WORLD BANK GROUP

Food and Agriculture Organization of the United Nations

# MALE OUTMIGRATION AND WOMEN'S WORK AND EMPOWERMENT IN AGRICULTURE

## The Case of Nepal and Senegal

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Images:
Smallholder female farmer in Nepal (Left): Poverty Alleviation Fund II Project, Government of Nepal.
Small holder female farmers Ramata Niass and Faty Penda Niasse (Right): Daniella Van Leggelo-Padilla / World Bank

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| A-WEAI | Abbreviated Women's Empowerment in Agriculture Index |
| FAO | Food and Agriculture Organization of the United Nations |
| FIES | Food Insecurity Experience Scale |
| GDP | Gross domestic product |
| IFPRI | International Food Policy Research Institute |
| M&E | Monitoring and Evaluation |
| NGO(s) | Non-Governmental Organization(s) |
| Nepal LSMS | Nepal Living Standards Measurement Survey |
| OLS | Ordinary Least Squares |
| TLU | Tropical Livestock Units |
| WEAI | Women's Empowerment in Agriculture Index |

# FOREWORD

The advent of internal and international migration of people is not new but migration and its consequences have turned into a pressing item on the development agenda in recent years. The number of international migrants reached 266 million globally in 2017, driven both by economic and non-economic factors.

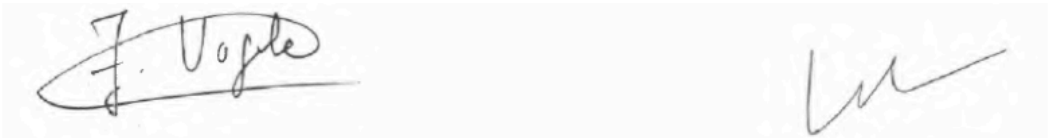
International and internal migration is predominantly male which raises questions on what happens to the women who stay behind. Rural women have always worked, but the additional roles they assume increases their paid and unpaid work and caring roles. In this context, understanding the impact of migration on labor market outcomes for women, empowerment of women, and food security will be important to guide domestic policy. Data from two comparable surveys for Nepal and Senegal collected between August and November 2017, were used to study these three effects.

The analysis shows that:

1. Labor market outcomes: Male outmigration is associated with significant changes in women's roles in agriculture, where for example in the case of Nepal, women move from contributing family workers to self-employed workers on the farm. The employment outcomes become stronger if accompanied by remittances.
2. Empowerment: Male outmigration is linked to empowerment in some domains and disempowerment in others. In Nepal, receipt of remittances is positively associated with increased female decision-making on the farm, greater group membership, and their holding a financial account. However, in the absence of remittances, spouses of international migrants are worse off in several domains of empowerment, including decision making on productive activities and agricultural income, and access to information.
3. Food security: Migration of household members who do not send remittances is likely to increase household food insecurity. The evidence is stronger and significant in the case of Senegal, where both international and internal migration are positively associated with food insecurity.

Recommendations that emerge from this study include reducing remittances costs, supporting women's engagement in higher-earning activities, and providing tailored extension services to female farmers.

Our hope is that this initial study on this topic will pave the way for further work and policy dialogue so that the women who stay in rural areas become positive agents of change who can lead their families and larger communities toward great development gains.



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# EXECUTIVE SUMMARY

**Migration is important in the development agenda**[1] **and is closely connected with agriculture in many countries.** Limited available evidence suggests that across the globe the migration originating from rural areas is predominantly male (Mueller et al. 2015), which could potentially lead to significant socioeconomic changes in rural areas, including changes in traditional gender norms. Yet limited rigorous evidence exists on the direct impact of male outmigration on women's work within and outside of agriculture, with even less evidence on its consequences on intrahousehold decision-making and women's empowerment. This is due to the fact that most existing survey data include information on either migration or women's empowerment but rarely on both aspects together.

**Migration affects women's work and empowerment mainly through the loss of migrants' labor and through the flow of remittances.** In response to the absent migrant labor, women may be required to increase their labor allocation on the family farm to keep agricultural production at the same level. (Alternatively, migrant households may change or reduce agricultural production.) Remittances have a separate effect on women's labor supply: they may raise women's reservation wages, resulting in reduced time in remunerated employment; or they may relax growth constraints for family farming, making family farming more attractive than other paid or unpaid activities. These hypotheses have been tested in various studies, however, there has been little attention to the types of paid and unpaid work performed by women.

**The fact that migration may alter intrahousehold decision-making processes has been understudied.** In the absence of their migrant husbands, women may increase their roles in decision-making around a range of household and farm activities, partly because remote monitoring of rural households and agriculture activities can only be done imperfectly. At the same time, the migration of spouses may lead to higher work burden and stress, which may disempower women. These consequences of migration have only been explored in small-scale, mostly qualitative, studies. To the authors' knowledge, the only study that provides a detailed account, including quantitative analyses, establishing the linkages between migration and women's empowerment in agriculture is the work done by Stanley (2015) for Guatemala. Stanley (2015) points out that despite migration, women who stay behind continue to farm even though farming is traditionally seen as men's work in Guatemala. Women have to overcome various constraints, including the challenge of hiring and managing male labor, but they do see an improvement in their decision-making power.

## OBJECTIVES OF THIS REPORT

**The objective of this study is to examine the linkages between migration and women's work and empowerment in agriculture in Nepal and Senegal.** In particular, this analysis seeks to understand: (i) how outmigration influences women's work in agriculture; (ii) the consequences of male-dominated migration on gender roles and women's empowerment; and (iii) whether and how outmigration impacts household food security.

The study tested several hypotheses:

1. **Employment:** whether women in households with a migrant reduce participation in income-generating activities, controlling for the individual characteristics of the women, household characteristics, and regional dummies.

[1] An initial identification carried out by the United Nations shows all Sustainable Development Goals (SDGs) and targets are directly relevant to migrants and migration: http://www.un.org/en/development/desa/population/migration/events/coordination/14/documents/backgrounddocs/GMPA_14CM.pdf

2. **Types of Employment:** whether the migration of a (male) family member is linked to changes in the types of work women do—for example, whether women increase employment in nonfarm activities and reduce participation in farm activities.
3. **Empowerment:** whether women in migrant households are significantly more likely than women in nonmigrant households to experience improvements in empowerment, as measured by several indicators based on data collected through the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI).
4. **Remittances:** whether the effects differ if the migrant households receive remittances or not.
5. **Food Insecurity:** whether migration is associated with changes in the food insecurity status of the household, where food insecurity is measured with the Food Insecurity Experience Scale (FIES), and whether the link between migration and food insecurity is mediated by the receipt of remittances.

# DATA AND RESEARCH METHODS

**Using data from two comparable surveys for Nepal and Senegal collected between August and November 2017, this study assesses the effects of male outmigration from rural, primarily agricultural areas on women's work and empowerment in agriculture and in the household.** These innovative surveys were designed to capture detailed individual-level information on both nonmigrant members of rural households and all current and return emigrants. They also included comprehensive modules on crop production, livestock rearing, social protection, and employment outcomes of all household members. In addition to this household questionnaire, which was administered to the most knowledgeable person in the household, one individual from each household (either the spouse of the migrant or the man or woman from the primary couple) was separately interviewed about his or her own empowerment status using the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI) questionnaire (Malapit et al. 2015; Alkire et al. 2013). The surveys also collected information on the food security status of the households using the Food Insecurity Experience Scale (FIES) developed by FAO's Voices of the Hungry Project (Ballard, Kepple, and Cafiero 2013).

# EMPIRICAL FINDINGS

## WOMEN'S EMPLOYMENT

**The study finds that in Nepal male outmigration from rural, primarily agricultural areas is not linked to a decrease in women's employment, but it is associated with significant changes in women's roles in agriculture.** The study finds no evidence that living in a migrant-sending household causes women to reduce overall participation in income-generating activities. In Nepal, male outmigration from rural, primarily agricultural areas is strongly and significantly linked to changes in women's roles in agriculture—women shift from being contributing family members to being self-employed on the farm. These changes are stronger when migration is accompanied by remittances. Contrary to some previous studies, the report does not find evidence that women in households with a family member who is currently abroad reduce their engagement in off-farm wage employment and off-farm self-employment. On the other hand, in Senegal male-dominated outmigration is not associated with changes in women's roles in agriculture. This is because most rural women in Senegal live in large extended families in which other members may take on the roles and responsibilities of the migrant spouse (Marzo and Atuesta 2018).

## WOMEN'S EMPOWERMENT

**The study reveals that male-dominated outmigration is not always associated with women's empowerment.** Based on evidence from the A-WEAI, male outmigration is linked to empowerment in some domains and disempowerment in others. These results differ substantially by country. In Nepal, direct interviews with spouses of migrants reveal that the receipt of remittances is positively associated with increased decision-making on the farm, group membership, and holding a financial account. In Senegal, with the exception of decisions regarding credit, there is no evidence that male outmigration leads to women's empowerment. Moreover, in the absence of remittances, spouses of international migrants are worse off in several domains of empowerment, including decision-making on productive activities and agricultural income, and access to information.

### HOUSEHOLD FOOD SECURITY

**The consequences of migration on household food security are country-specific and mediated by the receipt of remittances**. The study finds that migration of household members that is not followed by remittance transfers is likely to increase household food insecurity. The evidence is stronger and significant in the case of Senegal, where both international and internal migration are positively associated with food insecurity. In Nepal, no significant correlation exists between migration and food security, but the lack of significant results may be due to the rather small survey sample size.

## GENERALIZED POLICY RECOMMENDATION

A more generalized and priority policy action emerging out of the analysis suggests the importance of recognizing the changing roles of women in agriculture, and providing targeted interventions to support their roles. General policy actions are to:

i. **Encourage greater availability of gender-relevant, sex-disaggregated data to monitor the effects of male outmigration on women's work and empowerment.** The current practice of collecting and disseminating sex-disaggregated data is done in a scattered manner across different agencies. To identify tailored knowledge gaps and policies targeted specifically to women left behind after the outmigration of a male spouse, it is extremely important to improve the availability of evidence-based, targeted surveys and to centralize the survey packages for future research and policy dialogues. It is also important to build national capacity to collect and analyze sex-desegregated data covering migrant-sending and nonmigrant households in agriculture. This is a systematic pathway of providing policy makers with sufficient baseline information to institute favorable changes to existing policies, which currently affect women and men differently in migrant households. This will also form the basis of institutionalizing such rigorous evidence to strengthen existing and future World Bank operations or multi-stakeholder programs that are targeted at women engaged in on-farm activities, where monitoring and evaluation (M&E) systems are often less comprehensive in terms of capturing progress on women's empowerment in different domains.
ii. **Facilitate the flow of international and internal remittances.** Evidence from the case studies indicates that remittances can influence significant changes in women's roles in agriculture and are positively associated with women's empowerment in several domains (such as decisions on farm, group membership, and holding a financial account for Nepal, and access to decisions about credit for Senegal). One way to facilitate remittance transfers would be to reduce the cost of sending remittances. Sustainable Development Goal (SDG) 10 aims to reduce the cost of remittances to three percent by 2030 and eliminate remittance corridors with costs higher than five percent. This will be an avenue to formalize remittances channels. One key constraint in Nepal, especially in the mountain and hill areas, is the lack of access to financial services.
iii. **Enact policies to support women's engagement in higher-earning activities.** A smaller share of women in Senegal than in Nepal report being economically active. There is a need to better understand women's low participation in the labor market in Senegal, but besides that, women who are economically active are largely concentrated in the production end of agricultural value chains. Very few women in either Nepal or Senegal engage in processing or trade of agricultural products.

## COUNTRY-SPECIFIC POLICY RECOMMENDATIONS

A set of policy recommendations was derived for each country. Each set addresses the country-specific challenges identified in this study.

### NEPAL

The following approaches appear promising in addressing the problems identified by the study:

#### Adapting Agricultural Extension

i. **Provide tailored extension services to female farmers**. The study finds that as a result of male outmigration in Nepal, the on-farm responsibilities and decision-making of the women left behind increase. In Nepal, all migration is linked to a change in women's roles in agriculture from being a contributing family worker to being self-employed in agriculture, and the effect is larger for women who live in households with international migrants who send remittances. This clearly indicates the need for improving female farmers' access to extension services to increase productivity on their farms and ensure the sustainability of agricultural production.
ii. **Strengthen women's access to higher-earning activities in agricultural value chains.** The study shows very low

engagement in higher value chain activities such as processing and trading, which can be linked to women's low skills, lack of access to market information, and transportation and time constraints. Extension services for women should go beyond the traditional focus on production and should provide technical assistance, training, and access to resources that can scale up women's involvement beyond subsistence agriculture and in the higher-value nodes of the supply chains.

iii. **Ensure that a gender-sensitive approach is adopted for the provision of agricultural extension services, including through hiring more female agricultural extension agents.** Studies have shown positive experiences with hiring female extension agents to better support female farmers (Acharya and Bennet 1983; World Bank 2010) and the importance of local groups for mobilizing public awareness to mainstream gender balance in agriculture extension. A concerted involvement of decentralized government bodies, nongovernmental organizations (NGOs), private agencies, and individuals can create an enabling environment.

