decades. In the following section, I situate mass media as a determinant of migration within a broader literature on migration theory. Next, I describe Chitwan Valley, the setting for the present study. This

is followed by a description of the data and the basic analytical approach. I then present descriptive statistics and empirical expectations, followed by regression results and a discussion of findings. I end with conclusions about the relationship of mass media and out-migration in developing settings.

MASS MEDIA AND THEORIES OF MIGRATION

The mass media, which can be defined as information spread by technological channels aimed at a large anonymous audience, have long been of interest to social scientists. Many studies have documented their influence on individual attitudes and behaviors (Gamson et al. 1992, Lazarsfeld and Stanton 1941, Milkie 1999, Roscigno and Danaher 2001). While mass media influences have been linked to other demographic behavior, such as fertility limitation (Barber and Axinn 2004, Westoff and Bankole 1999, Hornik and McAnany 2001), less is known about their effect on migration. I use insights from existing migration theories to incorporate media influence into a broader theoretical framework. I hypothesize that mass media has many of the same features as other determinants, although it differs from them in important respects. Media influences have both a structural and ideational component (Barber and Axinn 2004) that affect migration directly by shaping the self-identity of consumers, and indirectly by providing new sources of information and options.

Theories of rural out-migration identify a range of determinants affecting an individual's desire to migrate, including economic, social, and cultural factors. Economic theories focus on market forces, and include neoclassical, human capital, and new economics of migration models. The neoclassical model highlights wage differentials between regions as a primary determinant of migration. It views migration as the result of

a cost-benefit analysis made by individuals deciding where to move in order to maximize their expected lifetime earnings (Todaro 1969).

Human capital models focus on skill differentials affecting productivity in urban versus rural labor markets (Sjaastad 1962). According to this view, migrants who are young, better educated, less risk averse, and more achievement-oriented are positively selected into migration. New economics of migration models describe migration as a response to absent or imperfect capital, securities, and futures markets. This perspective views migration as part of a joint strategy between migrants and rural farming households aimed at maximizing household utility through risk diversification and investment (Stark and Lucas 1988, Stark 1991). Relative deprivation theory, a variant of the new economics of migration perspective, argues that household migration decisions are influenced by relative, as well as absolute, income considerations. Households that experience a perception of relative disadvantage vis-à-vis their peer group (due to inequalities in resource holdings) will be more likely to send migrants.

Network and cultural models describe social mechanisms that perpetuate migration, once started (Massey et al. 1987). Migrant networks connect migrants, former migrants, and non-migrants in origin and destination areas through ties of kinship, friendship, and shared community origin. Network ties develop that increase the likelihood of movement by lowering the costs and risks associated with migration and by increasing the expected net returns to migration (Massey et al. 1993). Migrants at destination represent important sources of social capital for prospective migrants, providing information about jobs, housing, and other opportunities. Over time, as the number of social ties between sending and receiving areas grows, more people migrate,

and migration emerges as a mass phenomenon. Networks are maintained by an ongoing process of return migration, where migrants regularly go home for varying periods each year and settled migrants return to their communities of origin (Massey et al. 1987).

Cultural explanations of migration describe the diffusion of cultural artifacts from migration sending to receiving areas, and the development of normative and institutional changes that make migration a permanent feature of community life. Both are associated with the concept of "transnational social fields" (Levitt and Glick-Schiller 2004, Glick-Schiller et al. 1992, 1995), which suggests that values, behaviors, and attitudes from sending and receiving societies combine to create a new, largely autonomous social space that transcends national boundaries.[1]

The diffusion perspective is associated with the notion of social remittances (Levitt 1998), which refers to ideas, behaviors, identities, and social capital that flow from receiving to sending communities. Social remittances represent a local level form of cultural diffusion emanating from migrants who return to live in or visit their community of origin. Social remittances also come from interchanges of letters, videos, cassettes, and telephone calls between migrants and non-migrants. Through exposure to social remittances, those living in sending communities begin to adopt features of foreign behaviors and lifestyles into their self-identity, including the desire to migrate.

Another perspective focuses on a "culture of migration," which refers to the development of normative expectations in migration-sending communities that encourage migration (Kandel and Massey 2002, Massey et al. 1994). In communities characterized by long-standing and high rates of migration, individuals begin to valorize foreign wage labor and its associated behaviors, attitudes, and lifestyles. As migration behavior extends

throughout a community, it eventually becomes normative, and migration becomes a rite of passage into adulthood. Normative expectations put considerable pressure on young people to migrate, and those not attempting it are seen as indolent, un-enterprising, or undesirable as marriage partners.

Mass media influences on migration

Mass media, like social remittances, are another source of exposure to ideas and lifestyles that spread via diffusion, inducing ideational change in self-image. In poor countries, newspapers, radio programs, movies, and television shows are typically produced in cities or are imported from abroad (Barber and Axinn 2004). They represent a significant source of urban or Western ideas, practices, and lifestyles that contrast sharply with rural vernacular culture. In developing regions newly exposed to outside influences, these ideas and images (like other forms of cultural diffusion) are especially powerful agents of social change that have an influence on local practices and self-concepts (Johnson 2000, 2001).

For instance, movies and television programs glamorize consumerism and positively portray characters that experience social mobility and achievement. Poor rural farmers, who come in contact with images depicting lifestyles that differ considerably from their own, may begin to develop a sense of relative deprivation and a desire for modern amenities (Johnson 2000, 2001). As a consequence, they develop attitudes favorable to migration, which they believe to be a means of alleviating their relative deprivation (Katz and Wedell 1977, Mai 2005). Like the culture of migration, notions about the desirability of modern or urban lifestyles and amenities can come to dominate community norms.

In the event that an attitudinal change leads to actual migration, the media represents a direct behavioral influence. This is analogous to the neoclassical economic model of migration, whereby people move to areas where they *expect* higher earnings (or a better lifestyle or more amenities). Similar to information provided through a migrant network, the media can also induce direct behavioral changes by increasing knowledge about new opportunities. For example, a rural villager who learns of employment potential in a nearby city from reading a newspaper or from listening to the radio may migrate there in search of a specific position. Furthermore, it has been suggested that television can play an important role in the pre-arrival acculturation of immigrants who view foreign media before arriving in a given country (Rumbaut 1997).

