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

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**Abstract**

*Outmigration is dominated by men in Nepal, where gender equality is an imminent development goal. In this study, we ask whether male-dominant outmigration affects the empowerment of women left behind using two rounds of survey data collected in 2006 and 2011. We address endogeneity in migration using instrumental variable estimation and provide empirical evidence 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, these women are less likely to have the freedom to visit their family or relatives. We show that male outmigration increases married women's cohabitation with their parents-in-law and conjecture that the decrease in mobility is due to such living arrangements.*

***Keywords:*** *women's empowerment; male outmigration; polygamy; Nepal.*

## 1. Introduction

Outmigration and remittances have significant economic and social consequences for sending countries and families left behind. To fully understand the impact of outmigration and remittances, it is essential to understand the household decision process among migrant families. In South Asian countries such as Bangladesh, Nepal, and Pakistan, outmigration is often dominated by male household members due to cultural and legal constraints[3] on women. In this paper, we ask if the absence of men created by outmigration leads women left behind to take on men's roles and become empowered in households using data from Nepal, where gender equality is an imminent development goal.

The impact of male outmigration on empowerment of women left behind is not easily foreseeable. Previous literature reports that the gendered pattern of decision making is related to the amount of resources each household brings to the household (Attanasio and Lechene, 2002; Duflo, 2003). Increased household income due to the remittances sent by male migrants would then improve migrants' control over resource allocations. However, Chen (2013) also suggested that imperfect monitoring and asymmetric information would allow women left behind to allocate household resources in favor of themselves.

The previous literature has provided mixed evidence for the improvement in women's empowerment caused by male members' migration. Antman (2015) studied Mexico and

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[3] In Nepal, women's outmigration to Gulf countries was prohibited until 2010. Furthermore, in 2012, the government banned women younger than 30 years of age from migrating for work to Arab countries.

found a temporary but significant increase in spending on girls relative to boys, which suggests an improvement in women's authority. On the other hand, Sinha et al. (2012) and de Hass and Rooij (2010) reported an insignificant relationship between male outmigration and women's empowerment in India and Morocco, respectively.

The study investigates how male outmigration affects the empowerment of women left behind in Nepal using two rounds of DHS (Demographic and Health Survey) in 2006 and 2011. A typical challenge in studies of this nature is the endogeneity of migration, which stems from non-random selection into migration. To address the endogeneity of male outmigration, we utilize two instrument variables that have been widely employed in the literature: migration network and weather shock. Then, we estimate the impact of male outmigration on a wide array of outcome variables reflecting women's empowerment: being in polygamy, having a bank account, having the final say in their healthcare, and freedom in mobility. In addition, we explore how male outmigration affects the likelihood of women living with in-laws to understand various channels through which male outmigration affects women left behind. The study is related to the scanty but growing literature which examines the impact of migration in Nepal. Lokshin and Glinskaya (2009) reported a decrease in women's labor market participation, while Kar et al. (2018) reported an increase in women's self-employment and agricultural agency. The study contributes to the literature by examining an extensive range of measures related to women's general empowerment. Our empirical evidence shows that married women in households with male outmigrants are less likely to be in polygyny and more likely to have the final say on their healthcare. However, we also found that these women with out-migrating 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.

The remainder of the paper is organized as follows: section 2 provides an overview of Nepal's migration. 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 started in a rural district by Maoists in 1996. Since the intensification of the Maoist insurgency in 2001, the economy's deterioration and fear of forced recruitment (Shrestha, 2017) drove male-dominated large-scale outmigration. The negative effect of the conflict on the economy persisted even after its end in 2006, further fueling outmigration. According to CBS (Central Bureau of Statistics, 2012), the absentee population[4] was 3.4% of the total population in 1991, marginally decreasing to 3.2% in 2001 and sharply increasing to 7.3% in 2011. The destination of Nepalese migrants changed over time from India as seasonal workers in 2001 to the Middle East and ASEAN countries as construction workers in 2011 (CBS, 2012). The change in destination countries is driven mainly by increased demand and relaxed regulations from destination countries (Sapkota, 2013; Shrestha, 2017).

Outmigration is costly not only due to informational constraints but also due to the various bureaucratic processes. These costs include payment for brokerage service, medical checkup, 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 and accommodation expenses during the application and transition period. The Nepal Migration Survey 2009 shows

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

that, on average, a migrant paid approximately NRs 92,000[5] for overseas employment (Shishido, 2011), seven times their average monthly income.

