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The Effect of Male Outmigration on Women's Empowerment in Nepal

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Abstract

Male outmigration is rapidly increasing in Nepal, leading the amount of remittance inflows to exceed 20% of GDP in 2011. This article examines the impact of male outmigration on women's empowerment, which is relatively undocumented in the literature. We employ rainfall and an ethnicity-specific migration network as our instruments to address endogeneity in male outmigration. Our empirical evidence shows that married women in households with male outmigrants are less likely to be in polygamous relationships and are more likely to have the final say on their own health issues. However, further investigation demonstrates that these women are less likely to have freedom to visit their family or relatives, which is probably due to increased cohabitation with their parents-in-law.

***Keywords*: women's empowerment, male outmigration, polygamy**

***JEL Classification Code*: J12, J16, O15**

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1. Introduction

Outmigration is an increasing trend in many developing countries. In Nepal, where remittances exceed 20% of GDP, outmigration is dominated by male household members due to cultural and legal constraints[1] on women. Various social impacts of outmigration are well examined in the literature; however, the impact of male-dominated outmigration on women's empowerment is relatively undocumented.

Women's ability to make meaningful and strategic choices is identified as an important factor constituting women's empowerment (Alsop et al., 2006; Kabeer, 2001; Klugman et al., 2014; Malhorta et al., 2002; Sen, 1999). Male outmigration creates space for women to enhance their intrahousehold bargaining power as they become head of household or elevate their relative position within the household. Remittances sent by husbands also affect women by relaxing their financial constraints, allowing women to make meaningful and strategic life choices.

In this paper, we study how male outmigration affects women's empowerment in Nepal using two rounds of Demographic and Health Survey (DHS) data in 2006 and 2011. To address the endogeneity of male outmigration, we utilize a caste-specific (ethnicity-specific) migration network in each ward and favorable rainfall shock as instrumental variables for male outmigration. The caste system is deeply rooted in every aspect of life in Nepal, although discrimination based on caste is banned according to the constitution. Information sharing with other migrants of the

[1] For instance, women's outmigration to the Gulf countries was prohibited until 2010. Furthermore, in 2012, the government banned women below 30 years of age from migrating for work to Arab countries (ILO, 2015).

same ethnicity will encourage individual's outmigration by lowering costs and uncertainty. Controlling for region- and ethnicity-specific fixed effects, an ethnicity-specific migration network would affect women's empowerment only through male outmigration in households. A positive income shock driven by favorable rainfall is also a relevant instrumental variable because outmigration is expensive due to various costs and bureaucratic processes.

There are a limited number of studies on the impact of male outmigration on women's empowerment, and the results are mixed. Stanley (2015) found that male outmigration improves women's agricultural agency in Guatemala because these women assume the role of hiring and managing workers. A similar positive effect on women's decision-making was also observed in the state of Uttar Pradesh in India (Paris et al. 2005), in Bangladesh (Debnath and Selim, 2009), and in Nepal (Maharjan et al., 2012; Kar et al., 2018). On the other hand, Sinha et al. (2012) found no significant relationship between male outmigration and women's empowerment in India using the National Family Health Survey. Similarly, de Hass and Rooij (2010) reported that male outmigration increased the burden and responsibility rather than the empowerment of the women left behind.

Although these previous studies provide us with interesting insight about the potential impact of male outmigration and women's empowerment, their evidence comes from small-scale case studies, one-year cross-section data, or empirical observation without properly controlling endogeneity. In this paper, we employ two rounds of nationally representative household surveys in Nepal (2006 and 2011), which allows us to examine a broad range of measures related to women's empowerment, including women being in a polygamous relationship, having a bank account, the final say for their own healthcare, and the mobility to visit their own family or relatives.

We believe that the article contributes to the literature by providing evidence of the impact of male outmigration on extensive aspects of women's empowerment using a rigorous empirical approach.

Our empirical evidence shows that married women in households with male outmigrants are less likely to report being in polygyny. They are also more likely to have a final say on matters related to their own healthcare. However, we also found that these women with outmigrating male household members are less likely to have the freedom to visit their family/relatives and are more likely to live with their parents-in-law. Although the male absence created by outmigration clearly lowers the probability of polygamous marriage, our results imply that the impact of male outmigration on other aspects of women's empowerment depends on the context of the women left behind.

The remainder of the paper is organized as follows: section 2 provides an overview of the historical context of Nepal's recent increase in male outmigration and trends in remittances. Section 3 discusses the survey data, measures of women's empowerment and summary statistics. Section 4 shows the instrumental variable estimation strategy and the relevant estimation results. Section 5 provides concluding remarks and highlights relevant policy issues.