Despite their similarities, the influence of mass media differs from other migration determinants in important ways. Although the media shapes cultural meanings and represents a source of information, it contrasts with social remittances or social network contacts. While the latter are transmitted between close social contacts, the former is usually disseminated in an impersonal way (Curran and Saguy 2001). Another difference between media and other factors is that, unlike network and cultural determinants, the media does not necessarily develop as a consequence of expansion of migration streams.

Instead, much like educational or economic factors, the media can represent an influence that affects migration perceptions independent of the stage of migration development within a community. For instance, the building of a movie theater near a rural village may attract media consumers, whose movie watching can encourage migration. However, it is also possible that migrants, through movement to areas with

different media profiles, can develop a taste for forms of media that are not available in the migration sending region. Returning or visiting migrants may bring back and disseminate media technology (e.g. radios, television sets, newspapers), encouraging others to migrate. Also, media images and perspectives may become more salient and meaningful if they are similar to accounts of returning migrants (Curran and Saguy 2001). Media influence, therefore, must be understood as a function of availability, ownership, and consumption.

In order for the media to impact behavior, some form of it must be available. In developing regions, the mix of available media types changes over time. It is likely that preferences for existing media types change to reflect the availability of new forms of media. For example, in the absence of other media types, inexpensive and technologically simple forms of media, such as newspaper or radio, are likely the preferred sources for news and information (although for the former, acceptance may depend on the literacy rate). As more sophisticated and visually appealing forms of media become available over time (such as television and movies), their popularity spreads and preferences for them develop.

Availability alone is not sufficient for media to change attitudes and behaviors. Only those who consume media by watching television, listening to the radio, or reading a newspaper can be affected by it. While consumption of media is usually linked to ownership, one need not own media technology in order to consume it. For instance, it is likely that those who are the first to own a new form of media technology, like a television set, attract groups of peers who themselves do not own the media, but are

nonetheless eager to consume it and are therefore subject to its effects (Johnson 2000, 2001).

Generally, those exposed to the media for a longer time period are more likely to consume it. Work by Barber and Axinn (2004) indicates that, in Chitwan, exposure to various forms of media lead to an attitudinal shift that contrasted sharply with long-held beliefs about son preferences, family size, and contraceptive use. It is reasonable to expect that these changing attitudes also lead to the development of views that were favorable to migration.

SETTING

Chitwan Valley is located in the Terai region in south-central Nepal. Before the 1950s, it was a heavily forested frontier known to be infested with malaria. In the 1950s, the Nepalese government, with the assistance of the United States, began a program of malaria eradication and land clearing for agricultural settlement. The promise of free land and a better life made possible by these efforts brought migrant settlers to the valley (Shrestha et al. 1993).

The region remained isolated until the 1970s, when expansion of the road network made Narayanghat (Chitwan's largest town) a major transportation hub. Thereafter, the region experienced massive changes with the development of schools, health centers, employers, bus services, and banks (Axinn and Yabiku 2001, Pokharel and Shivakoti 1986). The direction of migration changed from predominantly in-migration to predominantly out-migration. Much of this change occurred during the lifetime of current residents of Chitwan, so it is possible to study the direct impact of social change using available data.

Chitwan has been the site of ongoing research, and researchers have documented dramatic changes in the lives of its residence over the last half-century. Among these changes are differences in fertility practices (Axinn and Barber 2001, Axinn and Yabiku 2001), greater gender equity in education (Beutel and Axinn 2002), a decline in arranged marriage, and greater individual control in spouse selection (Ghimire et al. 2006).

[Figure 1 about here]

Migration patterns also changed in the last several decades. As Figure 1 shows, the time span 1962-1993 witnessed a dramatic increase in out-migration. As a reference point, Figure 1 also shows the average walking distance (in minutes) to the nearest school for all sample neighborhoods over time. The figure demonstrates that migration started to increase several years after the spread of mass education, one of the earliest advances in social and economic infrastructure (Axinn and Yabiku 2001). It is likely that the spread of schools, although it did not coincide temporally with the increased prevalence of migration, had an indirect effect through the improvement of human capital that raised returns to education, which increased the propensity to migrate (Massey et al. 2007, Williams 2006).

Migration has a long history in Nepal. In the past, Nepalese people migrated both internally and internationally. Foreign labor migration dates back at least two hundred years, as Nepalese migrants began moving abroad to work as mercenaries in the British army (the so-called Gurhka brigades) (Seddon et al. 2002, Thieme and Müller-Böker 2004). As neighboring India began industrializing in the 1950s, Nepalese workers began migrating there (Thieme and Wyss 2005). As it shares an open border with Nepal, India remains the major destination for Nepalese international migrants. During the 1990s,

work opportunities in new industrializing countries in Southeast Asia and the Gulf further encouraged Nepalese labor migration abroad. A few migrants also followed existing Gurkha connections through Hong Kong to destinations in Japan (Yamanda 2005). Some migrants (mainly professionals) also moved to Europe and North America.

Internal migration also has a long history, dating back to Nepal's political unification in 1769 (Shrestha et al. 1993). Most of this migration is rural to rural, related to land settlement programs. In the 1950s and 1960s, major land settlement efforts spurred rural migration to areas like Chitwan, as well as other frontier regions. Rural to urban internal migration became more common in later time-periods, especially in the early 1990s, following an export boom in Nepal's domestic carpet industry (Graner 2001). Demand for labor brought workers from rural areas to districts adjoining the Kathmandu Valley. The flow of workers came to a halt around 1996, resulting from dramatic declines in international demand for carpets and an enormous oversupply of laborers.

In addition to experiencing changes in migration patterns, Chitwan also experienced profound changes in the availability of mass media (see Barber and Axinn 2004, Thapa and Mishra 2003). Mass media in Nepal first started in the beginning of the twentieth century with the establishment of *Gorkha Patra*, the official daily newspaper. *Gorkha Patra* is owned and published by the national government, which tightly controlled it, and other forms of media, until the mid-1940s.

Public screening of films and radio broadcasting began in the late 1950s, followed by the establishment of the first English language newspaper (*Rising Nepal*) and a state-owned radio station (*Radio Nepal*) in the 1960s. Television came to Nepal in the mid-

1980s with the creation of *Nepal Television*, a state-owned station located in Kathmandu. Mass media greatly expanded in the 1990s, with changes in the Nepalese Constitution and a shift towards political liberalization. Commercial FM radio stations began to spring up, in addition to telecasts of foreign television channels. Movie halls, which were previously under tight government control, became deregulated and rapidly spread throughout the country, even to small towns.