### Addressing Labor Shortages

i. **Promote small-scale rural mechanization to reduce women's time burden and improve diversification of income-generating activities in Nepal** (Biggs and Justice 2015). As suggested by the results, women in migrant households in Nepal are more overworked and time-constrained compared to both men and women in nonmigrant households. This may be due to the scarcity of agricultural labor and low access to labor-saving technologies for Nepalese women.

### Improving Enabling Environment for Productive Use of Remittances by Female Farmers

i. **Reduce the cost of remittances to create an enabling environment for women to mobilize remittances for productive purposes, including more investments in agriculture or small businesses and savings through development of money management skills** (Dhakal and Maharjan 2018). In certain areas of Nepal the cost of remittances is quite high. Currently, at least some of the remittances are used for the purchase of food, but a non-negligible amount is also invested in agriculture.

## SENEGAL

The study finds no significant association between male outmigration and women's employment and empowerment in Senegal. That said, the important role of remittances in mediating the effects of migration on women's empowerment is evident in Senegal as well.

The following approaches appear promising in addressing the problems identified by the study:

### Reducing the Cost of Remittances

i. **Reduce the cost of remittances to positively affect disposable household income and improve incentives to remit more** (World Bank 2005). The cost of sending remittances through formal channels is very high in Senegal, a situation accompanied by a high gender disparity in the receipt of remittances: male-headed households receive higher remittances than female-headed ones (Orozco et al. 2010). Positive remittances will also help mitigate the negative effects from the lost labor of migrants and therefore will help mitigate the negative effects on women's empowerment.

ii. **Conduct more research to understand the factors behind the low economic activity status of women in Senegal.** A very small share of women in Senegal report having engaged in any work activity in the last 12 months. Although women in migrant households have even lower employment rates than women in nonmigrant households, the analysis suggests that the lower employment probability is not attributed to migration but to other factors, which may also be correlated with migration, including household demographics. The presence of larger extended families may facilitate migration but may also mediate the potential transformative effects of migration on spouses who stay behind. Therefore, in an environment with low employment rates for both men and women and large extended families, the migration of male family members is less likely to lead to significant changes in women's employment and empowerment, as other family members can step in to do the work of the migrant man or to make decisions in his absence.

# IMPLICATIONS FOR FUTURE RESEARCH

**The outmigration linkages for rural women left behind to participate in agriculture can vary widely across countries, depending on the socioeconomic environment, cultural norms, migration type, and the influence of cross-cutting areas such as climate change and fragility.** For example, migration can be caused by economic as well as crisis factors. This

study mainly highlights the association between male outmigration due to economic reasons and women's employment and empowerment in rural areas. The area of crisis-led migration (e.g., migration caused by political upheaval, disaster, security, or other push factors) requires expanding country coverage. Similarly, issues of migration status and spell duration play a critical role in affecting the outcomes of employment and empowerment. Also, the characteristics of international and internal migration differ in many ways, which deserve additional field research and analysis.

**The issue of women's empowerment requires exploration beyond the A-WEAI, which remains heavily focused on agriculture.** Future research needs to expand on additional dimensions that are important to understand the situation of women as well as migration dynamics. Similarly, the overarching and complex notion of related social norms and customary and legal frameworks may dictate employment as well as empowerment outcomes in developing countries (e.g., forthcoming research by Marzo and Atuesta (2018) outlines some implications for labor market outcomes and productivity).

**It is essential to understand all of the dimensions discussed above to identify the observed and unobserved factors that impact employment and empowerment outcomes.** This is beyond the scope of this stand-alone quantitative research and must be complemented with qualitative research (such as focus group discussions with survey respondents) to better understand the results of data analysis and the narrative of their behaviors. That can be the key ingredients to the provision of robust policy recommendations. Future research, including research using the data collected for this study, will have to address these dimensions.

**The linkages between migration, agriculture, women's empowerment and food security are very complex and deserve more attention.** Male outmigration is associated with changes in women's roles in agriculture (in some contexts) and it is also likely associated with changes in the agricultural sector overall. Future research should continue in-depth exploration of the effects of male outmigration on agricultural production, productivity, and food security and how the effects are mediated by the changes in women's roles in agriculture.

# CHAPTER ONE
# INTRODUCTION

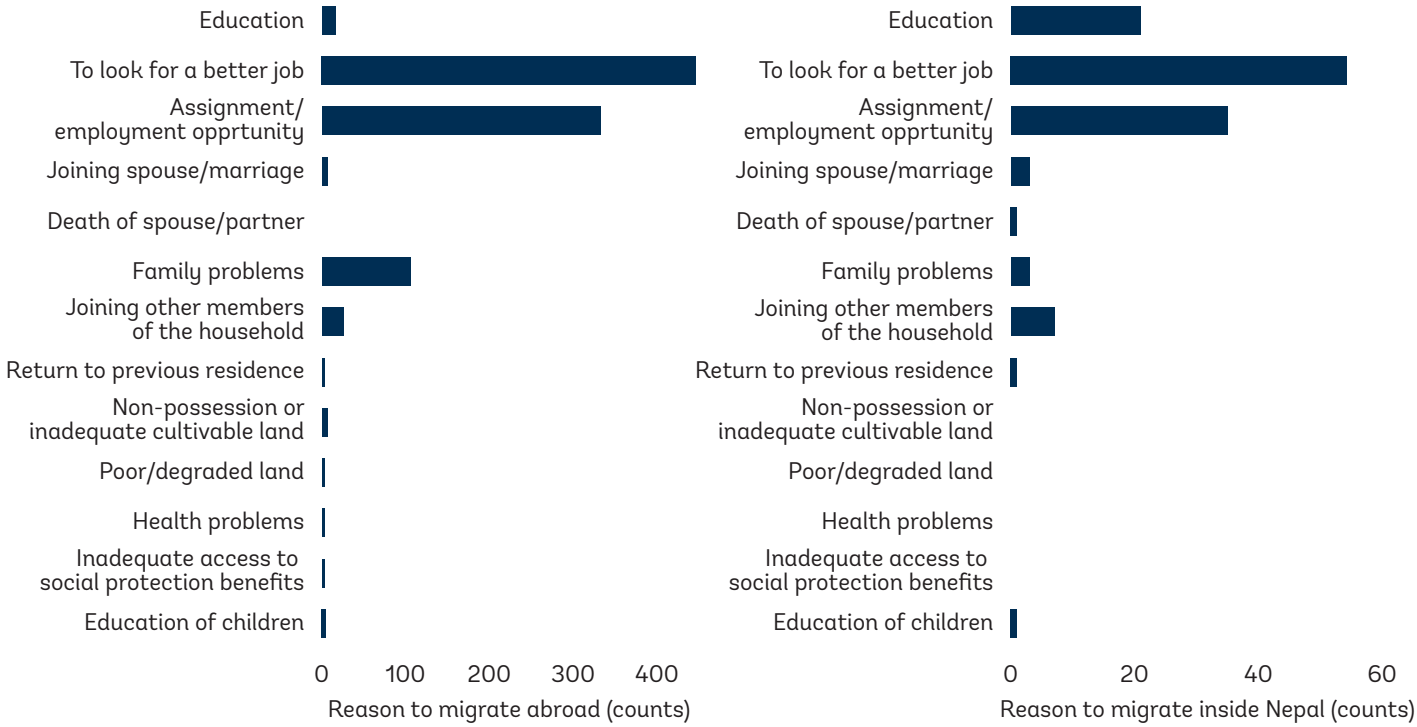
**Attention to the implications of rural outmigration is growing, but little evidence exists on its association with women in agriculture.** In 2017, there were 266 million[2] international migrants, up from 220 million in 2010 and 173 million in 2000 (UN DESA 2017). Internal or domestic migration, generally from rural to urban and peri-urban areas, is an even larger phenomenon—in 2005, there were 763 million internal migrants worldwide (UN DESA 2013). Most migration flows originate from rural areas, which raises concerns about their consequences on rural communities. The limited available evidence suggests that across the globe, migration originating from rural areas is predominantly male (Mueller et al. 2015).[3] Hence, this type of migration could lead to significant socioeconomic changes in rural areas, including changes in traditional gender norms. While in a great number of developing countries women's share of the agricultural labor force (relative to that of men) increased significantly over the past few decades, including in response to male outmigration (Slavchevska, Kaaria, and Taivalmaa 2016), there is limited rigorous evidence on the direct impacts of male outmigration on women's work in and outside of agriculture, and even less evidence on its consequences for intrahousehold decision-making and women's empowerment. These gaps in the literature are largely attributed to limited data, as most existing surveys focus on either migration or women's empowerment but rarely on both issues (with the exception of Stanley's 2015 small-scale study of migration and women's agency in Guatemala).

**Migration affects women's work and empowerment mainly through the loss of migrants' labor and through the flow of remittances.** In response to the absent migrant labor, women may increase their labor allocation to the family farm to keep agricultural production at the same level. (Alternatively, migrant

[2] KNOMAD database https://www.knomad.org/data/migration/immigration

[3] The sex composition of migration varies significantly by region, and even by country within the same region. The composition is also expected to change over time, with initially male-dominated patterns followed by more gender-balanced emigration trends later on. However, data and statistics on internal migration, particularly on rural outmigration, are extremely scant.

**FIGURE 1.** REASONS FOR MIGRATING ABROAD, NEPAL (LEFT: INTERNATIONAL, RIGHT: INTERNAL)




households may change or reduce agricultural production.) Remittances have a separate effect on women's labor supply—they may raise women's reservation wages, resulting in reduced time in remunerated employment; or they may relax growth constraints for family farming, making family farming more attractive than other paid or unpaid activities. These hypotheses have been tested in various studies, though with little attention to the types of paid and unpaid work performed by women.[4] Much less attention has been paid to the fact that migration also alters intrahousehold decision-making processes.

In the absence of their migrant husbands, women may increase their roles in decision-making around a range of household and farm activities, partly because remote monitoring of rural household and agriculture activities can only be done imperfectly.

**The fact that migration may alter women's intrahousehold decision-making processes has received limited coverage and attention.** The only study that provides a detailed account of the linkages between migration and women's empowerment in agriculture is the work done by Stanley (2015) for Guatemala. The 2015 study pointed out that despite migration, women who stay behind continue to farm even though farming is traditionally seen as men's work in Guatemala. Women must overcome various constraints, including the challenge of hiring and managing male labor, but they do see an improvement in their decision-making power.

**It is also important to distinguish between the various aspects of empowerment.** Autonomy in decision-making is only one aspect of empowerment. In

[4] See Funkhouser (1992) for Nicaragua; Rodriguez and Tiongson (2001) for the Philippines; Amuedo-Dorantes and Pozo (2006) for Mexico; Binzel and Assaad (2011) for Egypt; Mu and van de Walle (2011) for China; Mendola and Carletto (2012) for Albania; and Lokshin and Glinskaya (2009) and Phadera (2016) for Nepal. Using data from the 2010-11 Nepal Living Standard Survey, Phadera (2016) examined the effects of migration on the participation and hours spent in self-employment and wage employment of both men and women who stay behind. The study found that migration led to women relocating time from wage employment to self-employment, where self-employment largely consisted of subsistence farming. Similar studies for Senegal could not be identified.

their study of migration and women's autonomy in Mozambique, based on data for 2000-2006, Yabiku, Agadjanian, and Sevoyan (2010) found that both successful and unsuccessful cases of male outmigration[5] are linked to significantly higher autonomy for wives who stay behind, and the gains in autonomy persist after husbands return. At the same time, although unsuccessful migration increases women's autonomy, it may have disempowering effects on women. Unsuccessful migration itself can be a strain on women's time, as they have to assume the work of their migrant husbands and deal with the financial difficulties that accompany unsuccessful migration experiences.

**The complex issue of rural outmigration also has implications for household food security.** First, family members who stay behind may struggle to compensate for the lost income from the migrant labor. Second, remittances may have a separate effect on household food security. Empirical studies generally find a positive relationship between migration and food security, largely attributed to remittances (Zezza et al. 2011). Third, several studies raise the issue of changing agricultural practices, which may negatively affect food security. Small-scale studies from Nepal suggest that at least in some regions women who stay behind and take over the farm management adopt less labor-intensive crops, shorten cropping cycles, reduce the diversity of crops they grow, and even abandon agricultural land (Paudel, Tamang, and Shrestha 2014; Tamang, Paudel, and Shrestha 2014). A more standardized approach and a comparable indicator are required, which is applicable in a cross-country analysis.

**To address these existing knowledge gaps in a framework that combines gender, migration, and food security, this study exploits a rich, comprehensive survey that collected detailed information on all types of outmigration from rural areas in Nepal and Senegal.** Detailed information was also collected on women's and men's work in sending communities and women's empowerment in agriculture using the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI). In addition, the survey inquired about households' food insecurity using the Food and Agriculture Organization's (FAO) recently developed Food Insecurity Experience Scale (FIES).

**The objective of this study is to examine the linkages between migration and women's work and empowerment in agriculture in Nepal and Senegal.** In particular, this analysis seeks to understand: (i) how outmigration influences women's work in agriculture; (ii) the consequences of male-dominated migration on gender roles and women's empowerment; and (iii) whether and how outmigration impacts household food security.

