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Husbands' migration: increased burden on or more autonomy for wives left behind?

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ABSTRACT

Migration of men has important influences on reshaping family and gender roles in left-behind wives. However, it is unclear whether husbands' out-migration increases the burden on or creates autonomy for left-behind wives. Using new data from Nepal, we examine the associations of husband's out-migration and remittance status with the work burden and autonomy of left-behind wives'. Results of our multi-level multivariate analyses show that the number of months a husband migrated internationally during the last year is significantly associated with an increase in participation in farming activities for the left-behind wives. Husband's out-migration and remittance status are also associated with an increase in wives' number of daily activities outside the home, and leisure activities and media use. In sum, husbands' out-migration might be good and bad for women, by increasing the burden on wives while also promoting their freedom of movement, leisure activities and media use. Importantly these findings are net of wives' individual background characteristics, household characteristics and community context measures.

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Introduction

Labour migration has become widespread around the world, with important social and economic consequences for both sending and receiving populations. In 2015, 244 million people, or 3.3% of the world's population, lived outside their country of origin (United Nations, Department of Economic and Social Affairs, Population Division 2016, 201). At 36 million (in 2013), South Asians were one of the largest groups of international migrants. This mobility is particularly associated with moves from poor agricultural settings to booming economies and industrialised countries, raising a host of concerns from well-being and agricultural production in rural areas to urbanisation and health in cities, respectively. This global demographic phenomenon has received much attention both in academia and policy arenas. A large number of studies in diverse settings have made tremendous advances in documenting the myriad consequences of migration

for migrants and left-behind families, as well as for sending and receiving communities (Yabiku, Agadjanian, and Sevoyan 2010; Maharjan, Bauer, and Knerr 2012; Antman 2013; Garip 2016; Thapa et al. 2019).

However, with few exceptions, little attention has been given to the effects of migration on the most central family member – the spouse – particularly the wife in predominantly male migration-sending contexts. Massive male out-migration, like that from densely populated rural agricultural areas of Asia, has the potential to create watershed changes for already overburdened women and their autonomy and empowerment, family dynamics, and social relationships. Literature on unpaid work and ‘time poverty’ has shown that regardless of male out-migration, women already experience much greater time poverty than men in settings as diverse as Argentina, Mexico, Chile, Guinea, and Guatemala (Bardasi and Wodon 2010; Gammage 2010; Zacharias, Antonopoulos, and Masterson 2012). Migration of their male spouses might further exacerbate the burden and time poverty of women around the world, with unfortunate consequences for their mental and physical health. Further, given wives’ central role in household well-being and reproduction, these potential changes to wives’ situations might in turn dramatically reshape the lives of other family members left behind.

The few existing studies yield mixed and sometimes contradictory results. For example, Yabiku, Agadjanian, and Sevoyan (2010) found that husband’s migration enhances wives’ autonomy and empowerment in Mozambique, while Maharjan, Bauer, and Knerr (2012) found increased work burden and relationship problems in Nepal. These differences could be due to diverse contexts, household structures, and even research methods. Further complicating the situation is that convincing estimation of the effects of migration faces serious methodological challenges and high data requirements, given that migration is heavily selective. Thus, this question of how men’s migration influences left-behind wives remains poorly understood, meaning the key connection between migration and the well-being of women and entire populations is largely unexplored.

This study in rural Nepal aims to narrow this important gap. Nepal provides an appropriate context in which to examine this question; out-migration is common among men, and, recently, Nepali agriculture has been ‘feminized’, with women increasingly taking on activities that were previously performed only by men (Kaspar 2005; Gartaula, Niehof, and Visser 2010; Maharjan, Bauer, and Knerr 2012; Thapa et al. 2019). Furthermore, Nepal is the context of the Chitwan Valley Family Study (CVFS), a 23-year long prospective panel study with exceptional detail and time ordering of individual migration behaviours and remittances, as well as household and community characteristics. While top migration scholars have long lamented the high data requirements and the general lack of sufficient data for migration studies (Levine, Hill, and Warren 1985; Jasso et al. 2000; Durand and Massey 2004; Adams 2011), the CVFS data in Nepal provides an almost unparalleled opportunity for high quality scholarship on migration and the key questions we address here.

Building on existing theory and empirical evidence from a variety of settings, we examine the associations between husband’s absence (and lost labour) and remittances (and concomitant economic flexibility) and the work burden, autonomy, and leisure activities of wives that remained in rural Chitwan. Importantly, we intentionally do not analytically separate women’s paid and unpaid labour. Instead, following the contributions of the literature on time poverty (Ilahi 2000; Bardasi and Wodon 2010; Gammage 2010;

Zacharias, Antonopoulos, and Masterson 2012) which argues that both forms of labour are important contributions and both impact the leisure time and well-being of women, we focus on how women spend their time, analytically separating labour from leisure. Based on our exceptionally detailed longitudinal panel data, our empirical analyses show evidence of increased work burden, autonomy, and leisure activities among wives at the same time. Differences in the associations of husband's absence and remittances with wives' work burden, autonomy, and leisure activities allow us to provide some important insights into this phenomenon.

Theoretical framework

Given the recent unprecedented levels of population mobility, migration has been of central interest to social scientists. As movement both within country of residence and across international borders has become a *new normal*, the study of migration has received great attention in the research literature. The early period of this research primarily focused on identification of drivers of migration, but more recently scholars have turned to the investigation of the consequences of migration for family members and communities still at the place of origin, often referred to as 'left behind' (Lokshin and Glinskaya 2009; Maharjan, Bauer, and Knerr 2012; Adhikari and Hobley 2015; Luna and Rahman 2018; Thapa et al. 2019). Some of these studies have investigated the effect of parental labour migration on children's school enrolment and attainment (Parreñas 2005; Valentine et al. 2017), the well-being of wives (Yabiku, Agadjanian, and Sevoyan 2010; Antman 2013; Luna and Rahman 2018), and the risks of transnational marital dissolution (Landale and Ogena 1995; Hayford and Agadjanian 2012). Some other research has considered migration as the outcome, investigating general patterns in marital and childbearing experiences among migrants over time (Sandefur 1985; Garip 2016). Together, these studies have shown strong associations between family life and migration in general.