In Chitwan, there was virtually no access to television, radio, or movies until the 1970s. By 1996, 85% of residents had seen a movie at a movie theater, nearly 90% had watched television, and virtually all had listened to the radio (Barber and Axinn 2004). Of those who were literate, approximately three-fourths (77%) had read a newspaper by 1996. Chitwan residents have many media options to choose from. Television programming includes free programming from *Nepal Television* and Indian Television (*Doordarshan*) and cable/satellite television provided by Star Television. The latter is quite expensive for Nepalese families (Barber and Axinn 2004).

Television content includes educational, entertainment, cultural, and development-oriented programming. Some research suggests that *Doordarshan's* thematic content has shifted away from artistic, cultural, and development-oriented themes towards entertainment-oriented programs between 1988 and 1996 (Johnson 2001, Malik 1989). Especially in the 1980s, soap operas, situation comedies, and dramas depicting the daily life of middle class Indian families began to be featured in broadcasts.[2] Consequently, it is likely that media consumers were increasingly exposed to programs glamorizing urban or modern culture over time.

Radio stations in Nepal mainly broadcast music (in Nepali, Hindi, and a small amount in English). Other types of programs include talk shows, telephone call-in shows, and the news. Movie theaters generally show Nepali and Hindu films (the latter originate from "Bollywood"), which feature a mixture of themes such as romantic relationships, intergenerational relations, family ties, and struggles between good and evil. Unlike television, movies tend to be relatively inexpensive. A variety of newspapers and magazines are available in Chitwan, especially in Narayanghat. Most are inexpensive, especially compared to other forms of media, but they are limited to a literate audience.[3]

DATA

Data come from the Chitwan Valley Family Study (CVFS), an ongoing data collection effort situated in the Western Chitwan Valley. In 1996, data on 5,271 individuals were collected from a representative sample of 171 neighborhoods in Chitwan (see Barber et al. 1997 for details). Data were collected in several phases and included collection of baseline individual data, individual life history data, neighborhood event history data, household agricultural data, and prospective demographic panel data.

Neighborhood event history data were collected for all sampled neighborhoods for the period 1954 through 1995. Neighborhoods are defined as naturally occurring geographic clusters of 5-15 households. Neighborhoods are local, immediate social groups that are relevant to people living there. The neighborhood data consist of retrospective measures of walking distance in minutes to the nearest service institution, for a variety of different service organizations (see Axinn et al. 1997 for details). Household data were collected from all households in the 171 neighborhoods, and

included a complete household census, a household relationship grid, and a survey of agricultural practices and consumption patterns.

An individual survey was administered in 1996 which asked a variety of questions regarding family background, personal characteristics, and marriage and marital relations. Following the individual survey, retrospective life history data were collected for everyone age 15-59 living in a sampled neighborhood. Information was collected on yearly events from birth to the time of the interview, including respondents' residence, marital status, children, living arrangements, schooling and work experience (see Axinn et al. 1999 for details). Starting in 1997, a household registration system was initiated to collect monthly updates of demographic events from respondents participating in the household survey. This prospective data is limited to a random sample of 151 of the original 171 sample neighborhoods. Information is collected on living arrangements, marital events, and migration.

BASIC APPROACH AND METHOD

Using insights from descriptive statistics and a series of regression models, I examine the influence of mass media on migration. I divide the analysis into two parts. In the first part, I use event history analysis to examine the influence of mass media on historical migration patterns using retrospective life history data. Because my sample is drawn from individuals residing in Chitwan in 1996, this analysis is limited to return or circular migrants. Therefore, results may not be generalizable to all types of migration, particularly long term or "permanent" migrants. In the second part, I use a cross-sectional model to examine out-migration, which includes all types of migrants. I describe each of these models below.

Event history analysis of migration

In the event history analysis, I define migration as a change in residence involving a move outside of Chitwan,[4] which I measure as a dichotomous variable indicating whether the respondent migrated. I examine multiple migration spells, limiting my analysis to those at risk of experiencing the event (that is, anyone in the age range living in Chitwan). Person years in which an individual is not living in Chitwan are excluded from the analysis. For these models I use multilevel discrete time event history analysis, with a logit specification in the form:

$$\ln\left(\frac{p_{tjk}}{1-p_{tjk}}\right) = \alpha_0 + \sum_{h=1}^{q}\beta_{h00}x_{ht-1jk} + \sum_{g=1}^{r}\beta_{g0}w_{gjk} + \sum_{f=1}^{s}\beta_{f}z_{fk} + U_{jk} + V_{t\text{-}1k} \qquad (1)$$

where p_{tjk} is defined as the hazard of migration by respondent j in neighborhood k during year t. β's are regression coefficients, q is the number of x time-varying individual variables, r is the number of w time-invariant individual variables, and s is the number of z neighborhood variables. U and V are random effects for the individual and neighborhood levels, respectively. The former is used to account for repeated events, a.k.a. "shared frailty" (see Muthén and Masyn 2005, Steele 2005), and the latter accounts for heterogeneity in neighborhood context (see Barber et al. 2000, Maples et al. 2002).

[Figure 2 about here]

The confounding effects of age and period represent one of the challenges of conducting a cohort study (Glenn 2003). To avoid confounding age and period effects, Jampaklay (2006) recommends using a *period* or *rectangular* design in which the same age range is included for each period. I follow this approach, using two samples, both of which are illustrated in Figure 2. Figure 2 shows calendar year on the horizontal axis and

age (in years) on the vertical axis. The grey shaded region indicates the limits of data availability due to the initial age restriction imposed by the collection of life history data (i.e., only those aged 15-59 were interviewed in 1996).

The first of the event history designs (rectangle *ABCD* in the figure, which I refer to as the "wide" design) uses a 12-25 age range and spans a 32-year period from 1962 to 1993. The lower bound of the age range represents a likely time in the life course when individuals begin to migrate independent of their parents. Preliminary results (not shown) also reveal that this age range includes the peak years (late teens) for age-specific migration rates during the entire time series. This design includes an analytical sample of 4,072 people contributing 31,393 person-years of exposure.