The study tested several hypotheses:

i. **Employment:** whether women in households with a migrant reduce participation in income-generating activities, controlling for the individual characteristics of the women, household characteristics, and regional indicators.
ii. **Types of Employment:** whether the migration of a (male) family member is linked to changes in the types of work women do—for example, whether women increase employment in nonfarm activities and reduce participation in farm activities.
iii. **Empowerment:** whether women in migrant households are significantly more likely than women in nonmigrant households to experience improvements in empowerment, as measured by several indicators based on data collected through the A-WEAI.
iv. **Remittances:** whether the effects differ if migrant households receive remittances or not.
v. **Food Insecurity:** whether migration is associated with changes in the food insecurity status of the household, where food insecurity is measured with the Food Insecurity Experience Scale (FIES), and whether the link between migration and food insecurity is mediated by the receipt of remittances.

[5] In this study, migration of a family member that is not accompanied by the receipt of remittances is considered unsuccessful. In turn, migrants who send remittances back home are deemed successful.

## CHAPTER TWO

# COUNTRY CONTEXT: NEPAL AND SENEGAL

**Primary data were collected in Nepal and Senegal to explore the linkages between migration and (i) changes in women's work and empowerment in agriculture, and (ii) household food security.** These two countries were selected for several reasons. First, in both countries outmigration from rural areas is high and dominated by men, leading to potentially significant changes in intrahousehold labor allocations and decision-making. The consequences on the women who stay behind will be affected by the specific drivers of migration and whether the migration is successful (i.e., whether there are remittance transfers). However, as mentioned earlier, the limited data preclude rigorous exploration of the issue. Second, a review of the literature provided evidence of women's high and growing participation in agriculture in these countries, especially relative to that of men (Slavchevska, Kaaria, and Taivalmaa 2016). Yet robust evidence linking the change to migration is limited. Third, the available statistics only capture women's growing visibility in the agriculture sector but do not provide enough details about the types of activities women engage in, whether changes are linked to women's higher economic empowerment, and whether any adverse effects on household food security are incurred. Finally, in both countries, rural areas continue to be heavily dependent on agriculture, which directs attention to the consequences of migration and the potential intrahousehold changes in labor and decision-making on agricultural production and food security.

## NEPAL'S AGRICULTURE SECTOR AND MIGRATION BACKGROUND

**Agriculture is the main sector of employment for most Nepali men and women, but it has become much more important for women.** Agriculture is the backbone of Nepal's economy. Agricultural work is the primary activity for almost 66 percent of working-age women (over 15 years old) compared to 53 percent of working-age men. The inability of subsistence agriculture to provide for basic household needs (Maharjan, Bauer, and Knerr 2012) has pushed many households in Nepal to diversify their income-generating activities into

off-farm employment, including engaging in international migration. According to World Bank (2015), at 29.2 percent Nepal has one of the highest shares of remittances in gross domestic product (GDP). Remittances from international migration have also been linked to huge gains in poverty reduction in the country. Almost one-fifth of the country's poverty reduction between 1995 and 2004 is attributable to migrant remittances (Lokshin, Bontch-Osmolovski, and Glinskaya 2010).

**Men dominate international migration.** Ninety-seven percent of Nepali migrants are men aged 15-44 (Lokshin and Glinskaya 2009) who leave women behind to take care of the household (Gartaula, Niehof, and Visser 2010). Male outmigration, scarce off-farm employment opportunities—especially for women—and biased gender norms are largely behind the growing role and visibility of women in agriculture in Nepal (Allendorf 2007; Gartaula, Niehof, and Visser 2010; Lokshin and Glinskaya 2009; Maharjan, Bauer, and Knerr 2012; Tamang, Paudel, and Shrestha 2014).

**Patterns of migration have evolved over the years.** Historically, the majority of internal migration (80 percent) was from the hills toward the Terai,[6] a trend reportedly started largely after the 1950s. The Terai has played an important role as a receiving region, but this role is now being challenged by the ever-increasing outmigration from the Terai. Since the 1990s, outmigration from both the hills and the Terai has exhibited an increasing trend, and today the Terai is a major migrant-sending area. Unlike historical migration where whole families would relocate in search of better economic opportunities, as was the case for hills–Terai migration, the current migration is largely characterized by individual migration, whereby one or more family members migrate to urban centers or abroad for a few years and then return.

**The main drivers of migration are unemployment and low agricultural income, as subsistence agriculture is often unable to ensure households' financial security.** In the past, economic reasons generated significant internal migration, but today most Nepali migrants search for better economic opportunities in international destinations, rather than in urban centers at home. India remains an important destination for migrants (35 percent of international migrants from Nepal go to India) but has been surpassed by Malaysia and the Gulf countries, which receive more than 60 percent of international Nepali migrants. In the study areas, there are no clear patterns of current hills–Terai migration; internal migration today is primarily to Kathmandu. While the top motivations for internal migration are education, jobs, and employment, family reasons, such as marriage and joining family members, also play a role (Figure 1).

**Both international and internal migration costs in Nepal are principally financed through savings.** For around 56 percent of international migrants and 75 percent of internal migrants, savings are the most important source for paying migration costs. Loans from lenders are the second most important source of financing migration (for around 20 percent of both internal and international migrants). A few migrants also list contributions or loans from relatives as important financial sources.

## SENEGAL'S AGRICULTURE SECTOR AND MIGRATION BACKGROUND

**In Senegal as in Nepal, agriculture is more important for women than for men.** In 2017, according to the World Bank, 59 percent of women's employment is in agriculture compared to 49 percent of men's employment. As in Nepal, the agriculture sector in Senegal is a key employer for most of the population—even though agriculture constitutes only around 17 percent of the country's GDP. In some higher-value agriculture sectors such as horticulture, women dominate the labor share (Maertens and Swinnen 2009). Although women seem to be concentrated in low-skill, labor-intensive tasks, with the few managerial positions typically filled by men, some positive effects on women's empowerment arise from their higher involvement in paid wage employment (Maertens and Swinnen 2012).

[6] Lowland region in southern Nepal (Shrestha and Bhandari 2007; Gartaula and Niehof 2013).

**Migration in Senegal is an important livelihood diversification strategy.** Both men and women participate in migration but are often motivated by different reasons. Chort, De Vreyer, and Zuber (2017) analyzed gendered patterns of internal migration in Senegal using panel data collected in 2006–2007 and 2010–2012. They concluded that women often move shorter distances and tend to migrate from one rural area to another. Moreover, women's migration is often driven by marriage or family reasons, while men are significantly more likely to migrate for economic incentives.

**The key destinations of Senegalese economic migrants are France, certain Francophone African countries, and Dakar.** Within Europe, France is the most prevalent destination for both current and past international migrants. Gabon, Mauritania, The Gambia, and the Democratic Republic of the Congo are the main destinations of Senegalese international migrants to other African countries. For internal migrants, Dakar is the most prevalent destination (for about 50 percent of both current and past internal migrants).

## CHAPTER THREE
# SURVEY METHODOLOGY

This study draws on two unique household surveys from Nepal and Senegal. The two survey questionnaires are essentially the same, but some modules are adapted to the local context (e.g., the lists of livestock and crops in the two countries are different).

## SURVEY LOCATIONS

The survey sample from Nepal consists of 1,002 households from five districts (Achham, Rolpa, Nawalparasi, Makwanpur, and Jhapa). These districts were purposefully selected for the study based on two main criteria: (i) high emigration rates, and (ii) wide geographic coverage. Because of limited resources, a nationwide survey could not be carried out, but the selected districts are distributed across two ecological zones (the hills and the Terai; the mountains were excluded because of extremely low population densities) and the five former[7] developmental regions (Figure 2). The survey sample was drawn from rural areas of the selected five districts and is, therefore, representative of their rural areas.

The survey sample from Senegal includes 999 households[8] from two regions (Matam and Kaolack) (Figure 3). As in Nepal, the two regions were purposefully selected because of their high rates of internal and international migration. The sample is representative of rural areas in the two regions where the survey was implemented. As in Nepal, only rural areas were surveyed.

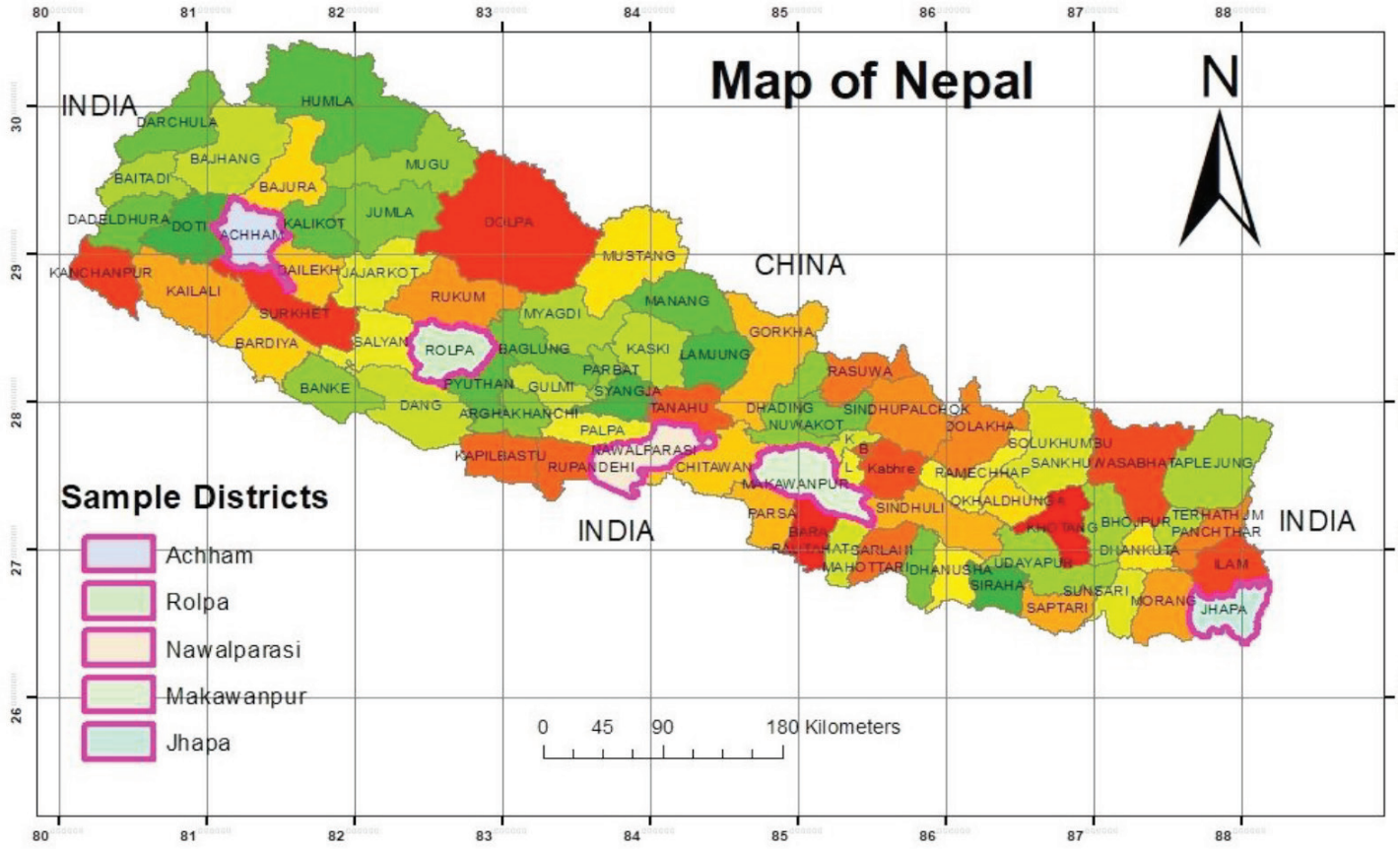
## SURVEY INSTRUMENTS

**It is important to highlight that each overall survey consisted of three separate instruments: a household questionnaire, the Abbreviated Women's Empowerment in Agriculture (A-WEAI) questionnaire, and the Food Insecurity Experience Scale (FIES).** The household questionnaire was completed by the most

[7] This is the administrative division before the new constitution in 2015 in Nepal.

[8] The operational definition of the household includes all wives and all children of both the household head and of the household head's spouse(s).

**FIGURE 2.** MAP OF NEPAL WITH THE SAMPLED DISTRICTS




*Source:* "Technical Report on Survey of Migration and Women's Empowerment in Agriculture" prepared by Nepa School of Social Sciences and Humanities, September 2, 2017.

knowledgeable person in the household. The A-WEAI questionnaire was completed by the migrant's spouse or a member of the primary couple, and only collected information on the respondent. Thus, the A-WEAI was used to collect self-reported information regarding various domains of empowerment (see below) from a subset of the whole individual sample. These data are therefore not representative of all adult rural women, unlike data from the household questionnaire, which collected information about employment and other characteristics for all adult rural women.

**The household questionnaire was designed to capture detailed, sex-disaggregated, and gender-relevant information on migration as well as on agriculture, employment, and other characteristics of rural households.** Its migration modules built and improved on existing surveys and closely followed recent guidelines and recommendations for collecting migration data (de Brauw and Carletto 2012). As the focus of the study is migration out of rural areas, the household questionnaire collected information on the determinants of current and past international and internal outmigration, employment characteristics of migrants before and after the migration episode, family migration history, cyclical and seasonal migration episodes, remittances, and migration financing. Throughout the household questionnaire, but particularly throughout the migration module, individual-level, gender-relevant questions related to migration were included, such as: who made the decision to migrate, who in the household receives remittances, and how much control do migrants and recipients have over the use of remittances.