2. Overview of Outmigration in Nepal

Nepal's overseas migration in recent years has been driven by its civil war, which lasted from 1996 to 2006. The conflict had its root in a number of factors, including landless, ethnicity-based discrimination, poverty, underdevelopment, unemployment and lack of economic opportunities (Do and Iyer, 2010). An insurgency that started in a rural district by Maoists in 1996 spread to approximately 35 of the 75 districts by 2000 (Pivovarova and Swee, 2015), and the level

of violence escalated in 2001 when the Maoist rebels staged simultaneous assaults in 42 districts. On 26 November 2001, the government declared a nationwide state of emergency, which led to the suspension of basic rights and the diversion of fiscal resources to fight the insurgency (UNOHCHR, 2012). On 9 August 2006, the political parties and the Maoist rebels signed a Comprehensive Peace Accord, formally ending the decade-long insurgency.

Since the intensification of the Maoist insurgency in 2001, male-dominated large-scale outmigration has been a prominent feature of Nepali households and the economy. Figure 1 shows that most emigrants were men during and after the decade-long armed conflict particularly after the intensification of conflict in 2001. Figure 1 also shows that the absentee population was 3.4% of the total population in 1991, marginally decreasing to 3.2% in 2001 and sharply increasing to 7.3% in 2011.

<Figure 1 to be Inserted Here>

The spread and escalation of conflict throughout the country affected outmigration in two ways. First, not only did men represent a disproportionately larger share of the victims, but they were also forced to outmigrate for fear of forced recruitment (Shrestha, 2017). Second, the deterioration of economic conditions because of the conflict severely affected economic activities, forcing even more people to seek employment overseas. The negative effect of the conflict on investment and output persisted even after its end, further fueling outmigration. The industrial sector was hit the hardest, as its contribution to GDP slumped from a high of 22.3% in 1996 to 16.7% in 2006 and 14.9% in 2011—a declining trend that has been labeled “premature

deindustrialization" (ILO, 2017a). Merchandise exports also dropped from 13% of GDP in 2001 to approximately 9% in 2006 and 4.7% in 2011.

The composition of Nepalese migrants' destinations changed over time. In 2001, approximately 77.3% of migrant workers[2] went to India, but migrants to the Middle East and Association of Southeast Asian Nations (ASEAN) countries represented only 14.5% and 1.3%, respectively. Migration to India is for temporary work, does not require official travel documents, and usually occurs during the lean agricultural period (WFP, 2008). In 2011, the National Population and Housing Census 2011 (CBS 2012) shows that 37.6% went to India and the Middle East. The next largest destination in 2011 was the ASEAN region (13%), which includes Malaysia.

The change in destination countries is driven mostly by increased demand and relaxed regulation from destination countries. The demand for workers primarily drives outmigration and is due to high investment in the natural resource and commodity sectors in the Gulf Cooperation Council Countries (GCC) and Malaysia as well as comparatively high wages in the destination countries (Sapkota, 2013; Shrestha, 2017). The oil price boom and large construction projects in the GCC increased demand for manual and semiskilled workers from Nepal (GIZ, 2013) while the opening of new sectors[3] in Malaysia increased the demand for service and security workers from Nepal (Shishido, 2011).

[2] The absentee population is defined as the number of individuals absent from households and gone abroad for at least six months before the census date.

[3]The 25 new sectors include security services, casinos, textiles, mining, hotels and automobile workshops. Employment in the security services sector was opened in 2006 but closed in 2009

Outmigration is costly not only due to informational constraints about job prospects overseas but also due to the need to fulfill the bureaucratic processes required to obtain a legal working permit from the Department of Foreign Employment. These costs include upfront recruitment payment to recruitment agencies and brokers, medical checkup, airfare, airport tax, contribution to the Foreign Employment Welfare Fund, health and life insurance, passport issuance, skills certification, police report, final work approval by the government agency, and transportation to and accommodation expenses in Kathmandu during the application period. The Nepal Migration Survey 2009 shows that, on average, a migrant paid approximately NRs 92,000[4] for overseas employment (Shishido, 2011). This amount was seven times their average monthly income and 11 times their average monthly savings.

Personal and migrant work-related networks could play a crucial role in migrants' decisions to migrate overseas for work (DoFE, 2014). Approximately 95% of potential outmigrants approach recruitment agencies through direct referral or local brokers (ILO, 2017b). The personal or social networks in the destination countries often help them identify job opportunities and protect them from abuses by agents or employers. Caste- and ethnicity-based social exclusion is prevalent in Nepal even now, leading the migrants' social networks to be ethnicity-based within their communities.

The financial costs of migration varying across destinations, also affecting a potential migrant's decision. For a predominantly agricultural economy such as Nepal, a good agricultural

amid the global financial crisis. It was reopened in 2010 for Nepalese workers. See: https://www.ceslam.org/index.php?pageName=newsDetail&nid=1601

[4] The amount is approximately $1,200 based on the official exchange rate in fiscal year 2009.

harvest—thanks to favorable monsoon rainfall—and the ensuing bump in income and savings enables potential migrants to cover part of the upfront outmigration cost.