The second of the event history designs (rectangle *DEFG* in Figure 2, which I will refer to as the "long" design) uses a broader age range of 12-42 to investigate migration in the later life course. Because of data limitations, using this age range means having to restrict the time series to a more narrow window (in this case, a 15-year period from 1979 to 1993). Thus, the long design is restricted to time periods following many of the initial changes in the development of non-familial services and organizations in Chitwan. It does, however, capture important changes in the diffusion of mass media, especially television. The long design includes 4,442 individuals contributing 37,270 person-years of exposure.

The wide design captures a longer time series, but for a limited age range, hence it is more sensitive to period factors. The long design includes a shorter time series, but for a greater number of years over the life course. Thus, the long design is more sensitive to

age factors. The inclusion of two designs acts as a sensitivity test to the robustness of results. Consistent findings across designs further rule out period or age.

Cross-section analysis of migration and remittances

Rectangle *HIJK* in Figure 2 represents the cross-sectional design. It investigates out-migration for a sample of Chitwan residents age 15-42 in 1996. Forty-two is used as the upper age limit to ensure comparability with the event history analysis, especially the long design, which captures data from more recent time periods. Unlike the event-history designs, which use the person-year as the unit of analysis, the cross-sectional design uses the individual. I measure migration as a dichotomous variable indicating whether a household member was away in the year between 1996-1997.[5] Like the event history models, I use a three-level model. However, in this model, the second level takes into account unobserved heterogeneity at the household level, rather than at the individual level. The analytical sample includes 3,770 individuals, 1,117 of whom were migrants.

While the event-history models are restricted to return or circular migrants, the cross-sectional model includes all types of migrants (i.e., return, circular, or "permanent" migrants). Robust findings across different types of analyses increase confidence in results, while disparities indicate selectivity in those who were available in 1996 to provide life history data. Differences could also reflect period factors that affect migration, such as the onset of mass education, mass media, and economic development.

Results of all regression models are presented in exponentiated form as odds ratios, which can be interpreted as the effect of a unit increase in the independent variable on the odds of experiencing the event. An odds ratio of one indicates a zero effect, odds

ratios below one indicate a negative effect, and odds ratios above one indicate a positive effect.

MEASURES AND DESCRIPTIVE STATISTICS

Event history analysis variables

[Tables 1 and 2 about here]

Turning to migration frequencies for each of the event history designs, Table 1 shows that approximately 18% of those aged 12-25 (wide design) migrated at least once, compared to just over 15% of those aged 12-42 (long design). Having only a single migration was the most common migration pattern, although some respondents had multiple migrations over their life course. Interestingly, the frequency of ever-migrating was lower in the 12-42 sample relative to the 12-25 sample, despite the finding that migration rates were higher in later time periods (see Figure 1). This suggests that migration is occurring mainly in the early years of the life course. Table 2 shows descriptive statistics (means and standard deviations) for all variables used in the event history models. Keeping in mind that the unit of analysis is the person-year, the table shows that migration occurred in 3 and 2 percent of the person-year records for the wide and long designs, respectively.

The main independent variables of interest include measures of media exposure (to radio, movies, and television). Including multiple media types, each with its own criteria for access and self-selection (e.g., cost), strengthens the case for a causal (rather than a selection) effect of media exposure (Barber and Axinn 2004). Media measures, like all independent variables in my analysis, are lagged one year to guard against

reciprocal causation. I include three time-varying media measures, indicating years since first exposure to radio, movies, and television.

From the table, it is evident that respondents had the most exposure to radio, followed by movies, then by television. Differences in exposure across media types probably reflect differences in the timing of the availability of media types: radios were available before movies, which were available before televisions. Mean differences in exposure between the wide and long design reveal that the average years of exposure to radio, movies, and television are higher in the long design than in the wide design. This disparity probably also reflects period differences in the timing of availability of mass media types. It also reflects differences in exposure to media stemming from period differences from which data were drawn for each design. Individuals in the long design, whose data are limited to the more recently available years in which mass media were more prevalent, were probably exposed to media for a greater portion of their lives.

I control for other determinants of out-migration that may be related to media exposure. These include human capital variables (achievements, endowments, and migration-specific capital), demographics, living arrangements, and neighborhood variables. Human capital achievements are time-varying measures of cumulative years of education,[6] wage job experience, and salaried job experience. Measures of human capital endowments account for greater access to human capital achievements (Massey et al. 2007). These include time-invariant measures of whether the respondent's mother or father worked outside of the home or attended school before the respondent was age 12.

Migration-specific human capital include time-varying measures of the number of migrations (involving a change in residence lasting at least one year) that the respondent

has undertaken since birth, the number of years that the respondent has lived outside of his/her 1996 neighborhood, and the number of siblings who are migrants. The former two variables measure individual migrant capital, which dominate in later migrations (Massey 1987, Massey and Espinosa 1997). The latter is a measure of migrant social capital. It is constructed from the life history records of siblings identified as members of the respondent's 1996 household. Because not all siblings of the respondent were necessarily residing in the 1996 household, this measure may underestimate the effect of migrant social capital.

Demographic variables include age, gender, marital status, number of children, and ethnicity. Both age and age squared are included in the models and they represent a parameterization of the baseline hazard of migration. Gender is included to account for differences in men's and woman's migration experiences (see Donato 1993, Zlotnik 1995). I also include an interaction term for gender and educational attainment.[7]

The number of children is measured as a time-varying count of the respondent's living children in a given person-year. Marital status includes time-varying indicators of whether a respondent is currently married, never-married, or post-married (i.e., widowed, divorced, or separated). Ethnicity is measured as a series of time-invariant variables indicating whether the respondent is upper caste Hindu, lower caste Hindu, Hill Tibetoburmese, Newar, Terai Tibetoburmese, or other ethnicity (for detailed descriptions of these groups, see Bennett 1983, Fricke 1986, Gellner and Quigley 1995, Guneratne 2007, Macfarlane 1976). Living arrangements include time-varying measures of living with relatives, in-laws, unrelated others, or other arrangements.

It is important to control for numerous indicators of social and economic development to assure that media effects are not simply the spurious by-product of unobserved factors. Therefore, I include neighborhood measures, such as time-varying walking distances (in minutes) to the nearest bank, school, health facility, bus stop, market, and employer as well as a measure of whether the neighborhood had electricity in a given year. Services such as banks, employers, and markets are expected to have a negative effect on migration because they provide local opportunities for labor, access to capital, and the ability to buy consumer goods. Schools and health facilities should have a positive effect on migration by increasing human capital levels which yield greater returns in cities and abroad, while buses facilitate movement to migration destinations.