However, a detailed examination of the exact findings of migration studies from diverse settings have yielded mixed results that point out both positive and negative outcomes. The first set of these studies suggest that the loss of productive labour has a strong negative effect on migrant-sending communities (Taylor 1999; Ecer and Tompkins 2013). On the other hand, the second set of studies suggests a positive financial impact of out-migration, and particularly of remittances, on migrant-sending areas. In addition, the massive out-migration and inflow of remittances produce larger societal-level reorganisation (Maharjan, Bauer, and Knerr 2013; Rozelle, Edward Taylor, and De Brauw 1999).

The economic perspective suggests that remittances loosen household credit constraints and promote consumption and investment that equally benefits all household members (Rozelle, Edward Taylor, and De Brauw 1999). However, more recently economists are acknowledging the problem with 'unitary' conceptualisation of households and exploring intrahousehold power relations (Agarwal 1997; Kabeer 2015). Indeed, feminist scholars suggest that gender relations embody material and ideological meanings and are constituted within complex socioeconomic cultural contexts (please see details in Agarwal 1997; Kabeer 2015). These relations are constantly negotiated based on the bargaining power of individuals within the household. Individuals' bargaining power is dependent on their social position within the family, endowments (education, employment, and

ethnic caste), and sociocultural context (prevalence of extended family and patriarchal system).

Our theoretical framework draws on this existing body of empirical evidence and theory. First, we consider that household work, resources, and capital are neither equal nor shared equally by household members, with men and women performing different tasks and occupying different roles in many places. In many agrarian societies, including Nepal, household and farming activities are highly gender segregated; males are primarily responsible for household financial management and hard labour such as ploughing, threshing, and construction, and women are responsible for the 'inside' work of taking care of children and the elderly, cooking, cleaning, planting, and tending livestock.

In this situation, a labour loss perspective focuses on how migration results in the loss of the particular labour that is undertaken by the male. Several studies warn of negative consequences of this loss (Taylor 1999; Koc and Onan 2004; Ecer and Tompkins 2013) and often hypothesise that the left-behind women take on this labour in addition to the inside labour they regularly perform. At the same time, particularly in patriarchal extended family system settings where daughters-in-law occupy the lowest status in the family hierarchy and may have little say in household decisions (Bennett 1983), these women may also lose emotional support and relationship stability due to their husbands' absence. Thus, the loss of household labour through husbands' migration is likely to substantially increase wives' work burden and vulnerability.

Alternately, a focus on remittances complicates the issue. Remittances from the absent migrant can allow for spending on agricultural technologies and hiring labour, creating a substitute for the lost labour (Zacharias, Antonopoulos, and Masterson 2012). Remittances could also be used to pay for outside support of women's labour, such as purchasing childcare or a gas stove to substitute for the long hours of childcare, firewood collection, and open stove cooking (Zacharias, Antonopoulos, and Masterson 2012). This possibility could even create more leisure time for wives. In addition, women's management of these remittances may also provide financial freedom and new experiences through taking over the economic responsibilities men often control. This increased economic power may also necessitate local mobility, autonomy, and higher social status.

While both of these mechanisms seem likely to operate simultaneously for better and worse outcomes for left-behind wives, there is relatively little scientific evidence that this is the case. Most previous studies regarding the impact of male migration on women focus on only one mechanism, leading to conclusions that men's migration is either better *or* worse for women. This allows the conclusion that the result is based on context and how women are generally treated in particular places. Here, we investigate the possibility that both of these mechanisms could operate simultaneously.

Finally, we acknowledge that the relationship between wives' work burden and husbands' migration and remittances is conditioned on household characteristics and community context. In this study, we use a detailed combination of measures of husbands' migration duration and remittances to predict wives' participation in agricultural work, off farm mobility/autonomy, and leisure media use. We also consider extensive household characteristics and community context to account for the possibility that the relationship between husbands' migration and wives' burden and autonomy are conditioned by the demographic, economic, social, religious, and ethnic milieu in which they live and make decisions.

Setting, data, and methods

Setting

Our study setting, the Chitwan Valley, lies in south-central Nepal. Nepal boasts a long history of migration through trade routes between the Himalayan regions and the Indian plains. Because the country was kept in relative isolation from the rest of the world until the 1950s, international migration was primarily limited to service in the British Army and to non-regulated migration across the border into India. Even though the country opened up to the rest of the world in the 1950s, it was not until the late 1980s, when the Nepali government promulgated the Foreign Employment Act of 1989, that international migration to destinations other than India became a viable option. This Act licensed non-governmental institutions to export Nepali workers abroad and legitimised labour-contracting organisations. This time period also witnessed new diplomatic relations, advances in transportation and communication technology, and increased government capability in issuing required travel documents. All of these factors ignited large streams of international migrants to many countries besides India (Thieme and Wyss 2005; Kollmair et al. 2006). In 2011, the absent population was reported to be 7.3% of the total population, which is more than double the absent population (3.2%) in 2001. Likewise, one in every four households (25.42%) was reported to have at least one household member absent or living outside of Nepal. The percentage of the absent population going to India sharply decreased in 2011, from 77% in 2001 to 38% in 2011 (Central Bureau of Statistics 2012). However, about 15 years into these massive changes to the migration regime, Nepal was engulfed in a decade-long armed conflict (1996–2006) and migrant employment brokers proliferated, offering employment contracts and logistical arrangements that made it possible for hundreds of thousands of Nepalis to migrate to new destinations in the Persian Gulf, Malaysia, South Korea, and other destinations. These two changes instigated substantial shifts in the rates of migration and destinations (Williams et al. 2012).

Since 2006, international migration has gradually increased. As shown in Figure 1, the number of labour permits (which serves as an indicator of international labour migration to all countries besides India) increased steadily from 2008/2009 to 2013/2014 and slightly decreased after 2014, with more than 300,000 Nepalis migrating internationally per year at the end of this period (Government of Nepal 2017). Recent data from the Department of Foreign Employment Promotion shows that Nepalis migrate to over 100 countries globally to work (Government of Nepal 2017). Even these staggering figures are a gross underestimate, given that they do not include migration to India (which does not require a permit) and undocumented migration elsewhere. Indeed, some scholars argue that almost half of international migrants travel to India by land and proceed to other countries through extra-legal channels (Seddon, Adhikari, and Gurung 2002; Thieme and Wyss 2005).