3. DHS Data and Measures of Women's Empowerment

We use the Demographic and Health Survey (DHS) (Ministry of Health, Nepal; New Era; and ICF, 2017), which is jointly conducted by the Ministry of Health and Population in Nepal and the United States Agency for International Development, for 2006 and 2011. The DHS is a cross-sectional survey conducted every five years, covers the population up to age 49 and is nationally representative. It includes detailed data on demographics, fertility, contraceptive use, healthcare, infant and child mortality, violence against women, women's empowerment, and nutrition, among others. DHS 2006 and 2011 covered 8,707 households and 10,826 households, respectively.[5]

In spite of the extensive data on women, choosing indicators for women's empowerment is never easy. Kabeer (1999) defined women's empowerment as the ability to make a meaningful choice. She also further defined what constitutes such an ability to make a choice: access to resource, agency, and well-being outcomes. We focus on four indicators that reflect those three

[5] The household response rate (households interviewed/households occupied) was 99.6% in DHS 2006 and 99.4% in DHS 2011. The sampling frame, which is a comprehensive list of all sampling units that covers the target population, is derived from the decennial population and housing census. The geographic region forms the basis of stratification, and each stratum is divided into enumeration areas, classified as either rural or urban. Samples were independently selected from each stratum following a two-stage stratified cluster sampling.

dimensions of women's empowerment. We first look at whether a married woman's husband has more than one wife (polygyny). Polygyny is an old and prevalent practice in Nepal, although it is not legally acceptable. Strauss (2012) argues that traditional polygyny embeds inequalities in its very structure. Within the polygyny structure, co-wives are required to cooperate for home production, family farm activities and reproductive areas while competing for household resources and the husband's attention. Bove and Valeggia (2009) showed that polygyny is associated with women's anxiety and depression. McDermott and Cowden (2015) also showed that the polygyny relationship is related to increased violence toward women and children and disempowerment for already married women.

The second measure of women's empowerment we exploit is ownership of a bank account. Owning a bank account increases a woman's ability to take control of income (Holloway et al., 2017; Schaner, 2016) and obtain financial autonomy (Kabeer, 1999). In addition, opening a bank account and migrating are not necessarily joint decisions in the context of Nepal as most migrants employ personal networks or Western Union to transfer money.[6] Next, we explore whether a married woman has a final say in her own healthcare and visits to family or relatives. Health and nourishment are considered fundamentals of survival and therefore well reflect the empowerment of women. Health condition itself may be affected by the increased income due to remittances

[6] According to Nepal Living Standards Survey in 2011, only 18.9% of migrants used official financial channels to remit income back to their households. Seventy-six point six percent relied on people (returning friends/acquaintances/network in destination countries) or Western Union, which does not require the migrant household to have a bank account) to remit money. Approximately 2.5% used an informal channel, often termed Hundi (Hawala).

from a woman's husband; however, whether a woman has the final say about her own health shows whether she can actually exercise decisions regarding her own health care.

Women's freedom of mobility is one of most frequently used measures of women's empowerment, as it shapes women's social capital (Kabeer, 1999). Women's mobility is relevant to empowerment, especially in the patriarchal context, where women are bound to the home (Mahmud et al., 2012). Hashemi et al. (1996) showed that rural credit programs empower women, including in the aspect of mobility.

In addition to these four indicators, we explore whether married women in households with male outmigrants are more likely to live with their in-laws to cope with the absence of the male household members and obtain support for child-rearing. However, such a living arrangement could have disempowering effects because women living with in-laws are more likely to be subordinate to the authority of a senior woman in the household, with lower agency and mobility (Kabeer, 1999; Glennerster, et al., 2018). Living in an extended family setting reduces married women's bargaining power, particularly their autonomy (de Hass and Rooij, 2010; Sinha et al., 2012).

We restrict our sample to the same age cohort (15-49 years in 2006 and 20-54 years in 2011) of married women born after 1980 and married before the end of the conflict in August 2006. The sample restriction is intended to exclude the impact of changes in marriage market dynamics

after the end of the decade-long Maoist conflict (1996-2006).[7] Valente (2011) showed that conflict intensity and Maoist abductions during school age increased the probability of early marriage.

<Table 1 to be Inserted Here>

We present the summary statistics of relevant variables used in the analysis in Table 1. Male outmigrants is a binary variable indicating that any male member in the household is currently in a foreign country. We can observe that 28.3% of married women were living in households with male outmigrants in 2011 compared to 20.1% in 2006.