Cross-sectional analysis variables

[Table 3 about here]

In the cross-sectional model, the dependent variable also measures migration. As before, all independent variables are lagged one year, except for neighborhood variables which are lagged two years because neighborhood data were not available in 1996. Table 3 shows that 30 percent of respondents migrated sometime between 1996-1997. Many of the independent variables are similar to those used in the event history models, except that all are time-invariant. Expectations about key variables remain the same in the cross-sectional model. A few variables included in the cross-sectional model are not included in the event history analysis. Ideally, some of these measures could be included in the event history analysis, but time-varying measures are not available, and many of these characteristics probably change considerably over time.

To determine the effect of media consumption, I include measures of television, radio, newspaper, and movie consumption. None of these measures were statistically significant so they were omitted from the final models (results available upon request). It is possible that historical measures of consumption would have been significant, however such data are not available. As controls, I also include indicators of media availability, such as whether the household owned a television set or a radio, as well as the nearest walking distance to a movie theater.

Rather than measuring whether a respondent ever lived outside of his/her neighborhood,[8] a measure of years lived outside of Chitwan is included. To account for characteristics of the respondent's living arrangements, measures of household demographics are also incorporated, including counts of household members younger than 14, those older than 65, and those of working age (between 15 and 64 years old). Data for these counts come from the household census.

I also include household-level measures of landholdings,[9] involvement in farming and animal husbandry (raising poultry or livestock),[10] and relative household wealth. All of these measures are potentially important determinants of risk diversification. Wealth and land measures are also important because inequalities in access to these resources are thought to be related to developing a sense of relative deprivation, which spurs migration (Bhandari 2004, Stark and Taylor 1989, Stark and Taylor 1991).

Monetary values of assets and income are not available in the Chitwan data. In order to develop a comprehensive picture of wealth, I create an index of household wealth using measures of consumer durables and characteristics of the dwelling unit. Following Filmer and Prichett (2001), the index uses the first principal component as a

weight for an additive index of assets. Asset measures include whether the household owns a bicycle, motorcycle, cart, tractor, pump-set, gobar gas plant (bio-fuel made from cow manure), farm implements (corn shellers, chaff cutters, sprayer, or thresher), has access to its own drinking water, has a toilet, has electricity, has a one story (versus two story) house, has a dwelling unit with cane, mud, or wood walls (as opposed to stone, brick, cement, or other), and has a dwelling with a thatched roof (as opposed to one made with slate, tin, concrete, or other material). Since all assets are measured at the nominal level, I use a polychoric principal components procedure (see Kolenikov and Angeles 2004). Using the raw index, I group households into wealth tertiles.[11]

REGRESSION RESULTS AND DISCUSSION

Event history analysis results

[Table 4 about here]

Results for the event history models demonstrate that several measures of mass media exposure are significantly related to migration. In the wide design, exposure to movies increases the odds of migration, while in the long design, television exposure is significant. Differences in these effects probably reflect the timing of the spread of these forms of media. Historically, movies were available before television in Chitwan, and the results from the wide design should be more sensitive to a longer time series of period factors.

A year increase in exposure to movies increases the odds of migration by five percent (the magnitude of the effect is comparable to a year increase in education). While this may seem like a weak effect, we should recall that years of exposure to movies varies greatly in the sample, with a standard deviation in the wide design of over four years (see

Table 2). Determining the effect of four years of movie exposure on the odds of migration can be accomplished by exponentiating the product of four and the untransformed raw coefficients (not shown). For the wide sample, four years of movie exposure raises the odds of migration by about 20 percent ($= e^{4 \times 0.045} = 1.20$). Likewise, for the long sample, the odds of migration increase by seven percent ($= e^{3 \times 0.023} = 1.07$) for three years of television exposure (nearly one standard deviation).

Educational attainment increases the odds of migration in both the wide and long design. The effects of local employment (both wage jobs and salaried positions) decrease the odds of migration, perhaps because these positions are satisfactory alternatives to migration. Human capital endowments show that having a mother work outside of the home has a positive effect on migration. This may suggest that money from working mothers helps finance the migration of children. The effect of the number of prior out-migrations is significant in the long design, but not in the wide design. Recalling that migration was found to be less prevalent in the later life course (see Table 1), this finding probably reflects period differences in pre-adolescent migration experiences. The number of years spent living outside of the 1996 neighborhood is also positively associated with the odds of out-migration.

Several demographic variables are significant. The main effect of age is positive, while the squared term is negative. Thus, age has a curvilinear effect on migration, which is consistent with human capital theory. Females have lower odds of migrating than males. This is a common finding in the migration literature in Nepal, and it may be related to gender stratification within Nepalese society, whereby women have limited access to human capital achievements and are subject to marriage roles that restrict

migration (Thieme and Wyss 2005, Williams 2006). Evidence for this idea comes from the interaction effect between gender and education. For women, the education effect is negative in the wide design, although the interaction is non-significant in the long design. This difference across designs may reflect the narrowing of the gender gap in education over time (Beutel and Axinn 2002).

Compared to currently married respondents, those who are never-married have lower odds of migration. It is possible that those who are married have a greater need to migrate due to their obligation to support their spouses and families. Having more children lowers the odds of migration, which is perhaps related to the difficulty of balancing migration with child care. Ethnic differences reveal that lower caste Hindus have higher odds of migration compared to higher caste Hindus, while Terai Tibetoburmese and other ethnicities have lower odds.

Overall, neighborhood characteristics fail to show many direct effects on out-migration, although it is likely that they influenced migration indirectly by raising human capital levels and by providing local employment. The distance to the nearest bank is significant in the wide design. As the distance to bank increases, the odds of migration decrease. This effect is consistent with the new economics of migration argument, which suggests that migration is used to overcome liquidity constraints. Having access to capital from a bank may obviate the need to migrate.