Although India, Japan, and Hong Kong were the major migration destinations until the late 1990s, in recent decades the booming economies and construction projects in the Persian Gulf region and some Asian countries have made these areas increasingly popular destinations for Nepali migrants (Graner and Gurung 2003). In 2013/14, Malaysia, Qatar, and Saudi Arabia were the most frequent destinations, with 207,000, 104,000,

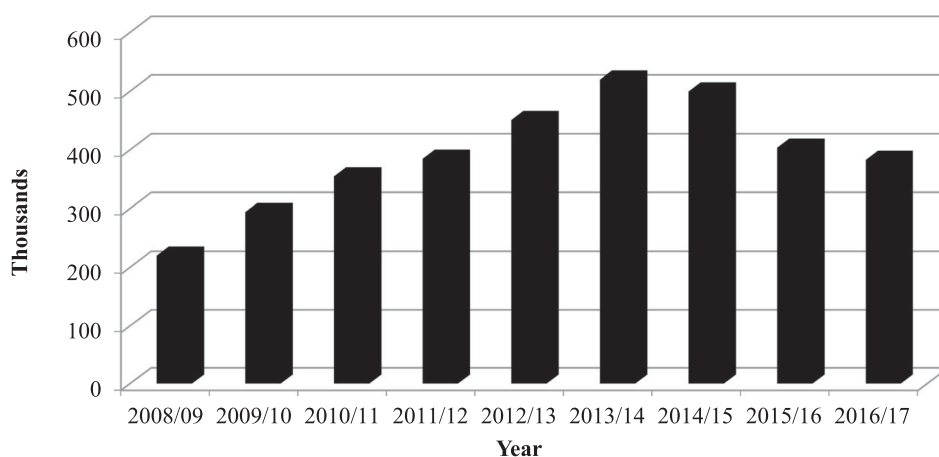


Figure 1. Number of labour permits issued by the Government of Nepal over time, as an estimate of labour migration. Source: Government of Nepal 2017.

Note: This does not include (a) the Nepali migrant workers who migrated to the Republic of Korea for foreign employment through the government-to-government Employment Permit System and (b) the migrants to India who do not require a work permit.

and 75,000 migrant workers, respectively (Government of Nepal 2017). However, because of free borders, low transportation costs, and shared culture, India still continues to receive a large number of Nepali migrants (Seddon, Adhikari, and Gurung 2002; Graner and Gurung 2003; Thapa et al. 2019).

In terms of remittances, Nepal is one of the world's top five remittance-receiving countries, with a total amount of US\$ 6.6 billion in remittances in 2015. At 29.7% it is second only to Kyrgyzstan (at 35%) in terms of remittance share of GDP, followed by Liberia (29.6%), Haiti (27.8%), and Tonga (27.8%) in 2016 (World Bank 2016). At the household level, 56% of families in Nepal receive remittances, which on average make up 31% of their household income (Central Bureau of Statistics 2012).

In terms of economy, Nepal is predominately an agricultural economy, with an overwhelming majority of the population relying on labour intensive, subsistence-based farming. However, changes in this area have been rapid, with the proportion of the population employed in agriculture gradually declining from 76% in 1998 to 67% in 2008 (Central Bureau of Statistics 1999; Central Bureau of Statistics 2009). These farm households are also transitioning away from labour intensive farming by increasing the use of farm technology (APROSC and JMA 1995; Pariyar, Shrestha, and Dhakal 2001; Ministry of Agriculture and Cooperatives 2003).

The significance of the sheer number of migrants is amplified by their demographic characteristics, as most migrants are young, married males and therefore at their highest levels of productivity and reproductivity. The high level of migration and remittance dependency has induced changes in household structures, family dynamics, and reorganisation of the agricultural system. Because most of the hundreds of thousands of annual migrants are married men, their physical absence and replacement by substantial inflows of cash are likely to have important implications for the left-behind wives.

Data

This study uses multiple data sets from the Chitwan Valley Family Study (CVFS). The CVFS is a longitudinal study of households since 1996, spanning 151 neighbourhoods spread throughout the western Chitwan Valley in Nepal. The most crucial part of the CVFS for the current study is the multilevel panel measurements that include (1) detailed histories of 151 communities first collected in 1996 and repeated in 2000, 2006, and 2015; (2) household consumption and agricultural practices surveys first collected in 1995 and repeated in 2005 and 2015; (3) individual interviews with life histories first collected in 1996 and repeated in 2008; and most importantly (4) an ongoing prospective household registry system since 1997. These data provide detailed panel measures of households such as, wealth, assets, consumption, agricultural practices, and production. They also record demographic events with monthly precision, such as in- and out-migrations (with destinations in Nepal and worldwide), births, deaths, marriages, divorces, and living arrangements. Individual-level data includes measures of life experiences including, education, work, travel, marriage, and childbearing. Also important for the current study is that our measures of migrants cover both before they moved and while they were abroad. The community-level data consists of detailed panel measures of access to non-family services. These panel data are supplemented with two recently collected data sets: (1) the Household Agriculture and Remittance Calendar Survey and (2) the Women's Time Use Survey.

The Household Agriculture and Remittance Calendar Survey (HARCS), was administered in 2015 to 2,255 households residing in the CVFS sample neighbourhoods. The survey features panel measures of household wealth, assets, agricultural practices, and remittances collected using an innovative household agriculture and remittance history calendar method. This survey collected information on agricultural practices and production, farm technology use, and remittances received on an annual basis from 2006 to 2015. To enhance respondents' recall, the HARC calendar was pre-edited with important community and household events that were collected in other CVFS surveys. Additionally, to improve the accuracy in reporting on the amount of remittances received by the household, detailed information on the migration history (including name of migrant, dates and places of migrations) of each household member was pre-edited in the calendar. The HARC data were collected using face-to-face interviews with a 99% response rate.