## 3. Methodology

### 3.1. DHS Data and Measures of Women's Empowerment

We use the DHS (Ministry of Health, Nepal; New Era; and ICF, 2017), which was 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 nationally representative cross-sectional survey conducted every five years, covering the population up to age 49. 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 surveyed 8,707 households and 10,826 households, respectively.

The literature has identified women's ability to make meaningful and strategic choices as an important factor constituting women's empowerment (Kabeer, 2001; Sen, 1999). Kabeer (2001) 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 dimensions of women's empowerment.

The first indicator we choose to gauge a married woman's empowerment is a woman being in 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 structure as co-wives are required to cooperate for home production while competing for household resources and the husband's attention. In the literature, polygyny is associated with women's anxiety and depression (Bove and Valeggia, 2009), increased violence toward women and children, and disempowerment for already married women (McDermott and Cowden, 2015).

The second measure of women's empowerment we employ in this study is ownership of a bank account. Owning a bank account increases a woman's ability to take control of income (Schaner, 2016) and obtain financial autonomy[6] (Kabeer, 1999). Next, we explore whether a married woman has a final say in her own healthcare and visits to family or relatives. Health condition itself may be affected by the increased income due to remittances from a woman's husband; however, whether a woman has the final say about her own health shows whether she can actually exercise her bargaining power in relevant decisions. Women's freedom of mobility reflects women's empowerment essential in shaping her social capital in the patriarchal context, where women are bound to the home (Mahmud et al., 2012).

Table 1 Summary Statistics

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

[6] Opening a bank account is not necessarily result of husband's migration as most migrants utilize personal networks or Western Union to transfer money. According to Nepal Living Standards Survey in 2011 (CBS, 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).

| | 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 |
| 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 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.

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 would have women to be subordinate to the authority of a senior woman in the household, with lower agency and mobility (Kabeer, 1999; Glennerster, et al., 2018).

We present the summary statistics of variables in Table 1. The sample is restricted to married women in the same age cohort (15-49 years in 2006 and 20-54 years in 2011) 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[7] after the end of the decade-long Maoist conflict (1996-2006).

We observe that 28.3% of married women were living in households with male outmigrants[8] in 2011 compared to 20.1% in 2006. Concerning women's empowerment, the summary statistics show that the share of women in polygamy declined from 42.9%

[7] Valente (2011) showed that conflict intensity and Maoist abductions during school age increased the probability of early marriage.

[8] The migrants' data and main data cannot be merged at the individual level, making it impossible for us to identify relationships between male migrants and women in our sample.

to 34.3% over two periods. 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 the other empowerment indicators: having a final say in one's own healthcare and visits to family or relatives. Finally, fewer married women live with in-laws in 2011 (26.7%) than in 2006 (36.1%).

### 3.2. Instrumental Variable Specification

To examine the relationship between living in households with male outmigrants and women's empowerment, we begin with the following OLS (Ordinary Least Squares) model:

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

where $Y_{ihpdt}$ is an outcome variable for woman i in household h living in ward p[9] 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, and number of children in the household. We also control the year of marriage, ethnicity, and level of wealth fixed effects. Additionally, the specification controls the set of region-level variables $E_{pdt}$, which contains nighttime light, reflecting the level of economic activity (Vernon et al., 2012) and the share of agricultural workers in each ward p in year t. District and survey year 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 as suggested by DHS.

OLS estimates are likely to be biased due to the endogeneity of male outmigration. First, unobserved individual-level characteristics or local economic conditions could 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.

To control for the endogeneity of male outmigration, we use two instrumental variables: caste (ethnicity)-specific migration network and rainfall. The literature has shown that migration costs decrease as the size and history of the migration network grow (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, 2007; Adams and Cuecuecha, 2010; Mendola, 2008).

In this study, we construct an ethnicity-specific migration network[10] calculated as the share of ethnicity-specific households with male migrants at the ward level. This approach reflects Nepal's context and permits the utilization of the variation of the migration network across time and within regions. Controlling for ethnicity and region-specific fixed effects, the migration network will increase male outmigration while being orthogonal to individual women's empowerment.

Rainfall has been widely employed in the literature as an instrument for migration in developing countries. Drought measured as negative rainfall shock push people to migrate in Mexico (Munshi, 2003) 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

[9] 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.