Concerning women's empowerment, the summary statistics show that the percentage of women in polygamy declined from 42.9% to 34.3% over two years. Additionally, the share of women with their own bank account increased from 47.3% to 66.7%. Similarly, there is an improvement over the survey period in all the empowerment indicators: having a final say in one's own healthcare and visits to family or relatives. We can also observe that fewer married women live with in-laws in 2011 (26.7%) than in 2006 (36.1%).

[7] All our instrument variable estimation results presented in section 4 remain robust when we use the full sample of married women.

4. Empirical Specification and Results

4.1. Ordinary Least Squares Estimation

To examine the relationship between living in households with male migrants outside the country and women's empowerment, we estimate the following regression:

$$Y_{ihpdt} = \beta_0 + \beta_1 M_{ihpdt} + \theta X_{ihpdt} + \gamma E_{pdt} + District_d + Year_t + \varepsilon_{ihpdt} \qquad (1)$$

where Y_{ihpdt} is an outcome variable for woman i in household h living in ward p[8] in district d in year t. M_{ihpdt} indicates that individual i is living in household h with at least one male outmigrant at the time of the survey, t. X_{ihpdt} is a set of control variables including an urban indicator, woman's age, education of the woman and her husband, years of marriage fixed effects, ethnicity-specific fixed effects, wealth level fixed effects, and number of children in the household. Local economic conditions may encourage male outmigration and affect the labor market outcomes of the women left behind. We additionally control the set of region-level variables E_{pdt}, which contains nighttime light,[9] reflecting the level of economic activity and the share of agricultural workers to show the level of industrialization in each ward p in year t. District and survey year

[8] Nepal consists of 75 districts across different ecological zones. The districts are divided into wards or municipalities, which are further categorized as urban and rural areas. The primary sampling unit in DHS data is the ward. In rural areas, the wards are small, including 104 households, on average, while in urban areas, the wards are larger, comprising approximately 800 households.

[9] Nighttime light is a good proxy for local GDP growth (Vernon et al., 2012).

fixed effects are also controlled to capture the constant characteristics of each region and the time trend. Error terms are calculated in consideration of the survey setting (Croft et al. 2018).

<Table 2 to be Inserted Here>

The OLS regression estimates related to women's empowerment in Table 2 show that married women with male outmigrants are 17.5% point less likely to be in a polygamous relationship. They are also more likely to own a bank account and to have a final say in their own healthcare. They are also 7.6% point more likely to be living with in-laws. However, there is no significant evidence that having male outmigrants in the household has any impact on the wife's freedom to visit her family or relatives.

OLS estimates are likely to be biased due to the endogeneity of male outmigration. First, omitted variable bias could confound our results due to unobserved individual-level characteristics or local economic conditions, which affect both outmigration and women's empowerment. Second, simultaneity bias could be a threat if women's decision-making power over household resources could affect the probability that their husbands migrate. For example, using data from Mexico, Nobles and McKelvey (2015) showed that variation in women's decision-making authority and control over resources predict the subsequent emigration of their husbands to the US.

4.2. Instrumental Variable Specification and First-Stage Results

To control for the endogeneity of male outmigration, we use two instrumental variables: caste (ethnicity)-specific migration network and rainfall. Migration costs decrease as the size and

history of the migration network grows (Mckenzie and Rapoport, 2007; Munshi, 2003). For this reason, the migration network has been employed as an instrumental variable for migration decisions in many empirical studies (McKenzie and Rapoport, 2010; Adams and Cuecuecha, 2010; Mendola, 2008).

To reflect Nepal's context, we construct an ethnicity-specific migration network calculated as the share of ethnicity-specific households with male migrants at the ward level. Here, we further group the eleven ethnicities into five broad categories, namely, Brahmin and Chhetri, Newar and Janajati, Terai Madhesi, Dalit, and Muslim and others.[10] The migration network lowers the financial cost of acquiring information about employment destinations as well as the bureaucratic procedures required for outmigration. In addition, having outmigrants within their own networks affects their preferences regarding migration choices. The variation of the ethnicity-specific migration network across regions and time comes from two sources: the original distribution of ethnicities in each area and the change in migrants' distribution across different ethnicities over time. Therefore, an ethnicity-based migration network would affect an individual household's male outmigration while being orthogonal to women's empowerment, controlling for region-specific fixed effects.

We use rainfall as an additional instrumental variable that affects migration but has no direct relationship with women's empowerment conditional on regional economic activities. Rainfall has been extensively employed in the literature because it exogenously affects migration in developing countries. It has been shown that rainfall shocks, especially lower than average

[10] This grouping reflects the five broad caste categories practiced in Nepal, where over 80% of the population follows Hinduism.

rainfall, push people to migrate in Mexico (Munshi, 2003; Chalfin, 2013) and Indonesia (Kleemans and Magruder, 2018). However, Dustmann et al. (2017) also showed that higher levels of rainfall induce an unexpected and positive shock in income, which allows potential migrants to pay the cost for an imminent illegal migration.