Women's Time Use Survey (WTUS) was administered in 2015–2017 with a calendar format to 2,421 married women residing in 1,910 households within all CVFS sample neighbourhoods. Using a Time Use Calendar, each woman was asked to report the activities she had performed each hour in the past 24 h (i.e. a complete list of activities performed, not a restricted list of pre-coded activities). Given that women might perform more than one activity simultaneously, such as taking care of children and cooking, there are significant overlaps among activities, and activity categories are not mutually exclusive. Additionally, respondent women were also asked to report activities they had performed each day in the past month. Because Nepal is predominately an agricultural country, women's activities vary by the seasons. To minimise the seasonal variability in activities recorded, the WTUS was collected three times a year, once each agricultural season. These data were collected using face-to-face interviews with a 95% cumulative

response rate. For our analysis, we combined season 1 to season 3 data, thereby only including those women who were interviewed in all three waves ($N = 2,180$). After restricting both wives and their husbands' age to 18–59, the sample size dropped to 1,946. We further excluded cases with any missing values (1.5%) in our variables of interest, making the final sample size 1,917.

Measures

Outcome measures

As discussed above, we focused on three conceptual outcomes: burden, autonomy, and leisure. Wives' burden is conceptualised as participation in farming activities in the past 24 h; autonomy as number of daily activities outside the home; and leisure as leisure media use in the past 24 h.

Participation in farming activities. Our measure of daily farming activities refers to participation in agricultural activities that include both crop cultivation and raising livestock. In each wave of the WTUS, we created a dummy variable indicating participation in agriculture activities in the past 24 h. Then we summarised the dummy variables for all three waves. The final measure of participation in farming activities is the number of survey waves in which a woman reported participating in any agricultural activities in the last 24 h, with values from zero to four. As shown in Table 1, 54% of wives participated in farming activities across all three seasons, 18% in two out of three seasons, 14% in one season, and the remaining 14% did not participate in any agriculture.

Number of daily activities outside the home. WTUS collected a complete record of women's daily activities in three waves. Daily activities outside the home include going to school, religious activity outside the home, daily wage work, involvement in own business, going to a health centre, leisure activities outside the home, and spending time with friends/colleagues. We summed the number of daily activities outside the home in each wave and our final measure is an average of this sum across the three waves of the WTUS. As shown in Table 1, the average number of daily activities ranged from 0.00–6.33 with a mean of 2.59 and a standard deviation of 0.99.

Leisure media use. This measure captures the time wives spent on leisure media in the past 24 h including (i) watching television/reading a paper or book, (ii) using internet or Facebook, and (iii) talking on the phone. In each wave of WTUS, we generated a dummy variable indicating use of any one of the above three activities. We summed these dummy indicators from all three waves. Women who did not use any leisure media in any of the three waves were assigned a value of '0'. Those who used it in one, two, or three waves were assigned values of '1', '2', and '3' respectively. Shown in Table 1, 63% of wives used leisure media across all three seasons, 23% in two out of three seasons, 10% in one season, and the remaining 4% did not use any leisure media.

Explanatory measures

Our explanatory measures of husbands' migration include the duration of migration and the migration and remittance status.

Table 1. Descriptive statistics of measures used in the analysis of husbands' migration, remittance status, and wives' activities ($N = 1917$).

Measure	Label	Mean or %	SD	Min.	Max.
<i>Outcomes</i>					
Number of daily activities outside home in past 24 h	Number of activities	2.59	0.99	0.00	6.33
Participation in farming activities		0.70	0.37	0.00	1.00
None of three seasons	No = 0, Yes = 1	0.14	0.35	0.00	1.00
One out of three seasons	No = 0, Yes = 1	0.14	0.35	0.00	1.00
Two out of three seasons	No = 1, Yes = 1	0.18	0.39	0.00	1.00
All three seasons	No = 1, Yes = 1	0.54	0.50	0.00	1.00
Leisure media use		0.81	0.28	0.00	1.00
None of three seasons	No = 0, Yes = 1	0.04	0.21	0.00	1.00
One out of three seasons	No = 0, Yes = 1	0.10	0.30	0.00	1.00
Two out of three seasons	No = 0, Yes = 1	0.23	0.42	0.00	1.00
All three seasons	No = 0, Yes = 1	0.63	0.48	0.00	1.00
<i>Explanatory measures</i>					
Duration of husband migration	Number of months husband abroad	4.70	5.31	0.00	12.00
<i>Migration and remittance status</i>					
Non-migrant husbands	No = 0, Yes = 1	0.64	0.48	0.00	1.00
Remittance $\leq$ 300,000 NRS (ref.)	No = 0, Yes = 1	0.23	0.42	0.00	1.00
Remittance $>$ 300,000 NRS	No = 0, Yes = 1	0.13	0.34	0.00	1.00
<i>Other factors</i>					
Age of wife	Age in 2016	35.66	9.38	18.00	59.00
Ethnicity of wife					
Terai Janajati / Hill Janajati / Dalit (ref)	No = 0, Yes = 1	0.55	0.50	0.00	1.00
Brahmin/Chhetri/Newar	No = 0, Yes = 1	0.45	0.50	0.00	1.00
<i>Education of wife</i>					
No Education (ref)	No = 0, Yes = 1	0.27	0.45	0.00	1.00
1–5 Years of Schooling	No = 0, Yes = 1	0.19	0.39	0.00	1.00
6–10 Years of Schooling	No = 0, Yes = 1	0.33	0.47	0.00	1.00
11+ Years of Schooling	No = 0, Yes = 1	0.21	0.41	0.00	1.00
Female migrants	Number of female migrants in 2015	0.12	0.39	0.00	4.00
Male migrants	Number of male migrants in 2015 (excluding husband)	0.40	0.68	0.00	6.00
Household size	Number of household members in 2015	7.16	3.33	2.00	28.00
Living with mother-in-law	No = 0, Yes = 1	0.33	0.47	0.00	1.00
Number of children	Number of children in 2015	2.07	1.12	0.00	8.00
Household engagement in agriculture	Standard index of poultry, crops & livestock in 2015	0.18	1.19	–2.20	14.89
Household assets	Comprehensive standard index of land owned, household plot owned, and house quality in 2015	0.07	1.95	–7.37	13.07
Community index	Comprehensive index of community employment service, health post, market, bus service and bank in 2015	2.50	1.42	0.00	5.00
Distance to urban centre	Distance to Narayanghat (miles) in 2015	8.65	3.88	0.02	17.70

Duration of husband's migration. This measure is the number of months that a woman's husband spent outside of Nepal one year before the conduct of WTUS. The duration of husband's migration ranges from 0 to 12 months, with a standard deviation of 5.31.