**The modules from the abbreviated version of the Women's Empowerment in Agriculture Index (A-WEAI) were also included in the survey (Table A1 in Annex A).** The

**FIGURE 3.** MAP OF SENEGAL WITH THE SAMPLED REGIONS


*Source:* World Bank.

A-WEAI focuses on the same five domains of empowerment as the WEAI—input into decisions about agricultural production, access to and decision-making about resources (including ownership of assets and access to and decisions about credit), control over use of income, group membership, and time use (Alkire et al. 2013), but excludes some of the modules that were difficult to implement (Malapit et al. 2015). The A-WEAI was used to keep the multitopic questionnaire at a reasonable length to minimize interview fatigue as well as costs. In migrant households, the A-WEAI modules were administered to the spouse of the migrant.[9]

When the migrant did not have a spouse, or if the spouse was unavailable, the A-WEAI instrument was administered to another woman in the household who was randomly selected. In nonmigrant households, the A-WEAI instrument was administered either to the man or woman of the primary couple.[10]

[9] The A-WEAI modules were administered to one individual per household for several reasons. First, it is impossible to interview the man or woman of the primary couple in households where one of the partners is a migrant. Second, it is costly and time-consuming to interview two people per household for the A-WEAI. Third, the components of the index rather than the index itself are of primary interest for the study. Male outmigration is unlikely to influence all aspects of empowerment in the same direction—decision-making and control over income may increase for women who stay behind, but higher workload and time poverty may move the index in the opposite direction. Therefore, to study the linkages between migration and women's and (men's) empowerment, it is essential to focus on the components of the index rather than on the composite index.

[10] In a nuclear household, there is only one couple. In multigenerational households, the primary couple is largely defined on the basis of age as the couple in prime working age. In households where there were multiple primary couples, the A-WEAI was administered to any of the prime working-age couples. The objective was to avoid administering the A-WEAI to elderly couples, which might have occurred if the focus was the household head. The underlying hypothesis is that migration plays a more transformative role in changing gender roles and perceptions among the younger generation rather than for the elderly.

**Another innovative feature of the overall survey was its module on household food security status.** This module solicited information for the Food Insecurity Experience Scale (FIES) developed by FAO's Voices of the Hungry Project (Ballard, Kepple, and Cafiero 2013). The FIES is an experience-based metric of the prevalence of food insecurity that relies on direct yes/no responses to eight questions regarding access to food. FAO recently developed the FIES to estimate two indicators – the prevalence of moderate or severe food insecurity (FImod+sev) and the prevalence of severe food insecurity (FIsev). The FIES is comparable across different countries and cultures. Moreover, FImod+sev was selected, together with the prevalence of undernourishment, as an indicator to monitor Sustainable Development Goal target 2.1: *By 2030, end hunger and ensure access by all people, in particular, the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.*

**In both Nepal and Senegal, the FIES module was administered at the household level rather than the individual level**. The individual-level version inquired directly about interviewed individuals' perception of food insecurity. As these data were collected at the household level, this study can only examine the relationship between migration and food insecurity of the whole household, not evidence of any differences in food insecurity at the individual level (such as between women and men).

## SAMPLES

While most of the literature focuses on migrant households in destination areas, the current analysis studies the consequences of outmigration in sending communities. Therefore, references to migrant households always imply households in sending communities.

**In Nepal, 1,002 rural households were sampled for the survey.** Individual-level information was collected for all household members, including current migrants who were absent.[11] Thus, individual-level information for 5,227 (migrant and nonmigrant) family members was collected. Since the analysis focuses primarily on work and empowerment outcomes, the sample was restricted to those 16 years and older, which left 3,544 individuals. Furthermore, individuals who were not in the household at the time of the survey (international and internal migrants) and those who were residing in the household were distinguished.[12] At the time of the survey, 530 adults lived abroad (international migrants) and another 92 adults resided in Nepal but not in the locality of their household (internal migrants). In the final sample, 12 individuals were excluded because of missing information on some of the variables included in the final model. The remaining 2,910 adult individuals from the sample of working-age adults who resided in rural areas at the time of the survey were the main subjects of this study. These individuals belonged to one of three different types of households: (i) households with an international migrant (1,181 individuals from 443 households); (ii) households with an internal migrant but no international migrants (133 individuals from 55 households); and (iii) households with neither internal nor international migrants (1,596 individuals from 504 households).

**In Senegal, individual-level information was collected from 999 rural households for 10,380 migrant and nonmigrant family members.** There were 6,350 individuals 16 years and older. Excluding migrant members left a sample of 5,125 adult individuals (from 997 households[13]). Some 154 individuals (and 9 households) were excluded from the analysis because of

[11] Because of the focus of the study on migration, the definition of the household was extended to include all people who belong to this household and do not have another family, even if they may be away for long periods of time to work, receive education, or visit relatives (current migrants). Thus, the household membership selection criteria stipulated the inclusion of all children of the man and woman of the primary couple (working-age) provided that the member (i) did not have another family; and (ii) shared food from a common source with other household members when present.

[12] Individuals over 16 years old who migrated in the 12-month period prior to the survey and were back home at the time of the survey were included in the migrant group, regardless of their intention to stay or go back to the migration destination. In both Senegal and Nepal, these individuals constituted a very small number. Thus, it is unlikely that their classification as migrant or past/return migrant influenced the overall results.

[13] In two households, the current location of some members was not provided, making it impossible to determine their migration status. These households were excluded from the sample.

missing information for the variables of interest. The final sample included 4,971 individuals from 988 households, distributed as follows: 1,428 individuals in 273 households with at least one international migrant; 1,694 individuals in 354 households with an internal migrant but no international migrant; and 1,849 individuals in 368 households with no current migrants.

# CHAPTER FOUR
# CHARACTERISTICS OF MIGRATION IN THE SURVEYED AREAS

## CHARACTERISTICS OF NEPALI MIGRANTS

**As expected, rural outmigration in Nepal in the survey sample is heavily dominated by men**—more than 93 percent of reported migrants are men (Table 1).[14] Working-age migrants are relatively younger than the overall working-age population in Nepal[15]—31 years on average compared to 38 years for nonmigrants. Migrants are also better educated: only 9 percent of international migrants have no education compared to 33 percent of rural people who stay behind; 24 percent have a primary education compared to 18 percent of nonmigrants; and 67 percent have a secondary education compared to 48 percent of the nonmigrant population. Like nonmigrants, almost three-quarters of migrants are married.

**Around 43 percent of surveyed households in Nepal receive remittances; the median amount received is more than double the per capita GDP.** In Nepal, 87 percent of households with international migrants receive remittances (only 13 percent do not receive remittances); 65 percent of households with only internal migrants receive remittances; and only 6 percent of households with no migrants received remittances, perhaps from relatives or friends abroad. Most often remittances are sent every three months and 86 percent of the households who receive remittances get them twice per year or more frequently. The median amount of remittances sent by all migrants in the 12-month

[14] About three-quarters of households have a member who lived in the household at the time of the survey, but who was a migrant or lived somewhere else a year earlier. Nearly 80 percent of these individuals are women, and the major reason for moving to the current location is family reasons, such as joining the husband's household. This type of migration is not included in this analysis, which focuses on economic migration.

[15] In Nepal, the sample of households with only internal migrants is very small (92 respondents out of 3,544). Therefore, most of the discussion that follows focuses on the differences between international migrant households and all other households (i.e., nonmigrant households and households with internal migrants are combined).

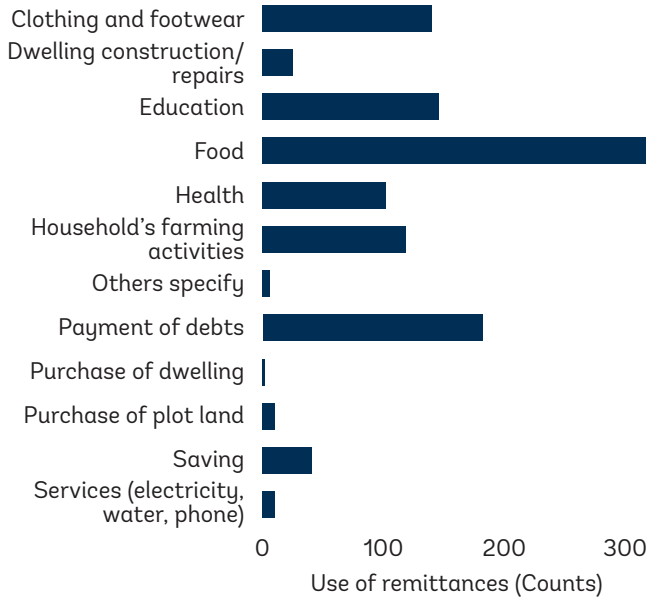
**TABLE 1.** CHARACTERISTICS OF INTERNATIONAL MIGRANTS VERSUS NONMIGRANTS, WORKING-AGE INDIVIDUALS (AGE 16+), NEPAL

| | (1) INTERNATIONAL MIGRANTS | | (2) NONMIGRANTS | | |
|---|---|---|---|---|---|
| | MEAN | STD. ERR. | MEAN | STD. ERR. | P-VALUE |
| | | Individual characteristics | | | |
| Age (years) | 31.19 | 0.47 | 37.93 | 0.41 | *** |
| Female† | 0.07 | 0.01 | 0.57 | 0.01 | *** |
| Never married† | 0.24 | 0.02 | 0.20 | 0.01 | ** |
| Married† | 0.75 | 0.02 | 0.73 | 0.01 | |
| Cohabiting† | 0.00 | | 0.00 | 0.00 | *** |
| Widowed/divorced† | 0.01 | 0.00 | 0.07 | 0.01 | *** |
| No education† | 0.09 | 0.01 | 0.33 | 0.01 | *** |
| Primary education† | 0.24 | 0.02 | 0.18 | 0.01 | ** |
| Secondary education† | 0.67 | 0.02 | 0.48 | 0.01 | *** |
| High caste | 0.41 | 0.03 | 0.43 | 0.01 | |
| Low caste | 0.21 | 0.02 | 0.12 | 0.01 | *** |
| Muslim | 0.04 | 0.01 | 0.02 | 0.00 | * |
| # observations | 530 | | 2910 | | |

*Note:* * the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level.

period prior to the survey was 160,000 Nepali rupees (approximately US$1,555). International migrants sent more—the median amount sent was 200,000 Nepali rupees (approximately US$1,944). This is a significant amount in a country where GDP per capita in 2016 was only US$729. Almost two-thirds of remittance senders indicate how the remittances should be used. Although other family members may also participate in the decision about the use of remittances, the decision-making process remains heavily dominated by men, since most migrants are men. In 61.4 percent of the households that receive remittances, the only decision-makers about the use of remittances are men; in 22.2 percent the only decision-makers are women; and in 16.4 percent of households, both men and women make decisions regarding the use of remittances.

**FIGURE 4.** USE OF REMITTANCES, NEPAL




*Note:* Respondents were allowed to choose as many categories as needed.

**Remittances are predominantly used to purchase food (Figure 4).** In addition, remittances are used for clothing, education fees, payment of debts, and health care costs. Around 30 percent of households use remittances for household farming activities, including for the purchase of land. This to some

extent validates the hypothesis that households use the capital obtained from international migration mainly to overcome liquidity constraints for subsistence production.

## CHARACTERISTICS OF SENEGALESE MIGRANTS

**Unlike Nepal, internal migration dominates international migration in the Senegalese sample.** About 13 percent of working-age individuals in the two study regions were internal migrants at the time of the survey or had migrated within Senegal in the 12-month period prior to it. The incidence of international migration was about one-half that of internal migration – about 6.5 percent of the working-age population resided abroad or had lived abroad in the 12-month period prior to the survey.

**Men dominate both internal and international migration.** Around 17 percent of internal migrants and nine percent of international migrants are women. International and internal migrants appear to have distinct characteristics. International migrants are slightly older than the nonmigrant working-age population by about three years, while internal migrants are significantly younger by around five years. Almost 80 percent of international migrants are married, mostly monogamously, compared to 73 percent of working-age nonmigrants. Internal migrants are least likely to be married—only about one-half report being married. About 17 percent of international migrants and 21 percent of nonmigrants are in polygamous marriages.