In Nepal's context, we argue that a favorable rainfall just before the survey years compared to the long-period average increases the agricultural harvest, which consequently increases the income of households dependent on agriculture. Prospective outmigrants then use the additional income to cover the various costs related to migration described in section 2. Since approximately three-quarters of the total households depend on agriculture for livelihood and cultivate paddy (the major summer crop that is entirely dependent on rain-fed irrigation), agriculture is the most important source of household income and savings (CBS, 2011).

We estimate the following equation as a first-stage estimation:

$$M_{ihpdt} = \alpha_0 + \alpha_1 Network_{hpdt} + \alpha_2 Rainfall_{dt} + \psi X_{ihpdt} + \eta E_{pdt} + District_d + Year_t + \varepsilon_{ihpdt} \quad (2)$$

where M_{ihpdt} indicates having a male outmigrant in the household. $Network_{hpdt}$ is an ethnicity-based migration network calculated as the share of migrants[11] in each ethnicity in each ward p. For

[11] To avoid the potential reflection problem, we also constructed an alternative measure of ethnicity-based migration network by not including male outmigrants in each household. Our

rainfall $Rainfall_{dt}$, we constructed a standard rainfall z-score based on the district-level average precipitation over the three years prior to the survey year and the district-level long period average (twenty-year average spanning 1986-2015). We also constructed an indicator for a rainfall shock that corresponds to an absolute value of a z-score greater than one for the three years prior to the survey year. Night-time light, district fixed effects, and year of survey fixed effects are controlled as equation (1).

<Table 3 to be Inserted Here>

Table 3 presents the first-stage regression estimates. Regression (1) shows that the ethnicity-specific migration network measured at the ward level significantly predicts household-level male outmigration, with an F-statistic of 2502.76, which is well above the Stock and Yogo (2005) recommended critical values for rejecting the possibility of weak identification. In regression (2), rainfall measured as a district-level z-score significantly predicts an increase in household-level outmigration, with an F-statistic of 9.62. On the other hand, regression (3) shows that a rainfall shock decreases the likelihood of having male outmigrants by 2.7% point. The results demonstrated in Table 3 are consistent with previous findings and the argument made by Dustmann et al. (2017) and Chalfin (2013) that favorable rainfall enables potential migrants to

results—presented in Tables 2, 3, and 4—all remain the same when we employ the alternative measure.

cover high upfront costs, while an extreme rainfall shock imposes real binding constraints on potential migrants, reducing their migration.

Regression (4) shows that both the ethnicity-based migration network and rainfall are strong instrumental variables. Because rainfall rather than rainfall shock is a stronger instrument, we employ rainfall and migration network as our instruments in the main analyses. Having two instruments also enables us to test the exogeneity of our instruments using an over-identification test.

4.3. Instrumental Variable Estimation Results and Interpretation

<Table 4 to be Inserted Here>

Table 4 presents the instrumental variable regression estimates on the effect of male outmigration on women's empowerment. It shows that married women in households with male outmigrants are 24.9% point less likely to be in a polygamous relationship. As we restricted the sample to women who were already married in 2006, the result can be interpreted that some polygamous unions became monogamous due to absence of men.

Regression (2) shows that unlike Kar et al. (2018), we do not find a statistically significant impact on the probability that married women own a bank account. However, regression (3) shows that married women in households with male outmigrants are 8.2% point more likely to report having a final say on matters related to their own healthcare. While the instrumental variable

estimates for polygamy and final say in own healthcare are in the same direction as the OLS estimates, the magnitude is larger in the case of the former. This indicates that endogenous selection into migration leads to biased results in the OLS estimates.

While we observe empowering effects on issues related to polygamy and own healthcare, the results also show a disempowering effect on visits to family or relatives. Regression (4) shows that married women in households with male outmigrants are 6.3% point less likely to report having a final say on visits to family or relatives. We further explored whether this result was correlated to married women living with in-laws because living in an extended family setting reduces married women's bargaining power (de Hass and Rooij, 2010; Sinha, Jha and Negi, 2012). The last column in Table 4 indicates that, compared to married women in households without male outmigration, married women in households with male outmigration are 11.1% point more likely to be living with in-laws, which could have reduced their bargaining power on matters related to visiting family or relatives. For all outcome variables, we also performed an over-identification test, and the results show that we cannot reject the null hypothesis that the instrument variables employed in the analyses satisfy the exogeneity condition to be valid instruments.

4.4 Internal Migration and Outmigration

In Nepal, internal migration is as prevalent as international migration. Domestic migrants are usually hired as temporary workers at farms for several months during a busy farming season. Domestic migrants also head for Kathmandu, the capital city of Nepal, to work as a temporary worker and prepare for outmigration at the same time. This subsection examines the impact of internal migration as well as male outmigration for two reasons. Internal migration serves as a preparation stage for outmigration, and the economic conditions and preferences for internal

migration and outmigration are very likely to be correlated. In these cases, not controlling for internal migration could cause omitted variable bias in our estimates. In addition, the impact of internal migration itself could be of interest.