Migration and remittance status. This measure comes from the 2015 HARCS which used a calendar method to collect information on remittances received in Nepali Rupees (NRS) (approx. US\$ 1 = RS102) on an annual basis from 2006 to 2015. We combined the

information of the international migration status of women's husbands and the amount of remittances received from the husband and created a three-category measure of migration and remittance status. The first category includes women whose husband did not migrate internationally in 2015. The second category is composed of women whose husband migrated internationally in 2015 and who received remittances equal to or below 300,000 Nepali Rupees (NRS).¹ The third category contains women whose husband migrated internationally in 2015 and who received remittances above 300,000 Nepali Rupees. We treated the first category as a reference group. Approximately 64% of women had husbands who did not migrate outside of Nepal in 2015. About 23% of women had husbands who migrated internationally in 2015 and sent back remittances below 300,000 Nepali Rupees, and around 13% of women received remittances above 300,000 Nepali Rupees.

Factors other than migration and remittance status likely to affect wives' activities

Women's individual characteristics, such as age, ethnicity, and education, as well as household and neighbourhood characteristics may influence both wives' activities and husbands' migration. Thus, it is important to control for these factors in examining the association of husbands' migration with wives' activities.

Age of wife. We restricted the age of women in our study to 18–59 and included a measure of age in years.

Ethnicity of wife. Although ethnicity in Nepal is complex, given that the Brahmin/Chhetri and Newar women have relatively lower autonomy and are less likely to go outside the home for work or leisure than women from other ethnic groups (Eswaran, Ramaswami, and Wadhwa 2013), we created two dichotomous variables for ethnicity, one that includes Brahmin\Chhetri and Newar (45%), and another that includes Terai Janajati, Hill Janajati, and Dalit (55%). We treated the second category as a reference group for comparison.

Education of wife. Our measures of education are the cumulative years that respondents spent in school or adult education. We created four dichotomous variables for no education (27% of sample), 1–5 years (primary education, 19% of sample), 6–10 years (secondary education, 33% of sample), and eleven or more years (higher secondary and above, 21% of sample). We treated the first category as a reference group for comparison.

Female and male migrants in the household. Our measures of the number of international migrants in the household, other than the respondents' husbands, are from an ongoing monthly prospective household registry system. Based on the information on living arrangement, we created two measures representing the number of male migrants² and the number of female migrants in a household in 2015. The mean number of male migrants is 0.40 with a standard deviation of 0.68, whereas the number of female migrants is much lower with a mean of 0.12 and a standard deviation of 0.39 indicating lower levels of women's migration.

Household size. Our measure of household size also comes from the monthly prospective household registry system data. Household size is the total number of household members in 2015 with a mean of 7.16 and a standard deviation of 3.33.

Living with mother-in-law. This measure also comes from the monthly prospective household registry system data. About 33% of married women were living with their mothers-in-law with a standard deviation of 47%.

Number of children. Our measure of the number of children under age 15 also comes from the monthly prospective household registry system data. The mean number of children is 2.07 with a standard deviation of 1.12.

Household engagement in agriculture. This measure comes from the household interviews in 2015 that included a series of questions about the total land area that the household farmed, the number of farm animals owned, and the number of poultry owned. Because the scale of responses to each of the questions varies, we standardised the values in each of these domains into Z-scores (mean of 0 and standard deviation of 1) and summed them to construct a standardised index of household engagement in agriculture. The index has a mean of 0.18 and a standard deviation of 1.19.

Household assets. This measure comes from the 2015 baseline household interviews, which included measures of land and house plot ownership and house quality. Again, because the scale of each of the questions varies, we standardised the values in each of these domains into Z-scores (mean of 0 and standard deviation of 1) and summed them to construct a standardised index of household assets. The index has a mean of 0.07 and a standard deviation of 1.95.

Community index. This measure comes from the neighbourhood history calendar (NHC) data first launched in 1995 and repeated in 2005/06 and 2015 (Axinn, Barber, and Ghimire 1997). NHC data provides an annual measure of distance in walking time from the respondents' current neighbourhoods to the nearest employment centre, market, bank, health service centre, and bus stop from 1953 to the year of the data collection. We created dichotomous variables indicating whether or not the nearest service was within a 5-minute walking distance from the respondent's neighbourhood in 2015. We then summed the measures to calculate the number of service organisations within a 5-minute walking distance. The community index has a mean of 2.50 and a standard deviation of 1.42 (Table 1).

Distance to urban centre. This measure also comes from the NHC data. During the NHC data collection, the exact latitude and longitude location of each neighbourhood was recorded and the distance to Narayanghat, the valley's only urban centre, from each neighbourhood was calculated in miles. The mean distance to Narayanghat is 8.65 miles with a standard deviation of 3.88.

Analytical strategy

We employed multilevel regression techniques to estimate the association between husbands' international migration and remittance status and the activities of wives left behind. We modelled the associations between migration, as well as remittance status, with wives' activities in three models, one for each of our outcomes: (1) participation in farming activities, (2) daily activities outside home, and (3) leisure media use. Our measures of participation in farming and leisure media use are ordinal measures. Thus, to model the associations of husband's migration, as well as remittance status, with wives' participation in farming or leisure media use, we employed multilevel ordinal logistic regression. On the other hand, the total number of daily activities outside the home is a continuous measure, so we used multilevel ordinary least squares regression. In our multilevel models, we set individuals as the first level and neighbourhoods as the second level. In consideration of the small number of individuals within each household, we did not set the household as a separate level. We assigned random effects to the intercept of the neighbourhood level. All models are estimated using the GLIMMIX macro for SAS 9.4. All models include a wide range of individual, household, and community level measures.