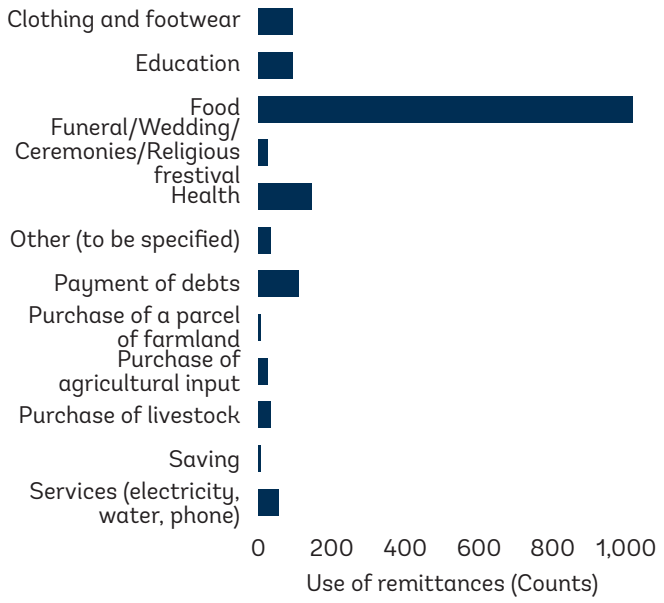
**Low education levels are characteristic of the whole working-age population in Senegal.** Compared to Nepal where one-third of nonmigrant adults have no education, in Senegal three-quarters of nonmigrants have no education (Table 2). A similar share of international migrants has no education. Internal migrants appear to be slightly better off in this respect—64 percent have no education, but the rest have at least some primary or even some secondary

**TABLE 2.** CHARACTERISTICS OF INTERNATIONAL AND INTERNAL MIGRANTS VERSUS NONMIGRANTS, WORKING-AGE INDIVIDUALS (AGE 16+), SENEGAL

| | (1) INTERNATIONAL MIGRANTS | | (2) INTERNAL MIGRANTS | | (3) NONMIGRANTS | | DIFF (1) VS (3) |
|---|---|---|---|---|---|---|---|
| | MEAN | STD. ERR. | MEAN | STD. ERR. | MEAN | STD. ERR. | P-VALUE |
| **Individual characteristics** | | | | | | | |
| **Age (years)** | 38.74 | 2.35 | 29.71 | 1.55 | 35.36 | 3.54 | * |
| **Female†** | 0.09 | 0.02 | 0.17 | 0.02 | 0.53 | 0.10 | *** |
| **Never married†** | 0.20 | 0.04 | 0.47 | 0.05 | 0.27 | 0.08 | ** |
| **Married monogamous†** | 0.63 | 0.03 | 0.44 | 0.02 | 0.44 | 0.05 | *** |
| **Married polygamous†** | 0.17 | 0.05 | 0.07 | 0.03 | 0.21 | 0.03 | |
| **Widowed/divorced†** | 0.01 | 0.01 | 0.02 | 0.01 | 0.08 | 0.01 | *** |
| **No education†** | 0.78 | 0.04 | 0.64 | 0.03 | 0.78 | 0.02 | |
| **Primary education†** | 0.07 | 0.01 | 0.08 | 0.01 | 0.07 | 0.00 | |
| **Secondary education†** | 0.15 | 0.03 | 0.28 | 0.03 | 0.15 | 0.03 | |
| **Ethnicity: Pular†** | 0.80 | 0.03 | 0.48 | 0.02 | 0.53 | 0.01 | *** |
| **Ethnicity: Sirer†** | 0.06 | 0.03 | 0.12 | 0.02 | 0.20 | 0.00 | *** |
| **Ethnicity: Wolof/Libou†** | 0.12 | 0.02 | 0.37 | 0.03 | 0.24 | 0.00 | *** |
| **# observations** | 412 | | 813 | | 4971 | | |

*Note:* * the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level.

**FIGURE 5.** USE OF REMITTANCES, SENEGAL




*Note:* Respondents were allowed to choose as many categories as needed.

education. The relatively higher educational achievement among internal migrants could imply that some of the reasons for migration are the pursuit of higher education, such as adolescents migrating for education purposes.

**The data also suggest that individuals from certain ethnic groups are significantly overrepresented among migrants.** For example, about 53 percent of all nonmigrants in the sample are Pular, but they comprise 80 percent of the international migrants. The Wolof/Libou, on the other hand, are more likely to migrate internally. The Wolof/Libou account for 24 percent of the adult sample, but for only about 12 percent of all international migrants and 37 percent of all internal migrants. The third most populous ethnicity in the sample is the Sirer, but their share among all migrants is significantly smaller than their share in the whole population.

**In Senegal, about 30 percent of surveyed households receive remittances.** About 56 percent of households with at least one international migrant and 42 percent of households with internal migrants (but no international migrants) receive remittances. Very few (about three percent) households without any international or internal migrants receive any remittances. The median amount of remittances sent in the 12-month period prior to the survey was 50,000 CFA francs (approximately US$95) from internal migrants and 55,000 CFA francs (approximately US$105) from international migrants, roughly 11 percent of Senegal's per capita GDP. In 40 percent of households, the senders indicate how the money should be spent.

**Food is by far the most often stated use of remittances (Figure 5).** As in Nepal, clothing, education fees, payment of debts, and health care costs comprise an important share of use of remittances. Unlike in Nepal, farming activities are rarely listed as a use of remittances.

## CHAPTER FIVE

# INDIVIDUAL CHARACTERISTICS OF WOMEN WHO STAY BEHIND

## NEPAL

**Some noticeable differences arise in the individual characteristics of women in international migrant households versus those in nonmigrant households in Nepal**. For example, compared to women in nonmigrant households, women in migrant households are more likely to be married (Table 1). In terms of household characteristics, migrant households have more young children (under five years old) compared to nonmigrant households, and significantly more adult women and men, suggesting that migration may be facilitated by the presence of extended families, since other adults can take over the tasks of the migrant or help with the care of very young children. In addition, migrant households are more likely to belong to a low caste compared to nonmigrant households.

## SENEGAL

**In Senegal, the individual characteristics of women in households with migrants are very similar to those of women in nonmigrant households, except for their ethnicities.** For example, Pulars are more represented among international migrant households than Sirers and Wolof/Libous (Table 2). And women in households with international migrants are slightly better educated than women in households with no migrants.

**However, significant differences arise between the household characteristics of migrant and nonmigrant households.** Households with an international or internal migrant have fewer very young children (under age 10) than households with no migrants. In addition, migrant households have significantly more adult women and men than nonmigrant households. As mentioned in the case of Nepal, the presence of more adults in migrant households may be a key factor facilitating the decision to migrate.

**Households of international migrants also differ in terms of household wealth, as suggested by the characteristics of their dwellings.** Nearly 80 percent of women in households with international migrants live in houses with cement walls compared to 65 percent of women in nonmigrant households. That international migrant households are better off than nonmigrant households or even households with an internal migrant is also shown by the higher quality of the roof and the floor of the dwelling, the access to better toilet facilities and piped water, and a source of drinking water in the house.

## COUNTRY COMPARISON

**Compared to Nepal, the differences between migrant and nonmigrant households in Senegal are significantly more pronounced.** It is difficult to draw conclusions whether returns to migration are higher in Senegal, however, or whether only better-off households can afford to send a family member abroad given the high costs of migration.

## CHAPTER SIX

# EMPLOYMENT CHARACTERISTICS OF WOMEN WHO STAY BEHIND

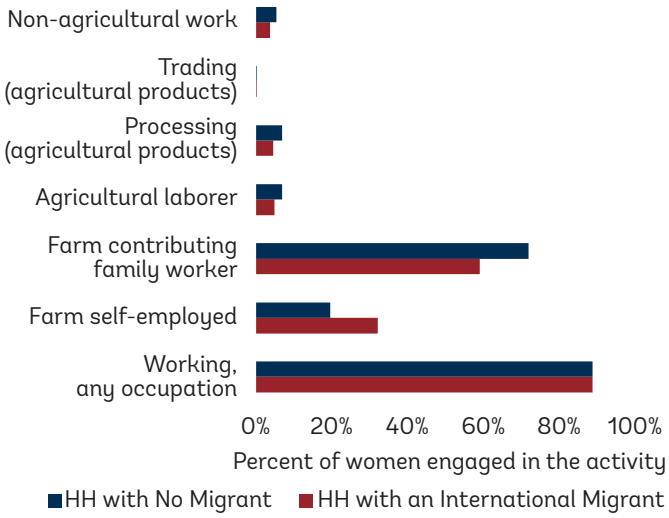
**In both countries, almost all economically active men and women report farming as one of their economic activities.** However, differences exist between the two countries in terms of labor force participation rates, employment rates, and reported engagement in types of agricultural work by individuals who stay behind. Engagement in other income-generating activities outside the family farm (including working as laborers in or outside of agriculture, in processing, or in trade of agricultural products) is rare for both men and women in the two countries. The discussion below highlights a few employment-related characteristics of the rural women who stay behind.

## NEPAL

**In Nepal, women and men in international migrant households are just as likely to be economically active as those in nonmigrant households.** Nearly 90 percent of all adult men and women, regardless of the migration status of their family, participated in at least one employment activity in the 12 months prior to the survey.[16] There are no significant differences in the probability of employment between women in migrant-sending households and women in nonmigrant households. Therefore, the data do not support the notion of women dropping out of the labor force or reducing employment in response to the migration of their partners or other family members.

[16] In the survey, respondents were asked whether they are engaged in seven broad types of activities: (i) self-employed, employer, or contributing family member; (ii) agricultural worker; (iii) processing of agricultural products; (iv) trader/seller of agricultural products; (v) nonagricultural worker, nonagricultural artisan, or worker engaged in commerce; (vi) professional (private and public sector); and (vii) other. A detailed list of activities/professions was included in each category so that enumerators could easily classify the economic activity of the surveyed individuals. For each activity, respondents were further asked whether it is done as self-employment or as an employee, whether it is market-oriented, the number of months performed in the last 12 months, number of days per month, and average number of hours per day. In addition, earnings information was collected as well as information on whether the activity is regular employment or not.

**FIGURE 6.** WOMEN'S EMPLOYMENT OUTCOMES BY HOUSEHOLD MIGRATION STATUS, NEPAL




**In Nepal, women in migrant households are significantly more likely to be identified as self-employed**[17] **in agriculture compared to women in nonmigrant households (Figure 6).** About 32 percent of women in migrant households are classified as self-employed in agriculture compared to 20 percent of women in nonmigrant households. In addition, less than 60 percent of women in migrant households are classified as contributing family workers compared to 72 percent of women in nonmigrant households. Subsistence farming appears to dominate family farming; approximately 55 percent of self-employed adults report that less than 50 percent of their agricultural production is intended for the market.

**In Nepal, very few women (and men) engage in agricultural wage work.** Only five percent of all women in migrant households and seven percent of women in nonmigrant households engage in agricultural wage labor. Most of the wage work is on small farms with fewer than five workers. Only 3.6 percent of all adults employed as wage workers report that they are employed on a regular, full-time basis for the whole year; 22 percent are part-time employees; and the rest are classified as seasonal, short-term, or casual employees (statistics not included in the table). These characteristics of agricultural wage employment suggest that it is not a major source of employment. It is more likely to be a livelihood diversification strategy as family farming may not be sufficient for household food and financial security. Furthermore, only five to seven percent of adult women engage in the processing of agricultural products and even fewer women are engaged in the trade of agricultural products. Finally, less than five percent of women in nonmigrant and migrant households are engaged in nonagricultural activities and the difference is not statistically significant.

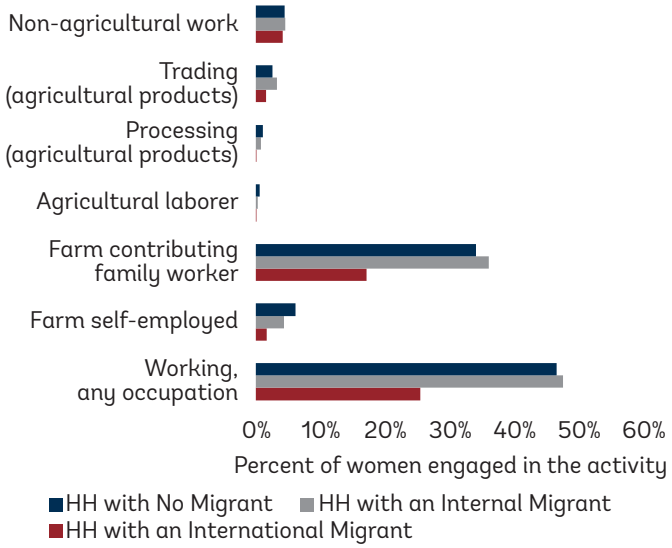
## SENEGAL

**The Senegalese data show low labor participation in general.** A significantly smaller share of the population in Senegal was economically active in the 12 months prior to the survey compared to Nepal. Within Senegal, differences arise in economic activities by sex and by migration status of the household. Only 40 percent of both men and women in households with an international migrant participated in at least one economic activity in the 12 months prior to the survey compared to around 60 percent of men and women in households with internal or no migrants.

**Women in households with an international migrant report some of the lowest employment rates.** Only 26 percent of women in international migrant households report having worked in the 12 months prior to the survey compared to about 50 percent of women in households with internal or no migrants (Figure 7). Thus, unlike Nepal, where no clear relationship is found between migration and the employment status of family members who stay behind, in Senegal, a glaring negative relationship arises between migration and the probability of having worked in

[17] Self-employment includes jobs "whose remuneration depends directly on the (expectation of) profits derived from the goods and services produced" and "engage one or more persons to work for them as 'employees' on a continuous basis" (http://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/status-in-employment/current-guidelines/lang–en/index.htm). In this study, the definition of self-employment is expanded to include own-account workers, who are also self-employed individuals but do not hire employees on a continuous basis. Contributing family workers are those who "hold self-employment jobs in an establishment operated by a related person, with a too-limited degree of involvement in its operation to be considered a partner" (ibid).