<Table 5 to be Inserted Here>

We employ rainfall and an ethnicity-based network for internal migration and outmigration as our instruments[12] to address the endogeneity of male household members' internal and outmigration. Table 5 shows that the impact of outmigration on women's empowerment remains the same when we control for internal migration, although the impact is of a smaller magnitude. Regression (1) shows that married women in households with male internal migrants are 15.8% point less likely to be in polygamous relationships. They are also 9% point more likely to report having a final say on matters related to their own healthcare. However, male member's internal migration has no significant impact on women having a final say on visiting their family or relatives. Regression (6) shows that internal migration does not significantly promote cohabitation with in-laws, while outmigration does. This finding supports our conjecture that cohabitation with in-laws due to male outmigration has a disempowering impact on the women left behind.

5. Conclusion

Outmigration is a prevalent and increasing trend in many developing countries. We examine the impact of outmigration in Nepal, where migration is mostly dominated by male

[12] The first-stage F-statistic is 405.71.

household members. Male outmigration unexpectedly affects women's agency in households through increased income and male absence. Utilizing rainfall and an ethnicity-specific migration network as instrumental variables for male outmigration, we find that male outmigration increases women's self-employment. Women in households with male outmigration are also less likely to report being in a polygamous relationship and more likely to report having a final say on their own health care.

Although we cannot identify whether the impact of male outmigration is through remittances or male absence, it is very likely that final say on their own health care increased due to remittances and male absence, while polygamy decreased primarily due to male absence. We also report that male outmigration disempowers women by increasing cohabitation with in-laws and decreasing their mobility to visit their family or friends.

Given the high unemployment rate and low income per capita, male-dominated outmigration will continue to be a defining feature in Nepal, and remittances will continue to play a major role in supporting household consumption and the economy (Sapkota, 2013). Women will continue to play a crucial role in managing household chores, economic activities and child-rearing, including decision-making concerning the children's education and training. Our results show that the absence of male household members has limited impact on the agency of women left behind. To empower the women left behind, policies are needed that encourage their employability and political representation.

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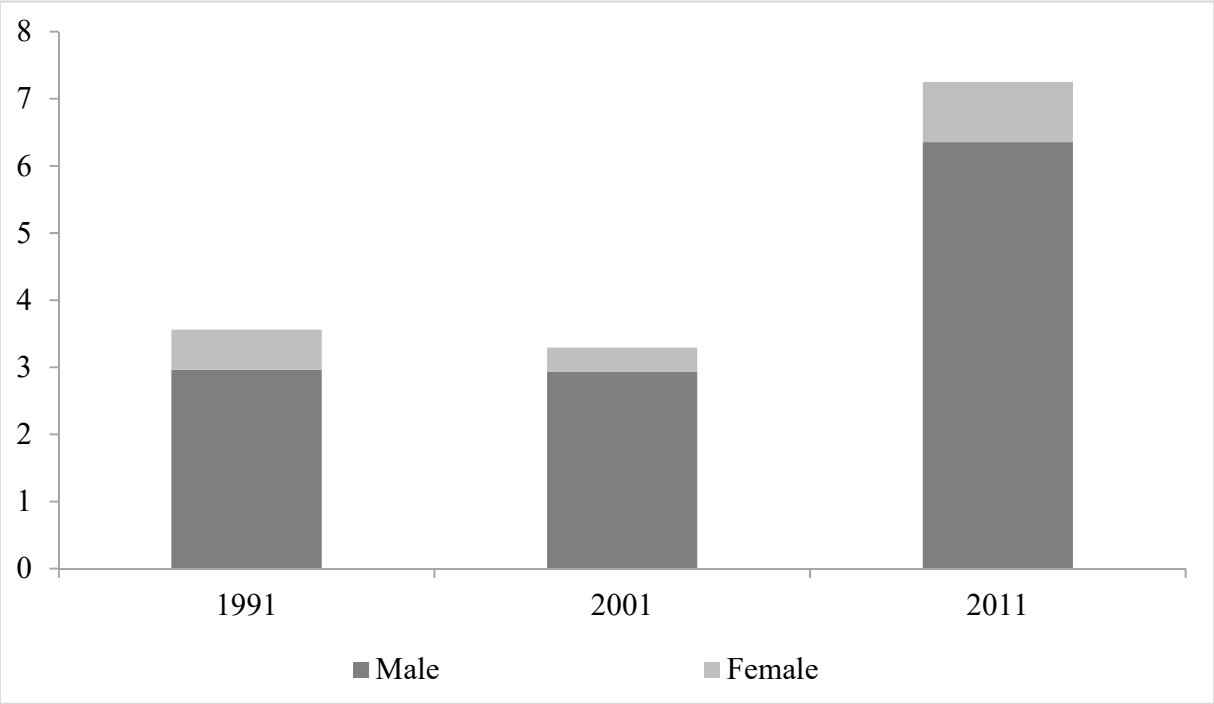
Tables and Figures