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

for an imminent migration. We argue that in Nepal, where most households depend on agriculture for their livelihood, a favorable rainfall just before the survey year increases the agricultural harvest and income. Prospective outmigrants then use the additional income to cover the various costs related to migration described in section 2.

We specify the first-stage as follows,

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

,where $N_{hpdt}$ is an ethnicity-based migration network calculated as the share of migrants[11] in each household h's ethnicity in each ward p. For rainfall $R_{dt}$, we utilized two variables: a standard rainfall z-score and indicator for favorable rainfall. Standard z-score is calculated based on the past three years of precipitation compared to the long-run average (1986-2015) in each district. Rainfall shock indicator for favorable rainfall corresponds to an absolute value of a z-score greater than one for the three years prior to the survey year. The rest of specification is identical to that in equation (1).

## 4. Results and Discussion

Table 2. 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 | 0.904*** | | | 0.899*** |
| migration network | [0.018] | | | [0.018] |
| Rainfall (z-score) | | 0.052*** | | 0.026*** |
| | | [0.017] | | [0.007] |
| Rainfall shock | | | -0.027* | |
| (binary indicator) | | | [0.014] | |
| F-statistics on instruments | | | | |
| | 2502.76 | 9.62 | 3.64 | 1279.64 |
| Constant | 0.286*** | 0.300*** | 0.341*** | 0.269*** |
| | [0.079] | [0.094] | [0.094] | [0.080] |
| N | 14,833 | 14,833 | 14,833 | 14,833 |
| R-squared | 0.209 | 0.097 | 0.095 | 0.210 |

Note: The sample is restricted to 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,

[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. All our results remain robust when we employ the alternative measure.

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. Clustered standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1

Table 2 presents the first-stage regression estimates. Regression (1) and (2) presents that migration network and rainfall measured as a district-level z-score strongly predicts an increase in household-level outmigration, while rainfall shock indicator only weakly discourages male outmigration in regression (3). To avoid weak IV, we employ rainfall measured as z-score and migration network as our instruments in the subsequent analyses. Having two instruments also enables us to test the exogeneity of our instruments using an over-identification test.

Table 3 presents the instrumental variable regression estimates on the effect of male outmigration on women's empowerment. Regression (1) shows that married women in households with male outmigrants are 24.9 %-points less likely to be in a polygamous relationship. As the sample is restricted to married women, the result implies dissolution of some polygamous unions. In regression (2), unlike Kar et al. (2018), there is no significant impact of male outmigration on the probability that married women own a bank account, while regression (3) shows that married women in households with male outmigrants are 8.2 %-points more likely to report having a final say on their own healthcare.

Table 3. Instrumental Variable Estimation: 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 | -0.249*** | 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 |

Note: See the note for Table 2 for the definition of all control variables included in the model. J-test and p-value are acquired from instrumental variable estimation in consideration of the sampling weight.

Table 4: 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] |
| Observations | 14,820 | 14,820 | 14,820 | 14,820 | 14,820 |
| R-squared | 0.050 | 0.231 | 0.153 | 0.159 | 0.154 |

Note: See the note for Table 2 for the definition of all control variables included in the model. †J-test and p-value are acquired from instrumental variable estimation in consideration of the sampling weight but not the full survey setting. The first-stage F-statistic is 405.71.

While we observe empowering effects on being in polygamy and decision on own healthcare, the results also show a disempowering effect on women's mobility. Regression (4) shows that married women in households with male outmigrants are 6.3 %-points less likely to report having a final say on visits to family or relatives. Regression (5) shows that married women with male outmigrants are also 11.1 %-points 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.

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. 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.

We employ rainfall and an ethnicity-based network as our instruments to address the endogeneity of male household members' internal and outmigration. The specification is identical to that employed in Table 3 except for having internal migration as a variable of interest. The first-stage F-statistics in 4.5.71 and two-stage least squares estimation results are presented in Table 4.

Table 4 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. Table 4 also demonstrates that internal migration has similar empowering impacts on women without negatively affecting women's visit to 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. Conclusions

International migration is a growing trend in many developing countries. In this study, we focused on gendered aspects of families left behind, which is relatively under-investigated in the literature. Our research provides several important policy implications. The shift in intra-household bargaining power in migrant families should be should considered when making policies targeting households. We also need to understand why some families choose cohabitation with parents-in-law and how this choice affects women's mobility in economic and public domains.

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