Cross-sectional analysis results

[Table 5 about here]

Turning to results of the cross-sectional model, Table 5 shows that both exposure to movies and television affect migration. Television has a curvilinear effect, with a year

of television exposure increasing the odds of migration by just under seven percent (recall that both the main effect and the squared term must be taken into account). Movie exposure reduces the odds of migration. Although movie exposure, like television exposure, is likely to have a curvilinear effect on migration, it became non-significance when I included a squared term. The lack of a significant non-linear effect probably reflects the weak magnitude of the total effect of movie exposure, which is practically zero (i.e., the effect is so weak that a curvilinear effect could not be detected). Radio has no effect on migration. The effect of television exposure is consistent for the cross-sectional and event history models, suggesting that this medium has a similar impact for circular or return migrants as it does for other types of migrants.

Turning to the effects of the control variables, many of the results mirror those of the event history models. However, there are several exceptions. The effect of salaried jobs increases the odds of migration, rather than decreasing them. This may reflect period differences in competition for jobs as more Chitwan residents acquire the necessary educational credentials to fill these positions. Ethnic differences largely disappear, which is likely to be related to the inclusion of explicit measures of household wealth or land. Also, migration is more likely from households that own television sets. Furthermore, the odds of migration increase as the number of household members age 15-65 gets larger. This is most likely related to having a larger number of people at risk of migrating. Migration is also significantly related to the distance to the nearest movie theater, although the effect is nearly zero.

CONCLUSION

This study broadens the scope of existing migration research in settings experiencing rapid economic development by examining the role of mass media on out-migration. I investigate the influence of media in both historical and more contemporary migration using measures of exposure to various types of media, including radio, movies, and television. Results generally support the notion that certain media sources promote out-migration. In early periods, movie exposure was found to be the most significant media determinant (see table 4), while television was found to be more salient in later periods (see tables 4 and 5). Differences in the effect of media types probably reflect period differences in the availability and spread of each type of medium and changing tastes in the preference for new media types.

The early diffusion of movies must have had a profound impact on young people living in remote parts of rural Nepal, who for the first time could vividly see images of urban and foreign lifestyles that far exceeded anything that they had ever encountered before on the radio or in newsprint. Indeed, it is interesting that radio effects were non-significant, suggesting that dynamic visual media have a greater impact on people's migration behavior than non-visual or non-dynamic media.

Given that most migration tends to occur in early years of the life course, it is likely that this new medium had an especially profound effect on young people, changing their worldview and their perceptions of opportunities available to them in life. As television became more common, it likely replaced movies as a target of interest. Rather than being exposed to short bursts of movie images, a rural television audience was now regularly inundated with images of urban lifestyles, as well as urban styles of dress,

cuisine, and consumerism. This exposure no doubt further changed attitudes about the desire for consumer products and induced higher levels of socioeconomic mobility, which probably increased the desire for individuals to migrate.

The possibility remains that the results are in some measure due to reverse causality or self-selection. However, as my event history models included measures of media exposure that preceded migration, and most respondents only had a single adult migration, reverse causality is unlikely. Moreover, including a wide variety of media and a rich set of control variables makes a causal (rather than a selection) effect more likely. Although those who own certain media technologies may be more likely to consume media, my results show that net of household ownership of televisions and radios, measures of media exposure are positively associated with migration. Therefore, I argue that selectivity has no special bearing on this analysis of migration and media exposure.

Given the lack of general research in the area of media effects on migration, the present work should be seen as a prolegomenon for further research on this topic. More research is needed to understand the many mechanisms by which media exposure influences migration. Future work could consider the independent effects of changes in the availability of the medium and changes in content. As research suggests that Indian television program content became more entertainment-oriented (Johnson 2001, Malik 1989), it is likely that images glamorizing foreign or urban lifestyles became even more prominent in the minds of television viewers. This may have intensified the feeling of relative deprivation among young people from relatively poor agrarian communities. Further work is also needed to understand the effect of frequency of media consumption.

It should also be noted that this work does not suggest that mass media is the only or the most important determinant of migration. My statistical models demonstrate, instead, that media sources have an effect net of human capital, demographic, household, and neighborhood-level factors. Given the similarities and differences between media sources and other determinants of rural out-migration, this work implies that media effects cannot be entirely ignored in explanations of rural out-migration.

The findings have implications for government policies aimed at promoting migration. They indicate that media outlets, especially television, can be an effective channel for conveying information to prospective migrants about work opportunities, challenges inherent in the migration process, and migrants' rights.

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[1] For a critical review of this concept, see Waldinger and Fitzgerald (2004).

[2] An overview of Doordarshan's programming can be found on its official website (www.ddindia.gov.in/).

[3] Assuming that those with more than three years of education are literate, the 1996 data indicate that about two-thirds of Chitwan residents age 15-59 can read written Nepali.

[4] In both the prospective and retrospective data, no information was collected on the length of time that someone was away. Therefore, migration variables (in both the event history and cross-sectional designs) measure a change in residence without regarding the length of time that an individual had been gone.

[5] As a sensitivity analysis, I also examined models in which I expand the migration period by an additional year. Findings for mass media exposure were very similar for both models.

[6] This measure counts the total number of years that an individual attended school (including both compulsory education and adult education). It does not necessarily reflect the highest year of education achieved, particularly in cases in which an individual repeated a grade.

[7] Work by Williams (2006) finds that educational attainment in Chitwan is positively related to migration for both men and women, but only when controlling for current enrollment. Because of the age range of my sample, school enrollment is rare. Therefore, I account for gender differences in school attainment with an interaction term. The interaction effect was not significant in the cross-sectional model, thus it was excluded.

[8] Everyone in 1996 lived in the neighborhood in which they were interviewed.

[9] Landholdings include land used for farming, renting to others, orchards, plantations, houses or business, enterprises, poultry houses, shelters, fish ponds, other enterprises, and land left fallow. They are measured in Kattha, a Nepalese unit of measure (30 Kattha ≈ 1 hectare).

[10] I also included measures of landlessness and counts of the number of animals (both poultry and livestock) raised by the household. However, none of these measures yielded statistically significant results.

[11] The procedure uses all Chitwan households to construct the index, while only households included in the analytical sample are included in the analysis. Therefore, the proportion of households in Table 3 does not conform exactly to the expected tertile breakdown. Indeed, wealthier households are slightly over-represented (39 percent are in the top tertile).