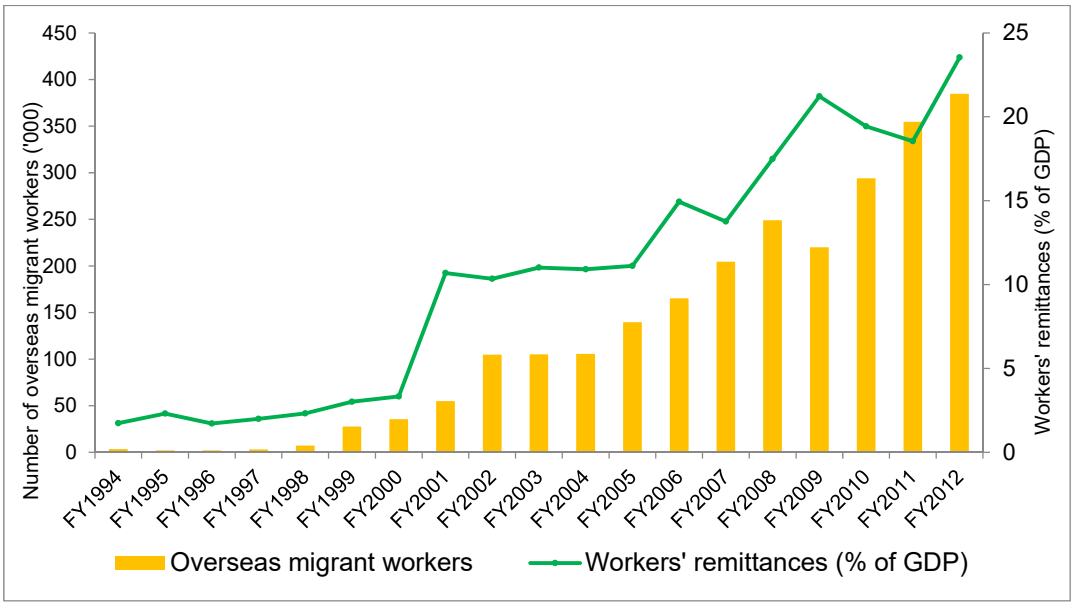
<Figure 1 Absentee Population (% of total population)>



Source: CBS, 2012

Note: Anyone away or absent from the place of birth or usual place of residence and gone abroad for at least six months before the census date is considered to be absent and is not counted as part of the present population.

<Figure 2 Overseas Migration and Workers' Remittances>



Source: DoFE, 2014; NRB, 2018

Note: The number of overseas migrants (in thousands) excluding migrants to India. Workers' remittances are expressed as a percentage of GDP.

Table 1 Summary Statistics

	2006		2011	
Variables	Mean	Standard deviation	Mean	Standard deviation
Household male outmigration	0.201	0.4	0.283	0.45
Women's empowerment				
Polygamous	0.429	0.495	0.343	0.475
Owns a bank account	0.473	0.499	0.667	0.471
Final say in own healthcare	0.456	0.498	0.684	0.465
Who decides how to spend own earnings	0.86	0.347	0.933	0.251
Final say on visits to family or relatives	0.536	0.499	0.673	0.469
Living with in-laws	0.361	0.48	0.267	0.443
Control variables				
Living in urban area	0.265	0.441	0.276	0.447
Woman's education	2.628	3.786	3.138	3.93
Husband's education	5.587	4.207	5.839	3.97
Wealth index	2.984	1.437	3.048	1.464
Age	29.276	7.89	33.444	7.393
Husband's age	33.591	9.176	37.987	8.883
Share of workers in agricultural sector	0.454	0.25	0.3	0.213
Nighttime light	0.412	1.01	0.491	1.234
Number of children under 5 years	1.084	1.083	0.783	0.926
Observations	7493		7477	

Note: The sample is restricted to the same age cohort (15-49 years in 2006 and 20-54 years in 2011) of married women born after 1980 and married before the end of the conflict in 2006. All means and standard deviations are calculated in consideration of the survey setting in the DHS datasets.