**FIGURE 7.** WOMEN'S EMPLOYMENT OUTCOMES BY HOUSEHOLD MIGRATION STATUS, SENEGAL




the last year. Women's main reason for not working in the past year is that they were doing domestic work without pay, which means that these women were not actively looking for a job and were therefore excluded from the labor force. Men offered different reasons for not working in the past year, such as studying (almost 40 percent). And in contrast to women, about one-quarter of men not working were actively searching for a job.

**Engagement in farming activities is significantly lower among women in households with international migrants compared to women in nonmigrant households.** Agriculture is the most important sector of employment for most rural women (and men) in Senegal. Most women working in agriculture, however, are classified as contributing family workers rather than self-employed workers or employers (Figure 7). Only two percent of women in households with international migrants are self-employed compared to four percent in households with an internal migrant, and six percent in households with no migrants. Thus, if women are employed, they are most likely to be contributing family workers.

**Working outside of the family farm, even as an agricultural laborer on other farms, is rare in Senegal**. Less than one percent of all adult men and women combine work as agricultural wage laborers on other people's farms or process agricultural products, and less than five percent trade agricultural products. These statistics are even lower considering only women (Figure 7).

# CHAPTER SEVEN
# CHARACTERISTICS OF WOMEN'S EMPOWERMENT[18]

**As mentioned earlier, detailed information on various indicators of empowerment as specified in the A-WEAI was collected for only a subset of women (and men) in both Nepal and Senegal.** Therefore, the results related to empowerment are not valid for all women in Nepal or Senegal but are rather intended to capture the empowerment of the woman most directly linked to the migrant, such as a spouse or a mother.

**Nepalese women in nonmigrant households have a more diverse income-generating portfolio than do spouses of migrants, as captured by the A-WEAI (Table B5 in Annex B).** In Nepal, women in nonmigrant households participate in a greater number of productive activities than women in migrant households. Women in nonmigrant households are slightly more likely than women in migrant households to engage in off-farm and self-employment in addition to working on the family farm. Women in nonmigrant households are also slightly more likely than women in migrant households to be engaged in poultry rearing. These statistics suggest that women in nonmigrant households have a more diversified portfolio of income-generating activities, perhaps because they cannot rely on remittances to cushion the negative effects of poor harvests.

**Women in Senegal are characterized by a low level of economic activity in general (Table B6 in Annex B).** As seen earlier, a large share of women (but also

[18] As mentioned earlier, the questionnaire used to collect information on empowerment builds upon the Abbreviated Women's Empowerment in Agriculture Index Questionnaire (A-WEAI) developed by the International Food Policy Research Institute (IFPRI). However, it was modified to include additional questions about decision-making and control of income from nonagricultural livelihoods. This was necessary because the original A-WEAI only collected information about rural women's agricultural activities, thus potentially leading to misleading estimates of the empowerment status of women whose livelihoods were not based on agriculture. At the center of the A-WEAI is the definition of empowerment as "the expansion of people's ability to make strategic life choices, particularly in contexts where this ability had been denied to them" (Alkire et al. 2013). The five domains of empowerment of the A-WEAI include indicators that focus on respondents' capacities to make decisions. See Annex A for the exact set of indicators used to understand women's empowerment in the various domains.

men) did not work in the last 12 months, not even on the family farm, according to the data collected through the household questionnaire. The lower level of economic activity in rural Senegal compared to that in rural Nepal is also reflected in the responses to the A-WEAI modules. According to the data collected through the A-WEAI, few women engage in economic activities regardless of whether they are in agriculture or not. Primary-age women interviewed using the A-WEAI module in Senegal report doing less than one economic activity on average, while women in Nepal engage in nearly three different economic activities, most of which are within agriculture. In Senegal, only about 17 percent of all women who responded to the A-WEAI module reported working in staple grain farming compared to 95 percent of women in Nepal. More than 60 percent of women in Nepal keep livestock compared to about 6 percent of women in Senegal. Small livestock and poultry rearing is also not as common in Senegal as it is in Nepal.

**Control over agricultural income is dependent primarily on the level of engagement in the income-generating activity itself, regardless of the household's migration status.** In Nepal, women have high control over agricultural income, regardless of the household's migration status, perhaps because of their high engagement in agriculture. In addition, women in nonmigrant households have higher control over nonagricultural income, since they are, on average, more likely to engage in off-farm work as well. In Senegal, no such differences arise, in part because women in all households have similarly low levels of participation in agricultural and nonagricultural income generation.

**Participation in local groups is higher among women in migrant households than among women in nonmigrant households in Nepal.** About one-half of all women in Nepal and one-third of all women in Senegal are active members of at least one agricultural, financial, social, or religious group. In Senegal, no statistically significant differences occur in group membership by migration status of the household, but in Nepal, pronounced differences are found. About 56 percent of women in migrant households compared to 47 percent of women in nonmigrant households are active members of at least one group.

**Women in migrant households in Nepal are more overworked than women in nonmigrant households.** More than one-half of all women in Nepal report working more than 10.5 hours a day—a figure that does not account for the fact that women's work activities may also overlap with child care. Yet only about 21 percent of men report working more than 10.5 hours a day (Table A2). Forty-eight percent of women in households with an international migrant work fewer than 10.5 hours a day compared to 56 percent of women in nonmigrant households, suggesting a potential disempowering effect of migration on women who stay behind through higher work burden.

**In both countries, regardless of the immigration status of the household, significant gender gaps arise in access to resources, information, and decision-making in various domains (Table A2 and Table A3).** Most striking is the gender gap in ownership of land, a key agricultural asset for agriculture-based livelihoods. In Nepal, only one-third of women own land versus about two-thirds of men (based on the responses to A-WEAI module). In Senegal, 88 percent of men but only 56 percent of women own any land solely or jointly.

**Gender gaps in access to information about agricultural production are also noticeable**. Despite reportedly high levels of access to information about agricultural production in Nepal, women are still significantly disadvantaged in that respect compared to men. In Senegal, access to information is rather low for all, but is significantly lower for women—only 26 percent of women report being able to access information about agricultural production compared to 41 percent of men.

**A comparison between Nepal and Senegal clearly shows that the gender gaps are even more striking in Senegal.** Women in Senegal are disadvantaged relative to men in almost all domains: they have lower decision-making power for agricultural activities, lower ownership of land, lower access to credit and decision on credit, and lower control of income from both agricultural and nonagricultural sources.

## CHAPTER EIGHT
# FOOD SECURITY CHARACTERISTICS

**On average, only about one in ten households in the Nepalese sample reported severe or moderate food insecurity**. The FIES-based estimates of food insecurity in Nepal are presented in Figure 8. The average prevalence rate of severe or moderate food insecurity (FImod+sev) in the five study districts is about nine percent. However, the results vary considerably across districts. Achham is by far the worst off, with FImod+sev equal to 26.4 percent. Although not statistically significant, food insecurity is higher for households with at least one migrant abroad than for households with no migrants. However, the results reverse when distinguishing between households that receive remittances and those that do not. The prevalence of food insecurity for households that do not receive remittances is about one percentage point higher than the prevalence of food insecurity among households that do receive remittances (whether

**FIGURE 8.** THE PREVALENCE OF FOOD INSECURITY BASED ON FIES, NEPAL

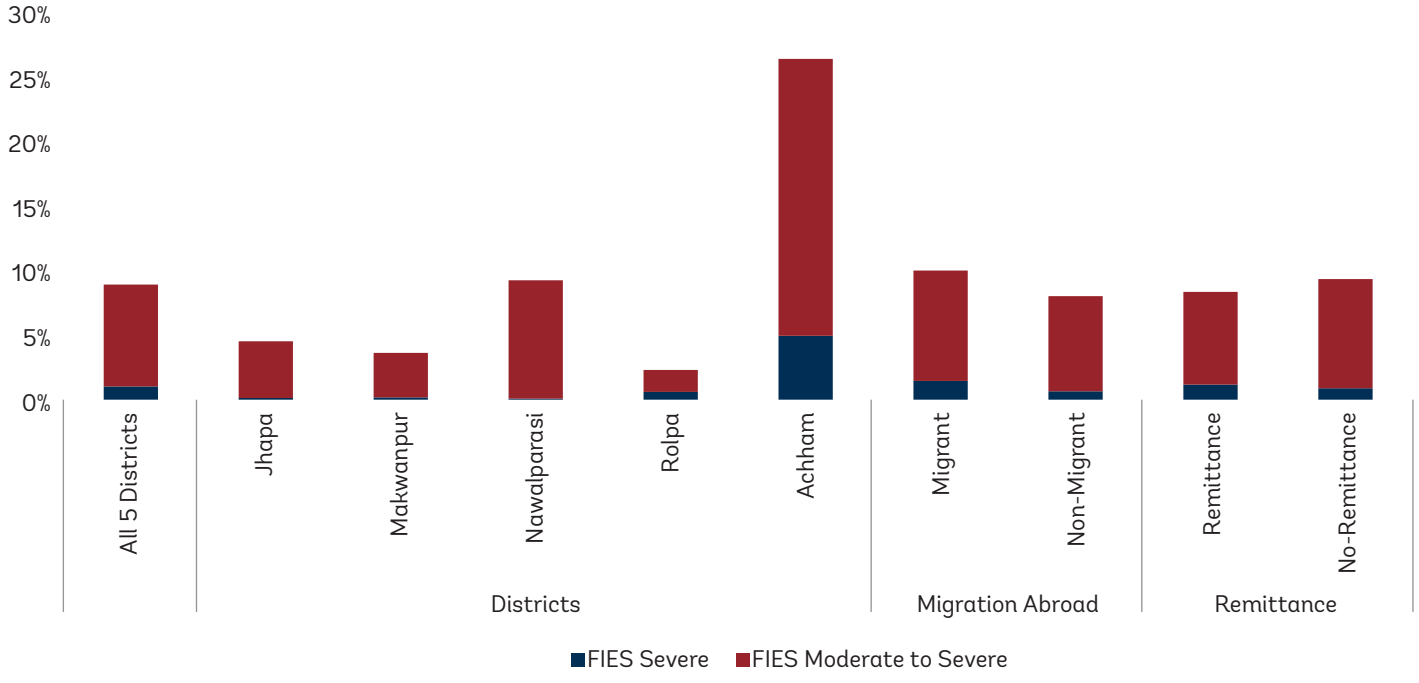
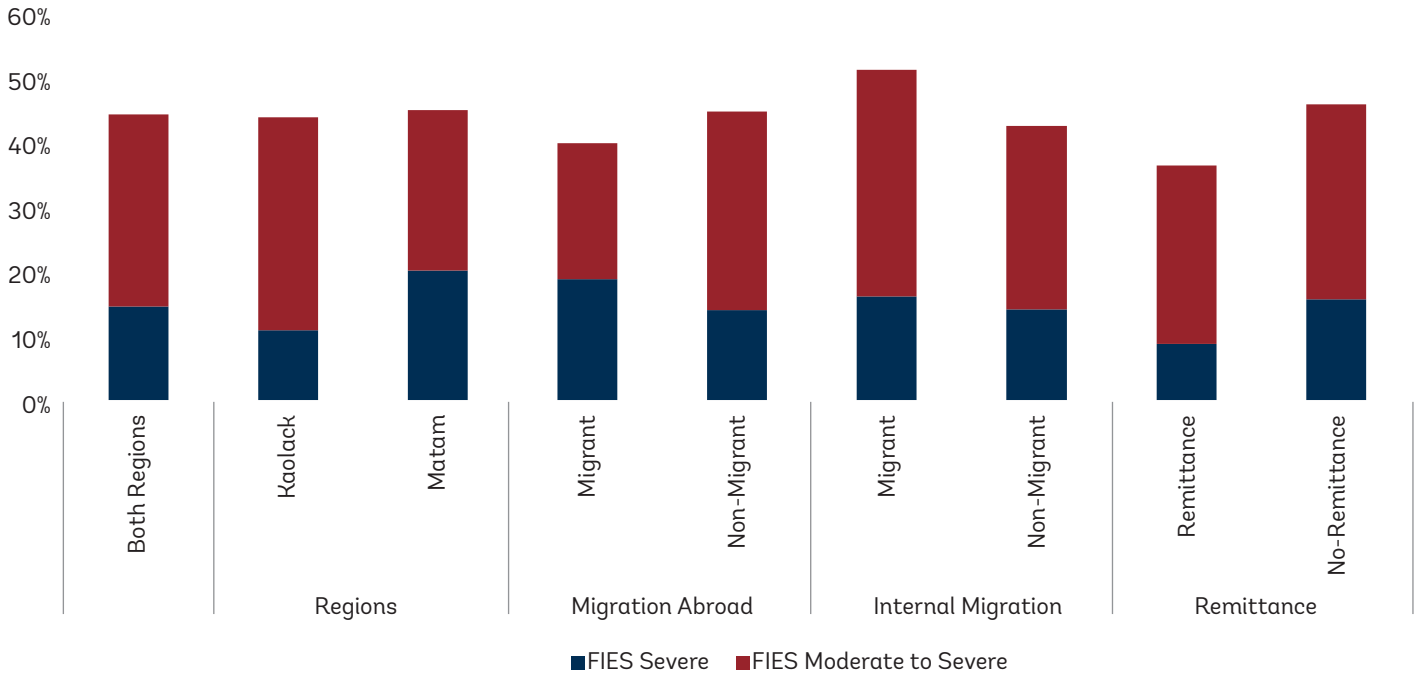


**FIGURE 9.** THE PREVALENCE OF FOOD INSECURITY BASED ON FIES, SENEGAL




they have a migrant abroad or not), highlighting the importance of successful migration to household well-being and food security.