Table 1. Percentage Distribution for Number of Migrations, Chitwan Valley Residents

Number of Migrations	Wide Design (Ages 12-25) Percentage	Long Design (Ages 12-42) Percentage
0	82.02	84.51
1	15.20	13.08
2	2.53	2.12
3	0.22	0.25
4	0.00	0.00
5	0.02	0.05
Total	100.00	100.00
N	4072	4442

Table 2. Descriptive Statistics Event History Analysis, Chitwan Valley Residents

	(Wide Design) Ages 12-25		(Long Design) Ages 12-42	
Variable	**Mean**	**Std Dev**	**Mean**	**Std Dev**
Dependent Variable				
Migration (*t + 1*)	0.03	0.16	0.02	0.15
Media Exposure				
Radio (years since first exposed)	7.21	5.80	12.55	8.98
Movies (years since first exposed)	4.31	4.82	8.21	7.91
Television (years since first exposed)	1.65	3.51	2.79	5.26
Human Capital Achievements				
Education (years)	4.48	4.69	4.39	4.95
Salary Job Experience (years)	0.29	1.33	0.88	2.99
Wage Job Experience (years)	1.42	2.97	3.57	6.62
Human Capital Endowments [a]				
Father had any Education	0.25	0.43	0.24	0.42
Mother had any Education	0.05	0.21	0.04	0.20
Father Worked Outside of Home	0.42	0.49	0.42	0.49
Mother Workd Outside of Home	0.21	0.41	0.20	0.40
Migration-Specific Human Capital				
Number of Out-Migrations (since birth)	0.09	0.31	0.15	0.42
Time Living Outside Neighborhood (years)	0.33	0.47	0.22	0.41
Migrant Siblings (count)	0.03	0.19	0.03	0.19
Demographics				
Age	17.96	4.06	25.07	8.96
Gender (female)	0.55	0.50	0.56	0.50
Marital Status				
Currently Married	0.48	0.50	0.67	0.47
Post Married	0.02	0.13	0.03	0.16
Never Married	0.50	0.50	0.30	0.46
Number of Children	0.56	0.97	1.92	2.06
Ethnicity				
Upper Caste Hindus	0.43	0.49	0.44	0.50
Lower Caste Hindus	0.11	0.32	0.11	0.32
Hill Tibetoburmese	0.15	0.36	0.16	0.36
Newar	0.06	0.23	0.06	0.24
Terai Tibetoburmese	0.24	0.43	0.21	0.41
Other Ethnicity	0.02	0.13	0.02	0.14
Living Arrangements				
In-Laws	0.20	0.40	0.17	0.38
Unrelated Others	0.03	0.18	0.03	0.18
Relatives	0.63	0.48	0.44	0.50
Other Arrangement	0.14	0.35	0.36	0.48
Neighborhood Characteristics				
Walking Distance to Nearest Bank (in min)	107.36	97.49	63.90	41.08
Walking Distance to Nearest School (in min)	12.30	11.24	10.69	8.23
Walking Distance to Nearest Health Facility (in min	38.86	40.47	27.46	21.47
Walking Distance to Nearest Bus Stop (in min)	30.68	48.26	20.68	23.00
Walking Distance to Nearest Market (in min)	21.71	31.58	14.54	18.65
Walking Distance to Nearest Employer (in min)	33.04	29.86	25.34	22.80
Electricity (in year)	0.15	0.36	0.22	0.41
N	31393		37270	

Notes: [a] Refers to time before the respondent was 12 years old

Table 3. Descriptive Statistics Cross-Sectional Analysis, Chitwan Valley Residents Age 15-42 in 1996

Variable	Mean	Std Dev
Dependent Variable		
Migration (between 1996-1997)	0.29	0.45
Media Exposure		
Radio (years since first exposed)	15.76	7.84
Movies (years since first exposed)	13.91	8.34
Television (years since first exposed)	9.72	8.40
Human Capital Achievements		
Education (years)	5.32	4.33
Salary Job Experience (years)	1.65	3.94
Wage Job Experience (years)	3.68	6.43
Human Capital Endowments [a]		
Father had any Education	0.37	0.48
Mother had any Education	0.09	0.29
Father Worked Outside of Home	0.49	0.50
Mother Workd Outside of Home	0.23	0.42
Migration-Specific Human Capital		
Number of Out-Migrations	0.36	0.67
Time Living Outside Chitwan (years)	7.64	9.55
Migrant Siblings (count)	0.03	0.20
Demographics		
Age	26.13	8.06
Gender (female)	0.52	0.50
Marital Status		
Currently Married	0.67	0.47
Post Married	0.02	0.13
Never Married	0.32	0.47
Number of Children	1.68	1.77
Ethnicity		
Upper Caste Hindus	0.48	0.50
Lower Caste Hindus	0.11	0.31
Hill Tibetoburmese	0.16	0.37
Newar	0.06	0.24
Terai Tibetoburmese	0.18	0.38
Other Ethnicity	0.02	0.13
Household Sociodemographics		
Land holdings (in kattha)	34.04	37.85
Engages in Farming	0.87	0.34
Raises Poultry	0.57	0.50
Raises Livestock	0.83	0.38
Relative Wealth (compared to all households)		
Bottom Tertile	0.27	0.44
Middle Tertile	0.34	0.47
Top Tertile	0.39	0.49
Household Owns Radio	0.57	0.49
Household Owns Television Set	0.15	0.36
Household Members Age 14 or Younger (count)	2.33	1.86
Household Members Age 64 or Older (count)	0.23	0.50
Household Members Age 15-65 (count)	4.15	2.40
Neighborhood Characteristics (in 1995)		
Walking Distance to Nearest Bank (in min)	59.36	34.85
Walking Distance to Nearest School (in min)	9.09	7.15
Walking Distance to Nearest Health Facility (in min)	18.72	16.86
Walking Distance to Nearest Bus Stop (in min)	11.75	14.26
Walking Distance to Nearest Market (in min)	11.96	16.49
Walking Distance to Nearest Employer (in min)	19.76	18.96
Walking Distance to Nearest Movie Theater (in min)	99.50	70.36
N	3768	