Results

Wives' participation in farming activities

Table 2 displays the multilevel ordered logistic estimates of the associations between husbands' international migration, as well as remittance status, and wives' participation in farming in the last 24 h. Recall that, in order to minimise the seasonal variability in farming activities required, our measure here is the number of seasons wives participated in farming over a year, ranging from zero to three. Beginning with our control measures, we found that various individual-, household-, and community-level factors are associated with wives' participation in farming and the associations were substantively equivalent in Model 1 (with duration of husband's migration) and Model 2 (with remittance status) of Table 2. Wives' age has a strong statistically significant, positive association with participation in farming activities, as predicted. The odds ratio of 1.04 indicates that a one-year increase in the wife's age increases the odds of being in a higher category of participation in farming activities (never participated to participation in one season, participated in one season to participated in two seasons, and participated in two seasons to participated in three seasons) by 4%. Likewise, wives' ethnic background also has a strong statistically significant association with participation in farming, with Brahmin/Chhetri and Newar wives having 59% higher odds of being in a higher category of participation in farming activities. Wives' education, on the other hand, has a strong statistically significant negative association with participation in farming. The odds multiplier of 0.56 suggests that compared to wives with no education, wives with 11 or more years of schooling have 44% lower odds of being in a higher category of participation in farming activities. The coefficient for wives with 1–10 years of schooling was very similar in magnitude to that for women with no schooling and was not statistically significant. We interpret this result as an indication that wives with higher secondary and above education are more likely participating in the paid labour market outside the home, and therefore not available to participate in farm labour.

Table 2. Multilevel ordered logistic regression estimates of the associations between husbands' migration, remittance status, and wives' participation in farming activities ($N = 1917$).

	Participation in farming activities	
	Model 1	Model 2
	Odds Ratio (SE)	Odds Ratio (SE)
Duration of husband migration	1.03** (0.01)	
Migration and remittance status		
Non-migrant husbands		0.77 * (0.15)
Remittance $\leq 300,000$ NRS (ref.)		
Remittance $>300,000$ NRS		1.09 (0.15)
Age of wife	1.04 *** (0.01)	1.04 *** (0.01)
Ethnicity of wife		
Terai Janajati/Dalit/Hill Janajati (ref.)		
Brahmin/Chhetri/Newar	1.59 *** (0.11)	1.59 *** (0.10)
Education of wife		
No Education (ref.)		
1–5 Years of Schooling	0.97 (0.15)	0.97 (0.15)
6–10 Years of Schooling	0.98 (0.15)	0.98 (0.15)
11+ Years of Schooling	0.56 *** (0.18)	0.56 *** (0.18)
Female migrants	0.65 *** (0.12)	0.64 *** (0.12)
Male migrants	1.08 (0.08)	1.07 (0.08)
Household size	0.97 * (0.02)	0.97 * (0.02)
Living with mother-in-law	1.16 (0.12)	1.16 (0.12)
Number of children	1.18 *** (0.05)	1.18 *** (0.05)
Household engagement in agriculture	1.37 *** (0.03)	1.37 *** (0.03)
Household assets	1.06 * (0.03)	1.07 * (0.03)
Community index	0.82 *** (0.03)	0.82 *** (0.03)
Distance to urban centre	1.08 *** (0.01)	1.08 *** (0.01)
N	1917	1917
–2 Res Log Likelihood	19582.49	195767.17

SE is given in parentheses. * $p < 0.05$ ** $p < .01$; *** $p < .001$ (one-tailed tests).

Likewise, several household characteristics demonstrate strong statistically significant associations with wives' participation in farming. For example, the odds multiplier of 0.65 for number of female migrants in the household indicates that each additional female migrant decreases the odds of being in a higher category of participation in farming activities by 35%. This is notable, in comparison to the number of male migrants, which had a positive but not statistically significant association with participation in farming. On the other hand, the odds multiplier of 1.18 for number of children suggests that each additional child increases the odds of being in a higher category of participation in farming activities by 18%. Likewise, the odds multiplier of 1.06 for household assets

suggests that each unit increase in household asset index increases the odds of being in a higher category of participation in farming activities by 6%. While it might seem surprising that women in wealthier households are more likely to undertake farm work, recall that one of the primary contributors to this index is the amount of agricultural land owned. Alternately, it is not surprising that the household engagement in agriculture has a strong positive and statistically significant association with wives' participation in farming. The odds multiplier of 1.37 for household engagement in agriculture index suggests that every one unit increase in household engagement in agriculture index increases wives' odds of being in a higher category of participation in farming activities by 37%.

The community context in which wives live also has a strong statistically significant association with wives' participation in farming on a daily basis. The odds multiplier of 0.82 for community index (a measure of access to community services) suggests that a one-point increase in community index decreases the wives' odds of being in a higher category of participation in farming activities by about 18%. On the other hand, the distance to an urban centre has a strong statistically significant and positive association with participation in farming. The odds multiplier of 1.08 suggests that a one-mile increase in the distance to the urban centre increases the odds of wives' being in a higher category of participation in farming activities.

Finally, for the main measures of interest – husbands' migration and remittance status (Model 1, Table 2) – we find that the number of months husbands spend outside of Nepal has a strong statistically significant, positive association with wives' participation in farming. The odds multiplier of 1.03 suggests that each additional month that a husband is outside Nepal increases the odds of the wife being in a higher category of participation in farming activities by 3%. This association is net of the wife's personal background, household characteristics, and community context. This result supports the lost labour hypothesis: when husbands are absent, their wives take over the farm labour husbands would otherwise do. In addition, the longer a husband is gone, the more likely the wife is to take over this labour.

In Model 2 (Table 2), we estimated the association of household remittance status with the wife's participation in farming in the last 24 h. The remittance status of a household has a strong statistically significant association with the wife's participation in farming. The odds multiplier of 0.77 for wives of non-migrants suggests that compared to wives of migrants whose households received a smaller remittance (less than NRS 300,000, approx. US\$ 3,000) last year, the wives of non-migrant husbands have 23% lower odds of being in a higher category of participation in farming activities. The odds ratio for wives who received high remittances (more than NRS 300,000) was positive, at 1.09, but not statistically significant. This pattern suggests that husbands' absence is more strongly associated with wives' participation in farming activities than remittance status.

Wives' number of daily activities outside the home

Table 3 presents estimates of the association between duration of husbands' migration and remittance status with wives' autonomy, measured with the number of daily activities outside the home. Similar to participation in farming, we began with discussing the associations of individual-, household-, and community-level factors and then moved to the

Table 3. Multilevel OLS regression estimates of the associations between husbands' migration, remittance status, and wives' number of daily activities outside the home ($N = 1917$).