**Close to one-half of all households in the Senegalese dataset reported severe or modest food insecurity.** The FIES-based estimates of food insecurity in Senegal are presented in Figure 9. The average prevalence rate of severe or moderate food insecurity (FImod+sev) in the two study regions is 44.3 percent, with similar levels in Kaolack (43.8 percent) and Matam (45.0 percent). However, the prevalence of severe food insecurity is much larger in Matam (20.1 percent) than in Kaolack (10.9 percent). Interestingly, food insecurity is lower for households with at least one migrant abroad compared to households with no migrants, but the results reverse when internal migration is considered, in which case FImod+sev is equal to 51.2 percent and 42.6 percent, respectively, for households with and without internal migrants. The prevalence of moderate or severe food insecurity is 46 percent for households that do not receive remittances and 36 percent for those that receive remittances. The difference is even starker when severe food insecurity is considered; the prevalence rate is almost double in households without remittances (15.6 percent versus 8.7 percent).

**The impact of migration on household food security depends on whether the migration is successful or not.** In Nepal, no significant correlation exists between migration and food insecurity (see Annex C). The prevalence of food insecurity in the five districts in Nepal is much lower than the national average, as estimated by Voices of Hungry using Gallup data (FAO 2016). However, the signs of the coefficients provide suggestive evidence that it is not migration per se that is associated with lower household food insecurity, but rather the receipt of remittances from migrants. Migration of household members not followed by remittance transfers is likely to increase household food insecurity. This is clearer in Senegal. Both international and internal migration are positively associated with food insecurity (though only the coefficient on internal migration is statistically significant), but the receipt of remittances is linked to lower food insecurity (Table C2, column 2).

## CHAPTER NINE
# EMPIRICAL STRATEGY

This study models the labor allocation and empowerment of women as a function of whether they live in a household with an international migrant, $M1_h$, and of individual, household, and community characteristics, $X_{ih}$:

$$1.\ Y_{ih} = \alpha + \beta M1_h + \gamma X_{ih} + \varepsilon_i \text{ (Nepal)}$$

where $Y_{ih}$ is a set of different indicators for women's work in and outside of agriculture. In Nepal, because there are too few households with an internal migrant, the model simply differentiates between households with an international migrant and all other households, combining households with no migrants or only internal migrants into the base category.[19] In Senegal, both internal and international migration are significant, so controls for both types of migration are included:

$$2.\ Y_{ih} = \alpha + \beta_1 M1_h + \beta_2 M2_h + \gamma X_{ih} + \varepsilon_i \text{ (Senegal)}$$

In this case, $M1_h$ indicates a household with at least one international migrant and $M2_h$ indicates a household with at least one internal migrant but no international migrants.[20] The base category (comparison group) in Senegal includes households with no current or recent (in the last 12 months) internal or international migrants.

The same model is employed to study the linkages between male-dominated migration and women's empowerment in and outside of agriculture. The

[19] The models tested if the empirical results changed depending on whether households with current domestic migrants were included (i) in the base category, (ii) separately as a control, or (iii) completely dropped from the analysis. The estimates were not at all sensitive to how domestic migrants were included in the model.

[20] Some households had several family members who emigrated. If at least one family member emigrated abroad, then the household was classified as a household with an international migrant. The assumption was that international migration would have a stronger effect on women's work and empowerment for various reasons, including higher potential returns and initial costs, the difficulty of the migrant to return home frequently, and the exposure to foreign social and cultural norms.

indicators of empowerment are based on the five domains of the A-WEAI based on whether the respondent: (i) is adequately empowered in decisions about agricultural production; (ii) has adequate control and access to resources; (iii) has control of income; (iv) is overworked (based on a 24-hour time-use recall module); and (v) is a member of an active group in the community. $\varepsilon_i$ is the error term in all three equations.

To separate the labor effect of migration and the income effect from the receipt of remittances, model 1 and model 2 are re-estimated with the following indicators: (i) $M1R1_h$ is an indicator for whether the household has an international migrant who has sent any positive remittances in the last year; (ii) $M1R0_h$ is an indicator equal to one if the household has an international migrant but has not received any remittances in the past year; and (iii) $M2_h$ is an indicator equal to one if the household has at least one internal migrant (and no international migrants), regardless of whether the internal migrant has sent remittances. The base category includes women in households with no international or internal migrants and no remittances. A very small share of households in both countries receives remittances without having any migrants. These households are too few to get an accurate picture of their characteristics and to understand what differentiates them from other migrant-sending and nonmigrant households. For that reason and for greater clarity in interpreting the results, they are excluded from this model.

$$3.\ Y_{ih} = \alpha + \beta_1 M1R1_h + \beta_2 M1R0_h + \beta_3 M2_h + \gamma X_{ih} + \varepsilon_i$$

Rather than using information on the amount of remittances received, the study uses an indicator variable for remittance receipts. An indicator variable is potentially less subject to measurement or reporting errors as it is likely that the respondent remembers whether someone in the household received remittances in the past year but may not remember or may not know the exact amount received over the whole year.

Vector $X$ includes: individual characteristics (age, age squared, marital status, education, and ethnic and religious background); household demographic characteristics; household wealth and asset characteristics (quality of the construction materials of the dwelling, quality of sanitary facilities, source of drinking water, access to electricity, household ownership of land, land area owned and cultivated, and livestock ownership expressed in Tropical Livestock Units (TLU)); and a dummy variable for whether the household received any social assistance. The model for Nepal includes district fixed effects; for Senegal, department fixed effects are included.

The key problem for studies on the impacts of migration is that migration is a selective process—migrants are likely to be significantly different from nonmigrants in both observable and unobservable ways. The decision to migrate may be based on the same factors that affect the employment and empowerment outcomes of interest—this is the classic omitted variable problem. Moreover, reverse causality may play a role. Migration may change intrahousehold dynamics and women's decision-making power, but if women and men value migration differently, women who are more empowered may exert a higher influence on the husband's migration decision. Using longitudinal data from Mexico, Nobles and McKelvey (2015) showed that an exogenous positive shock to women's empowerment, proxied by the decision-making over household resources, leads to a lower probability that the husband migrates.

To help solve the endogeneity problem, an instrumental variable approach is employed. The ideal instrument must be correlated with the decision to migrate and uncorrelated with the error term; it should affect the outcome of interest only through its effect on migration. Therefore, drawing on the migration literature and taking into consideration the available data, the study uses two different variables as instruments for the migration decision: (i) the share of households in the community[21] with at least one migrant; and (ii) the family migration history.

[21] The community is the ward in Nepal and the village in Senegal.

The first instrument is a proxy for the current migration network[22] at the place of origin; it is constructed from the listing data collected before the survey. Both the current migration network in the community (Acosta 2006; Binzel and Assaad 2011) and the historical migration network (Lokshin and Glinskaya 2009; Mendola and Carletto 2012) have been used in the literature. In general, the extent of the migration network should influence the decision to migrate by reducing costs and improving information regarding migration. Using the historical migration network in the community as an instrument is potentially a better solution for the reverse causality problem, but no data are available on historical migration networks. As migration networks take a long time to develop, the current network is likely a result of many years of migration flows rather than a recent phenomenon, and should thus be a valid exogenous instrument.[23]

The second instrument is the family migration history. This indicator equals one if the parents or parents-in-law of the household head have ever lived in another country. Similar to migration networks, this instrument is expected to influence the migration decision through increased information regarding migration experiences, and through reduced costs related to undertaking the trip and finding a job.

In both Nepal and Senegal, a listing of the households in the study areas was carried out prior to implementation of the survey. Slightly different information was collected during the listings in the two countries. In Nepal, enumerators only recorded whether there were current or recent migrants in the household, regardless of the type of migration; in Senegal, more detailed information about the destination of migrants was collected. Therefore, for Nepal having a current international migrant in the household ($M1_h$) is instrumented with the current migration network at the ward level and with family migration history. For Senegal, two potential endogenous regressors are used —both international ($M1_h$) and internal migration ($M2_h$)—and three instruments: international migration network, internal migration network, and family migration history.[24]

While there are good instruments for having an international ($M1_h$) or an internal migrant in the household ($M2_h$), no exogenous instruments exist for the decision to send remittances. Therefore, model 3 is estimated using ordinary least squares (OLS) and the findings are interpreted as associations.

[22] The 2010 Nepal Living Standards Measurement Survey (Nepal LSMS) is potentially a good source for constructing a measure of the historical migration network in a ward or a village. Due to time constraints, it was not possible to explore how best to match the information in the Nepal LSMS with the information in this survey. This exercise will be conducted later.

[23] Migration networks variables and the migration history are theoretically good instruments as they are correlated with the endogenous variable (migration) and conceptualized to have an effect on the employment outcomes of women only through their effect on the migration status of the household. Given F-Statistics of larger than 10, it can be reasonably argued that the instrument is not weak, and the Sargan-Hansen test confirms that the instruments are exogenous. The results were also run with the endogenous regressor (without correcting for endogeneity); the results were qualitatively the same as the results from the two-stage least squares (2SLS) model.

[24] Yet findings for Senegal should be interpreted more cautiously, since migration history can be tracked to (at least) the previous generation in around 60 percent of cases.

# CHAPTER TEN
# RESULTS

## LINKAGES BETWEEN MALE OUTMIGRATION AND WOMEN'S EMPLOYMENT

**There is no evidence that rural women in sending communities reduce their employment in response to the migration of male family members (see Annex D).** In both Nepal and Senegal, a negative relationship is found between women's employment in any activity and the presence of international migrants in the household, but these coefficients are not statistically significant in any of the specifications. Likewise, the receipt of remittances does not influence women's employment (Panel B, Table D1 and D2).

**Women in households with international migrants do not seem to reduce overall employment, but depending on the social and cultural contexts in which migration takes place, women may experience changes in their roles and responsibilities on the family farm.** Compared to women in households with no current migrants, women in households with international migrants in Nepal are significantly more likely to report being self-employed on the farm (with or without employees) and less likely to report being contributing family workers. This implies that their responsibilities and decision-making on the farm increase with the outmigration of male family members. Panel A of Table D1 shows that women in households with international migrants are 17 percentage points more likely to report being self-employed on the family farm rather than a contributing family worker. The coefficients are even larger when correcting for the endogeneity of migration; the results in Table F1 provide strong evidence that these are not merely associations between migration of family members and women's changing roles on the farm, but that the changes are in fact attributed to the migration of the male family member. There is no evidence that women relocate labor in other activities, including outside of agriculture. This may be due to the need for labor in agriculture, or operation of household farms remaining a dominant economic activity in rural areas (McCullough 2015), or limited employment opportunities for women in rural areas outside the family farm.

**However, in Senegal, there is no such strong evidence that the outmigration of male family members is associated with changes in women's work on and off the farm.** The lack of significant changes in women's roles in Senegal could be linked to the prevailing social and cultural norms in the country. In particular, women's roles in Senegal are prescribed to the domestic sphere and women are expected to be supported by their husbands. In the absence of their husbands, they do not automatically become household heads. Household decision-making falls into the hands of the migrant's extended family (Mondain et al. 2011). Using qualitative methods, Mondain et al. (2011) looked into the linkages between male outmigration and women's roles in Senegal and concluded that migration reinforces men's status as primary earners and does not directly challenge existing gender norms.

**Women's growing self-employment in agriculture (that is, their growing role as primary farmers) is linked to both the migration of the spouse and the receipt of remittances.** In Nepal, all migration is linked to a change in women's roles in agriculture from contributing family workers to self-employment in agriculture. Yet the effect is larger for women who live in households with international migrants who send remittances compared to women who live in households with international migrants who do not send any remittances. Remittances are strongly associated with women taking on more responsibilities on the farm; this may be linked to the fact that in Nepal almost one-third of households invest some of the remittances on the farm. There is no evidence that male outmigration leads to changes in women's probability of engaging in off-farm employment, which may be linked to the scant nonagricultural employment opportunities in Nepal's rural areas.

**The linkages between migration and women's employment are not strongly dependent on the migration duration.** Information about the timing of the first migration episode of the current migrants was used to create a proxy for the duration of migration. A categorical variable was constructed to differentiate whether the first migration episode was within the last two years (2015 or afterwards), whether it was between three and five years ago (between 2012 and 2014), or if it was before 2012. In Nepal, no significant association is found between how much time has passed since the current migrants first migrated and the employment outcomes of women who stay behind. The results are robust to changes in the cutoffs of the variable and to the use of a continuous variable for time since first migration. In Senegal, there is some evidence in households in which the current migrant left in the last two years that women who stay behind increase their employment. However, this result is only marginally significant; it is not significant when a continuous variable is used. This question deserves more attention in future work.