Table 2. Male Outmigration and Women's Empowerment

Dependent variable	Polygamous	Bank account	Final say in own's healthcare	Freedom to visit family or relatives	Living with in-laws
	(1)	(2)	(3)	(4)	(5)
Male outmigration	-0.175***	0.029**	0.059***	0.014	0.076***
	[0.012]	[0.012]	[0.011]	[0.011]	[0.011]
Number of children	0.016	0.001	-0.038***	-0.052***	0.060***
	[0.010]	[0.006]	[0.005]	[0.006]	[0.007]
Education	0.002	0.012***	0.014***	0.010***	0.002
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Husband's education	-0.004**	0.011***	-0.005***	-0.005***	0.013***
	[0.002]	[0.002]	[0.002]	[0.001]	[0.001]
Age	0.001	0.003*	0.005***	0.009***	0.001
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Husband's age	-0.001	0.000	0.000	0.001	-0.009***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Urban	0.008	-0.008	0.002	0.018	-0.031*
	[0.014]	[0.023]	[0.021]	[0.019]	[0.016]
Observations	14,833	14,833	14,833	14,833	14,833
R-squared	0.057	0.232	0.154	0.164	0.153

Note: The sample is restricted to the same age cohort (15-49 years in 2006 and 20-54 years in 2011) of married women born after 1980 and married before the end of the conflict in 2006. All estimates are calculated in consideration of the survey setting in the DHS datasets. Survey year, ethnicity, district, and year of marriage fixed effects are controlled in all regressions. The set of control variables includes indicators for the year, urban area, women's education, husband's education, women's age, share of agricultural workers at the PSU level, local economic activity (nighttime light), and number of children less than five years of age. Standard errors in brackets; *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3. First-Stage Estimation: The Impact of Rainfall and Ethnicity-Specific Migration Network on Outmigration

Dependent variable	Having a Male Outmigrant in the Household			
	(1)	(2)	(3)	(4)
Ethnicity-based migration network	0.904*** [0.018]			0.899*** [0.018]
Rainfall (z-score)		0.052*** [0.017]		0.026*** [0.007]
Rainfall shock (binary indicator)			-0.027* [0.014]	
F-statistics on instruments	2502.76	9.62	3.64	1279.64
Constant	0.286*** [0.079]	0.300*** [0.094]	0.341*** [0.094]	0.269*** [0.080]
N	14,833	14,833	14,833	14,833
R-squared	0.209	0.097	0.095	0.210

Note: See the note for Table 2. The district-level rainfall z-score is calculated based on the past three years of precipitation compared to the long-run (1986-2015) average of precipitation in each district. A rainfall shock is defined as an indicator for an absolute value of the z-score greater than one for the past three years in each district. Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1

Table 4. Instrumental Variable Estimation: Male Outmigration and Women's Empowerment

Dependent variable	Polygamous	Bank account	Final say in own's health care	Freedom to visit family or relatives	Living with in-laws
	(1)	(2)	(3)	(4)	(5)
Male outmigration	-0.249***	0.000	0.082**	-0.063*	0.111***
	[0.030]	[0.046]	[0.035]	[0.036]	[0.025]
Education	0.001	0.012***	0.014***	0.010***	0.003
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Husband's education	-0.004**	0.011***	-0.005***	-0.005***	0.013***
	[0.002]	[0.002]	[0.002]	[0.001]	[0.001]
Number of children	0.018*	0.002	-0.039***	-0.050***	0.059***
	[0.011]	[0.007]	[0.005]	[0.006]	[0.007]
Urban	0.005	-0.009	0.003	0.014	-0.029*
	[0.014]	[0.023]	[0.021]	[0.019]	[0.016]
J-test	0.049	0.089	2.32	0.001	0.569
(p-value) †	(0.82)	(0.77)	(0.13)	(0.97)	(0.451)
Observations	14,833	14,833	14,833	14,833	14,833
R-squared	0.053	0.231	0.154	0.159	0.152

See the note for Table 2 for the definition of all control variables included in the model. See the note for Table 4 for the construction of instrumental variables. †J-test and p-value are acquired from instrumental variable estimation in consideration of the sampling weight but not the full survey setting.

Table 5: Internal Household Migration and Women's Empowerment: Instrumental Variable Estimation using Migration Network

Dependent variable	Polygamous	Has a bank account	Final say in own healthcare	Final say on visits to family or relatives	Living with in-laws
	(1)	(2)	(3)	(4)	(5)
Male outmigration	-0.285***	0.005	0.103***	-0.076**	0.127***
	[0.031]	[0.048]	[0.036]	[0.037]	[0.029]
Male internal migration	-0.158***	0.022	0.090*	-0.055	0.069
	[0.049]	[0.067]	[0.051]	[0.051]	[0.049]
J-test	0.061	0.018	1.214	0.002	0.301
(p-value)	0.80	0.89	0.27	0.97	0.58
Observations	14,820	14,820	14,820	14,820	14,820
R-squared	0.050	0.231	0.153	0.159	0.154

See the note for Table 2 for the definition of all control variables included in the model. See the note for Table 3 for the construction of instrumental variables. †J-test and p-value are acquired from instrumental variable estimation in consideration of the sampling weight but not the full survey setting.