	Number of daily activities outside the home	
	Model 1 Coefficients (SE)	Model 2 Coefficients (SE)
Duration of husband migration	0.02*** (0.01)	
Migration and remittance status		
Non-migrant husbands		−0.08 (0.06)
Remittance ≤ 300,000 NRS (ref.)		
Remittance >300,000 NRS		0.17** (0.06)
Age of wife	−0.005 (0.004)	−0.005 (0.003)
Ethnicity of wife		
Terai Janajati/Dalit/Hill Janajati (ref.)		
Brahmin/Chhetri/Newar	0.23*** (0.05)	0.23*** (0.05)
Education of wife		
No Education (ref.)		
1–5 Years of Schooling	0.21*** (0.06)	0.21*** (0.06)
6–10 Years of Schooling	0.49*** (0.06)	0.50*** (0.06)
11+ Years of Schooling	0.81*** (0.08)	0.82*** (0.08)
Female migrants	0.08 (0.06)	0.07 (0.06)
Male migrants	−0.01 (0.03)	0.01 (0.03)
Household size	−0.01 (0.01)	−0.01 (0.01)
Living with mother-in-law	−0.21*** (0.05)	−0.20*** (0.05)
Number of children	−0.02 (0.02)	−0.02 (0.02)
Household engagement in agriculture	−0.04*** (0.01)	−0.04*** (0.01)
Household assets	0.05*** (0.01)	0.05*** (0.01)
Community index	0.07*** (0.02)	0.07*** (0.02)
Distance to urban centre	−0.03*** (0.01)	−0.02*** (0.01)
N	1917	1917
−2 Res Log Likelihood	4903.33	4905.13

SE is given in parentheses. * $p < 0.05$ ** $p < .01$; *** $p < .001$ (one-tailed tests).

association between husbands' migration and wives' number of daily activities outside the home.

In Model 1 (Table 3), wives' individual backgrounds, such as ethnicity and education, each have a strong statistically significant association with wives' number of daily activities outside the home. For example, Brahmin/Chhetri and Newar wives performed more activities outside the home. Wives' education, household assets, and access to community services also have strong statistically significant positive associations with wives' daily activities outside the home. Alternately, household size, living with mother-in-law, engagement in agriculture, and further distance from the urban centre had a negative

association with wives' autonomy, decreasing the number of activities that wives engaged in outside the home.

Next, we estimate the associations between husbands' migration, remittance status, and wives' autonomy. The number of months husbands spent outside of Nepal has a strong statistically significant, positive association with wives' number of daily activities outside the home. The regression coefficient of 0.02 for the number of months a husband spent outside of Nepal suggests that a husband being outside Nepal for one month in the last 12 months increases wives' number of daily activities outside the home by .02 activities. This means that compared to the wives of non-migrants, wives of migrants who spent ten months outside Nepal are likely to perform approximately 0.2 more activities outside of the home in a day. This association is net of the wife's personal background, household characteristics, and community context.

The association between remittance status and wives' number of daily activities outside the home is in the same direction and with similar magnitude. The regression coefficient of 0.17 for a larger remittance (more than 300,000 NRS) receiver suggests that, compared to the wives whose households received a smaller remittance (less than NRS 300,000), these wives performed 0.17 more activities outside the home in a day. However, this association is only significant for high remittances, as the number of daily activities outside the home for wives of non-migrants does not significantly differ from the number of daily activities outside the home for the wives of migrant husbands whose household received smaller remittance (less than NRS 300,000).

Wives' leisure activities and media use

Table 4 displays the association between husbands' migration, remittance status, and wives' leisure media use in the past 24 h. Recall that leisure media use is measured in four categories: (1) no use in all three seasons, (2) use of any media in any one season, (3) use of any media in any two seasons, and (4) use of any media in all three seasons.

Model 1 (Table 4) shows wives' individual, household, and community characteristics are strongly associated with their leisure media use. For example, a wife's age and further distance from an urban centre both are negatively associated with her media use. Alternately, education, household assets, and female migrants in the household are positively associated with wives' leisure media use. For example, the odds multiplier of 1.81 for the number of female migrants suggests that each additional number of female migrants increases the odds of being in one category of leisure media use compared to the next category by 81%.

Turning to husbands' migration, we find strong positive results on wives' leisure media use. In Model 1 (Table 4), the odds multiplier of 1.06 for the number of months a husband spent outside of Nepal indicates every month outside Nepal in the last 12 months increases the odds of the wife being in a higher category of leisure media use by 6%. Thus, a wife whose husband was gone for all 12 months is about twice as likely to be in a higher category of media use.

Remittance status also has a strong statistically significant positive association with wives' leisure media use (Model 2, Table 4). The odds multiplier of 0.74 for wives of non-migrant husbands suggests that compared to wives of migrant husbands with remittances less than NRS 300,000, wives of non-migrant husbands are about 26% less likely to

Table 4. Multilevel ordered logistic regression estimates of association between husbands' migration, remittance status, and wives' leisure media use ($N = 1917$).

	Leisure media use	
	Model 1 Odds Ratio (SE)	Model 2 Odds Ratio (SE)
Duration of husband migration	1.06*** (0.01)	
Migration and remittance status		
Non-migrant husbands		0.74* (0.16)
Remittance $\leq$ 300,000 NRs (ref.)		
Remittance $>$ 300,000 NRS		1.74*** (0.18)
Age of wife	0.97*** (0.01)	0.97*** (0.01)
Ethnicity of wife		
Terai Janajati/Dalit/Hill Janajati (ref.)		
Brahmin/Chhetri/Newar	1.22 (0.12)	1.24* (0.12)
Education of wife		
No Education (ref.)		
1–5 Years of Schooling	1.52** (0.15)	1.50** (0.15)
6–10 Years of Schooling	1.71*** (0.16)	1.72** (0.16)
11+ Years of Schooling	3.00*** (0.21)	3.02*** (0.31)
Female migrants	1.81*** (0.17)	1.82*** (0.17)
Male migrants	1.00 (0.08)	1.00 (0.09)
Household size	1.00 (0.02)	1.01 (0.02)
Living with mother-in-law	0.84 (0.13)	0.85 (0.13)
Number of children	0.94 (0.05)	0.94 (0.05)
Household engagement in agriculture	1.03 (0.03)	1.03 (0.03)
Household assets	1.16*** (0.03)	1.15*** (0.03)
Community index	1.07 (0.05)	1.07 (0.05)
Distance to urban centre	0.96** (0.02)	0.96** (0.02)
N	1917	1917
–2 Res Log Likelihood	22350.55	22350.55

SE is given in parentheses. * $p < 0.05$ ** $p < .01$; *** $p < .001$ (one-tailed tests).

be in a higher category of leisure media use. On the other hand, the odds multiplier of 1.74 suggests that compared to wives of migrant husbands with low remittances, wives who received higher remittances (i.e. more NRS 300,000), are almost twice as likely to be in a higher category of leisure media use.