Notes: [a] Refers to time before the respondent was 12 years old

Table 4. Discrete Time Logit Estimates for Migration, Chitwan Valley Residents

Fixed Effects	Wide Design (Ages 12-25)		Long Design (Ages 12-42)	
Variable	**Odds Ratio**	**Std Err**	**Odds Ratio**	**Std Err**
Intercept	0.0001 ***	1.02	0.003 ***	0.58
Media Exposure				
Radio (years since first exposed)	1.01	0.01	1.01	0.01
Movies (years since first exposed)	1.05 ***	0.01	1.01	0.01
Television (years since first exposed)	1.005	0.01	1.02 *	0.01
Human Capital Achievements				
Education (years)	1.05 ***	0.01	1.03 *	0.01
Salary Job Experience (years)	0.96	0.03	0.96 *	0.02
Wage Job Experience (years)	0.96 *	0.02	0.99	0.01
Human Capital Endowments				
Father had any Education	1.14	0.10	1.07	0.11
Mother had any Education	0.95	0.18	1.05	0.18
Father Worked Outside of Home	1.06	0.09	1.03	0.09
Mother Workd Outside of Home	1.39 **	0.11	1.38 ***	0.11
Migration-Specific Human Capital				
Number of Out-Migrations	1.12	0.16	1.25 *	0.11
Time Living Outside Neighborhood (years)	1.43 ***	0.09	1.77 ***	0.10
Migrant Siblings (count)	1.29	0.16	1.17	0.15
Demographics				
Age	1.93 ***	0.11	1.23 ***	0.04
Age Square	0.98 ***	0.003	0.995 ***	0.001
Gender (female)	0.55 ***	0.15	0.33 ***	0.16
Marital Status[a]				
Post Married	0.85	0.27	0.89	0.25
Never Married	0.73 **	0.11	0.77 *	0.13
Number of Children	0.77 ***	0.07	0.76 ***	0.05
Ethnicity[a]				
Lower Caste Hindus	1.72 ***	0.15	1.51 **	0.15
Hill Tibetoburmese	1.39 *	0.13	1.21	0.13
Newar	0.96	0.19	1.01	0.20
Terai Tibetoburmese	0.61 ***	0.15	0.64 ***	0.15
Other Ethnicity	0.42 *	0.38	0.47 *	0.36
Living Arrangements [a]				
In-Laws	0.74	0.17	1.07	0.17
Unrelated Others	1.03	0.18	0.995	0.18
Other Arrangement	0.63 **	0.17	0.74 *	0.14
Neighborhood Characteristics				
Walking Distance to Nearest Bank (in min)	0.998 ***	0.001	1.001	0.001
Walking Distance to Nearest School (in min)	0.997	0.005	0.998	0.01
Walking Distance to Nearest Health Facility (in min)	1.000	0.001	0.999	0.003
Walking Distance to Nearest Bus Stop (in min)	1.001	0.001	0.998	0.002
Walking Distance to Nearest Market (in min)	0.999	0.002	1.001	0.003
Walking Distance to Nearest Employer (in min)	1.000	0.002	1.002	0.002
Electricity (in year)	0.93	0.12	0.91	0.12
Interaction Effects				
Education × Gender	0.95 **	0.02	0.98	0.02
N	31393		37270	
- 2 LL	7249.25		6961.71	
Random Effects	Var Comp	Std Err	Var Comp	Std Err
Individual Level	0.74	0.26	0.63	0.20
Neighborhood Level	0.11	0.05	0.11	0.05

* p < .05 ** p < .01 *** p < .001 (Two-Tailed Test)

Notes: [a] Reference categories, in order, include: Currently Married, Upper Caste Hindus, Relatives

Table 5. Binary Logit Estimates for Migration, Chitwan Valley Residents Age 15-42 in 1996

Variable	Odds Ratio	Std Err
Intercept	0.18 ***	0.46
Media Exposure		
Radio (years since first exposed)	0.98	0.01
Movies (years since first exposed)	0.98 *	0.01
Television (years since first exposed)	1.08 ***	0.02
Television Exposure Squared	0.998 ***	0.001
Human Capital Achievements		
Education (years)	1.07 ***	0.02
Salary Job Experience (years)	1.07 ***	0.01
Wage Job Experience (years)	1.00	0.01
Human Capital Endowments		
Father had any Education	1.08	0.11
Mother had any Education	0.97	0.17
Father Worked Outside of Home	1.04	0.10
Mother Workd Outside of Home	0.91	0.12
Migration-Specific Human Capital		
Number of Out-Migrations	1.56 ***	0.08
Time Living Outside Chitwan (years)	1.04 ***	0.01
Migrant Siblings (count)	0.75	0.23
Demographics		
Age	0.96 *	0.02
Gender (female)	0.49 ***	0.11
Marital Status[a]		
Currently Married	2.25 ***	0.15
Post Married	10.01 ***	0.37
Number of Children	0.75 ***	0.06
Ethnicity[a]		
Lower Caste Hindus	1.34	0.22
Hill Tibetoburmese	1.04	0.19
Newar	0.66	0.25
Terai Tibetoburmese	1.18	0.23
Other Ethnicity	0.24 **	0.53
Household Sociodemographics		
Land holdings (in kattha)	0.997	0.002
Engages in Farming	1.03	0.21
Raises Poultry	0.91	0.13
Raises Livestock	0.77	0.19
Relative Wealth (compared to all households)[a]		
Bottom Tertile	1.27	0.16
Top Tertile	0.88	0.15
Household Owns Radio	0.93	0.12
Household Owns Television Set	1.68 **	0.17
Household Members Age 14 or Younger (count)	1.05	0.04
Household Members Age 64 or Older (count)	1.15	0.11
Household Members Age 15-65 (count)	1.14 ***	0.03
Neighborhood Characteristics (in 1995)		
Walking Distance to Nearest Bank (in min)	1.00	0.003
Walking Distance to Nearest School (in min)	1.00	0.02
Walking Distance to Nearest Health Facility (in min)	1.00	0.01
Walking Distance to Nearest Bus Stop (in min)	0.99	0.01
Walking Distance to Nearest Market (in min)	1.00	0.01
Walking Distance to Nearest Employer (in min)	1.01	0.01
Walking Distance to Nearest Movie Theater (in min)	1.01 **	0.002
N	3768	
- 2LL	3696.28	
Random Effects	Var Comp	Std Err
Household Level	0.57	0.17
Neighborhood Level	0.88	0.19

* p < .05 ** p < .01 *** p < .001 (Two-Tailed Test)

Notes: [a] Reference categories, in order, include: Never Married, Upper Caste Hindus, Middle Tertile