A distinct possibility is that left-behind wives' increased likelihood of media use is simply because they communicate with their migrant husbands via internet or telephone. Research indeed shows that the frequency of communication between families and migrants is high, some talking as much as every day. However, our results for remittances suggest something more is going on. If the key factor in increased media use was husband's

absence, then we could expect that the number of months absent would produce a positive result (as it does) and that there would be no difference between our two remittance variables (which is not the case). Given that the wives who receive high remittances are much more likely to use leisure media (with an odds ratio of 1.74), than wives with absent husbands but who receive lower remittances, this implies that the increased leisure media use is not simply due to husband's absence.

Discussion and conclusion

International labour migration rates are rising globally, including in many low- and middle-income countries (International Organization for Migration 2015). Consequently, an increasing proportion of women, children and elderly worldwide are left behind as their household members, particularly married adult males, migrate. This global demographic phenomenon has received great attention and resulted in a large number of studies in diverse settings. These studies have made tremendous advancements in our understanding of both the predictors and consequences of migration in sending and receiving communities, both for households and families left behind and for migrants themselves. These studies tend to focus on economic consequences, such as the loss of productive labour force in rural areas and remittance inflows to households of origin that loosen credit constraints and facilitate capital investment. More recently, scholars have turned their attention to social and demographic consequences of migration for family members and communities left behind (Massey and Parrado 1994; Maharjan, Bauer, and Knerr 2012; Luna and Rahman 2018; Thapa et al. 2019). But still, little attention has been given to the wives of male migrants whose circumstances affect their own well-being as well as that of the whole family.

To address this important gap, this study uses long-term, multilevel panel data from rural Nepal to provide new information regarding the consequences of husbands' international labour migration and remittances for the work burden, autonomy, and leisure media use of left-behind wives. Overall, the results of this study show that male absence and remittance status have substantial positive and negative consequences on their left-behind wives, net of individual backgrounds, household characteristics, and community context. Indeed, our results reveal that male migration increases wives' participation in farming (and thus their work burden) and this is primarily due to the loss of male labour, with little amelioration by remittance status. This exacerbates a situation where women's unpaid work and time poverty are already high, similar to many other countries around the world (Bardasi and Wodon 2010; Gammage 2010; Zacharias, Antonopoulos, and Masterson 2012). The evidence provided here has important implications for policies aimed at the feminisation of Nepali agriculture, particularly in poor agrarian societies experiencing dramatic change in agricultural production and frequent food shortages. Additionally, the positive association between remittances and wives' activities outside the home and leisure media use calls on migrant-sending countries to formulate migration policies that ensure regular remittance flow. These policies could focus on reducing initial migration costs, and bilateral relations with destination-country governments to assure safe work environments, and provide employment, salary, and benefits so that migrants can regularly send remittances home.

On a more positive note, results from our analysis of male migration on wives' autonomy and leisure media use reveal that both the absence of husbands and larger remittance are positively associated with wives' daily activities outside the home and leisure media use. This result is similar to findings in Guatemala that the ability to buy services (such as child-care) and labour saving technology (such as gas stoves) significantly decreases women's time poverty (Gammage 2010). In this study, remittances appear to have a slightly stronger influence on daily activities and leisure media use, compared to male absence.

An important limitation of this study is that while we find that remittances have an important influence on wives' time use, we are not able to measure who in the household receives the remittances. We know that residential arrangements vary, with some households nuclear and all remittances sent to the wife and other households extended and remittances sent to the migrant's parents or split between the parents and wives. The nature of the household and receiver of remittances must condition how they influence wives' time use. Even while we are not able to interact these key factors, we find strong influences of remittances. This suggests that one might find even stronger and clearer influences of remittances if they were to account for the receiver of remittances; we leave this important subject for future research.

A key contribution of this study is a simultaneous test of both of these opposing dynamics of positive and negative associations of male migration with wives' daily living. The strong association between loss of farm labour because of husbands' international migration and wives' increased work burden supports the lost labour hypothesis. This empirical evidence is consistent with the conclusion that husbands' international migration affects the work burden of left-behind women through loss of labour, not by the remittances sent back by the husband to the household. However, both the absence of husbands and remittances they send have strong positive associations with wives' autonomy and leisure activities. Also important is the idea that these findings are net of wives' individual background characteristics, household characteristics, and community context measures, which we show are also important to daily circumstances. Rarely has research on migration been able to disentangle the associations between labour loss, remittances, and wives' activities in a predominantly agricultural area that is experiencing dramatic social change and massive out-migration. The evidence provided here has important implications for policies aimed at handling the consequences of the new economic and social landscape created by massive male migration in poor agrarian societies on the left-behind women and the children and elderly for whom they provide care. Nonetheless, contextual differences in family and gender systems may result in different findings elsewhere. Therefore, the implication of the findings of this study for other contexts should be taken with caution.

Notes

1. We used the amount of 300,000 Nepali Rupees as a cut-off because in the distribution of remittances, 300,000 Nepali Rupees is around the 75th percentile. We also used the amount of 192,000 Nepali Rupees as a cut-off that is around the median of the remittance distribution. Even though the magnitude is slightly different, model results of significance are consistent.
2. To avoid collinearity in the number of male migrants in the household, we excluded the husbands from number of male migrants.

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Disclosure statement

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Data availability statement

The data that support the findings of this study are available from the UK Data Bank and the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan.

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