## ASSOCIATIONS WITH WOMEN'S EMPOWERMENT

**The tables in Annex E focus on the linkages between male outmigration and women's empowerment in agriculture in several domains.** As mentioned earlier, the abbreviated version of the Women's Empowerment in Agriculture Index (A-WEAI) was administered to one person per household: either the spouse of the migrant[25] or the man or woman from the primary couple in nonmigrant households. Thus the empowerment-related estimates based on the A-WEAI are valid for only a subsample of women in the whole population, unlike the employment-based estimates, which are valid for all working-age women. Although the sample on which the employment-related outcomes discussed in the previous section are based on is larger than the sample for the A-WEAI-related estimates, its disadvantage is that the information for all individuals in the households was provided by a single respondent, while for A-WEAI the selected women (and men) reported directly only about the activities and decisions that pertained to them.

**The evidence shows that male outmigration is not always positively linked to the empowerment of women who stay behind. Moreover, the results differ**

[25] If the migrants were not married, the survey was administered to another female member of the household.

**significantly by country.** In Nepal, the spouses of international migrants revealed that they reduced the total number of productive activities that they participated in, which may be linked to the loss of the male labor and the need for women to take over some of the tasks previously done by men. The results from the A-WEAI provide suggestive evidence that in response to the migration of their spouses abroad, women decrease participation in nonfarm activities; related to that, they also decrease decision-making regarding nonagricultural income (Table E1). This is not necessarily disempowering if it is a choice and does not affect the welfare of the respondents. It is disempowering if it is not done out of choice, but out of necessity because of labor and time constraints, and if it reduces the welfare of the household through reduced diversification of livelihoods and potentially lower food security.

**These effects on empowerment are strongly mediated by the receipt of remittances, however.** If the migration is accompanied by remittances, there is no evidence of a reduction in the number of agricultural activities in which the spouses of migrants participate. In addition, the receipt of remittances is positively associated with increased decision-making on the farm, active participation in community groups, and access to a financial account. These are positive consequences of migration on women's empowerment in Nepal, but they are restricted to women in households where the migrant sends back remittances. In fact, migration without remittances is associated with negative effects, though mostly not statistically significant, on almost all empowerment indicators of women.

**The important role of remittances in mediating the effects of migration on women's empowerment is evident in Senegal as well.** With the exception of decisions regarding credit, there is no evidence that male outmigration leads to Senegalese women's empowerment. The analysis shows that in the absence of remittances, spouses of international migrants are disempowered in several domains, including participation in productive activities in and outside agriculture, decision-making on productive activities, decision-making on the use of agricultural income, and access to information about agriculture.

# CHAPTER ELEVEN
# CONCLUSIONS

**This paper adds to the scarce evidence on rural outmigration and its interlinkages with women's employment and empowerment in agriculture.** The potential of migration to be a transformative factor for gender equality and women's empowerment has attracted attention, but empirical research on the issue is limited. This study explores the linkages between rural outmigration and women's work, empowerment status, and food security from unique data collected specifically for this purpose. Migration from rural areas is increasing as more people (predominantly men) seek better opportunities to earn money. However, it is important to note that, as with any economic action taken to improve household welfare, risks are involved with migration (i.e., migrants may not find lucrative job opportunities at their migration destination). The Nepalese data showed that only 45 percent of households with migrants reported receiving remittances, and the share is even lower in Senegal (30 percent). The remittance amount is found to be quite high in Nepal (more than double the average per capita GDP of the country), which would likely make the risk worth taking for many households. The situation is quite different in Senegal, where the average remittance amount for the 30 percent of households that reported receiving remittance is only about US$100 per year, making migration a risky move with less likelihood of "success."

**The study finds that male outmigration from rural, primarily agricultural areas is not linked to a decrease in women's employment, but it is associated with significant changes in women's roles in agriculture.** The study finds no evidence that living in a migrant-sending household causes women to decrease their overall participation in income-generating activities. In Nepal, male outmigration from rural, primarily agricultural areas is strongly and significantly linked to changes in women's roles in agriculture—women shift from being contributing family members to being self-employed on the farm. These changes are stronger when migration is accompanied by remittances. Contrary to some previous studies, the report does not find evidence that women in households with a family member who is currently abroad reduce their engagement in off-farm

wage employment and self-employment. On the other hand, in Senegal male-dominated outmigration is not associated with changes in women's roles in agriculture. This is because most rural women in Senegal live in extended families in which other members may take on the roles and responsibilities of the migrant spouse.

**The study reveals that male-dominated outmigration may not always be associated with women's empowerment.** Based on evidence from the A-WEAI that was administered to either the spouse of the migrant or the man or woman from the primary couple, male outmigration is linked to empowerment in some domains and disempowerment in others. The results differ substantially by country. In Nepal, direct interviews with spouses of migrants revealed that the receipt of remittances is positively associated with increased decision-making on the farm, group membership, and holding a financial account. In Senegal, with the exception of decisions regarding credit, there is no evidence that male outmigration leads to women's empowerment. Moreover, in the absence of remittances, spouses of international migrants are worse off in several domains of empowerment, including the number of productive activities in which they participate, decision-making on productive activities and agricultural income, and access to information.

**The consequences of migration on household food security are country-specific and mediated by the receipt of remittances**. The study finds that migration of household members that is not followed by remittance transfers is likely to increase household food insecurity. The evidence is stronger and significant in the case of Senegal, where both international and internal migration are positively associated with food insecurity. In Nepal, no significant correlation exists between migration and food security, but the lack of significant results may be due to the rather small survey sample size.

# CHAPTER TWELVE
# POLICY RECOMMENDATIONS

## GENERALIZED POLICY RECOMMENDATION

A more generalized and priority policy action emerging out of the analysis suggests the importance of recognizing the changing roles of women in agriculture, and providing targeted interventions to support their roles. General policy actions are to:

i. **Encourage greater availability of gender-relevant, sex-disaggregated data to monitor the effects of male outmigration on women's work and empowerment.** The current practice of collecting and disseminating sex-disaggregated data is done in a scattered manner across different agencies. To identify tailored knowledge gaps and policies targeted specifically to women left behind after the outmigration of a male spouse, it is extremely important to improve the availability of evidence-based, targeted surveys and to centralize the survey packages for future research and policy dialogue. It is also important to build national capacity to collect and analyze sex-desegregated data covering migrant-sending and nonmigrant households in agriculture. This is a systematic pathway of providing policy makers with sufficient baseline information to institute favorable changes to existing policies, which currently affect women and men differently in migrant households. This will also form the basis of institutionalizing such rigorous evidence to strengthen existing and future World Bank operations or multi-stakeholder programs that are targeted at women engaged in on-farm activities, where M&E systems are often less comprehensive in terms of progress on the various dimensions of women's empowerment.
ii. **Facilitate the flow of international and internal remittances.** Evidence from these studies indicates that remittances can influence significant changes in women's roles in agriculture and are positively associated with women's empowerment in several domains (such as decisions about farm, group membership, and holding a financial account for Nepal and access to decisions about credit for Senegal). One way to facilitate remittance transfers would be to reduce the cost of sending remittances. Sustainable Development Goal (SDG) 10 aims to reduce the cost of remittances to three percent by 2030 and eliminate remittance corridors with costs higher than five percent. This will be an avenue to formalize remittances channels. One key constraint in Nepal, especially in the mountain and hill areas, is the lack of access to financial services.
iii. **Enact policies to support women's engagement in higher-earning activities.** A smaller share of women in Senegal than in Nepal report being economically active. There

is a need to better understand women's low participation in the labor market in Senegal, but apart from that, women who are economically active are largely concentrated in the production end of agricultural value chains. Very few women in either Nepal or Senegal engage in processing or trade of agricultural products.

# COUNTRY-SPECIFIC POLICY RECOMMENDATIONS

A set of policy recommendations was derived for each country. Each set addresses the country-specific challenges identified in this study.

## NEPAL

The following approaches appear promising in addressing the problems identified by the study:

### Adapting Agricultural Extension

i. **Provide tailored extension services to female farmers**. The study finds that as a result of male outmigration in Nepal, the on-farm responsibilities and decision-making of the women left behind increase. In Nepal, all migration is linked to a change in women's roles in agriculture from contributing family workers to self-employment in agriculture, and the effect is larger for women who live in households with international migrants who send remittances. This clearly entails the need for improving female farmers' access to extension services to improve the productivity on their farms and ensure the sustainability of agricultural production.

ii. **Strengthen women's access to higher-earning activities in agricultural value chains.** The study shows very low engagement in higher value chain activities such as processing and trading, which can be linked to women's low skills, lack of access to market information, and transportation and time constraints. Extension services for women should go beyond the traditional focus on production and should provide technical assistance, training, and access to resources that can scale up women's involvement beyond subsistence agriculture and in the higher-value nodes of the supply chains.

iii. **Ensure that a gender-sensitive approach is adopted for the provision of agricultural extension services, including through hiring more female agricultural extension agents.** Studies have shown positive experiences with hiring female extension agents to better support female farmers (Acharya and Bennet 1983; World Bank 2010) and the importance of local groups for mobilizing public awareness to mainstream gender balance in agriculture extension. A concerted involvement of decentralized government bodies, NGOs, private agencies, and individuals can create an enabling environment.

### Addressing Labor Shortages

i. **Promote small-scale rural mechanization to reduce women's time burden and improve diversification of income-generating activities in Nepal** (Biggs and Justice 2015). As suggested by the results, women in migrant households in Nepal are more overworked and time-constrained compared to both men and women in non-migrant households. This may be due to the scarcity of agricultural labor and low access to labor-saving technologies for Nepalese women.

### Improving Enabling Environment for Productive Use of Remittances by Female Farmers

i. **Reduce the cost of remittances to create an enabling environment for women to mobilize remittances for productive purposes, including more investments in agriculture or small businesses and savings through development of money management skills** (Dhakal and Maharjan 2018). In certain areas of Nepal the cost of remittances is quite high. Currently, at least some of the remittances are used for the purchase of food, but a non-negligible amount is also invested in agriculture.

## SENEGAL

The study finds no significant association between male outmigration and women's employment and empowerment in Senegal. That said, the important role of remittances in mediating the effects of migration on women's empowerment is evident in Senegal as well.

The following approaches appear promising in addressing the problems identified by the study:

### Reducing the Cost of Remittances

i. **Reduce the cost of remittances to positively affect disposable household income and improve incentives to remit more** (World Bank 2005). The cost of sending remittances through formal channels is very high in Senegal, a situation accompanied by a high gender disparity in the receipt of remittances—male-headed households receive higher remittances than female-headed ones (Orozco et al. 2010). Positive remittances

will also help mitigate the negative effects from the lost labor of migrants and therefore will help mitigate the negative effects on women's empowerment.

ii. **Conduct more research to understand the factors behind the low economic activity status of women in Senegal.** A very small share of women in Senegal report having engaged in any work activity in the last 12 months. Although women in migrant households have even lower employment rates than women in nonmigrant households, the analysis suggests that the lower employment probability is not attributed to migration but to other factors, which may also be correlated with migration, including household demographics. The presence of larger extended families may facilitate migration but may also mediate the potential transformative effects of migration on spouses who stay behind. Therefore, in an environment with low employment rates for both men and women and large extended families, the migration of male family members is less likely to lead to significant changes in women's employment and empowerment, as other family members can step in to do the work of the migrant man or to make decisions in his absence.

# ANNEX A:
# THE ABBREVIATED WOMEN'S EMPOWERMENT IN AGRICULTURE INDEX (A-WEAI) USED IN NEPAL AND SENEGAL SURVEYS

**TABLE A1.** DOMAINS AND INDICATORS FROM THE ABBREVIATED WOMEN'S EMPOWERMENT IN AGRICULTURE INDEX (A-WEAI) USED IN NEPAL AND SENEGAL SURVEYS

| DOMAIN | INDICATOR | DEFINITION OF INDICATOR |
|---|---|---|
| 1. Production | 1.1 Input in productive decisions | • Number of agricultural and nonagricultural activities in which an individual participates<br>• Number of agricultural production activities in which an individual participates<br>• Whether respondent has sole or joint decision-making over food and cash-crop farming, livestock, and fisheries<br>• Whether respondent makes decisions about what to plant on ANY land |
| | 1.2 Access to information | • Whether respondent has access to information for at least ONE agricultural activity |
| 2. Resources | 2.1 Ownership of assets | • Whether respondent solely or jointly owns AT LEAST two small assets<br>• Whether respondent owns land solely or jointly |
| | 2.2 Access to and decisions about credit | • Whether respondent has access to and participates in decision-making concerning credit<br>• Whether respondent has access to a financial account |
| 3. Income | 3.1 Control over the use of income | • Whether respondent decides about the use of agricultural income<br>• Whether respondent decides about the use of nonagricultural income |
| 4. Leadership | 4.1 Group member | • Whether respondent is an active member in at least one economic or social group |
| 5. Time | 5.1 Workload | • Minutes spent on work<br>• Whether respondent worked less than 10.5 hours in the previous 24 hours |

*Source:* While the domains of empowerment are the same as in Alkire et al. (2013), the selected indicators for the analysis may differ because the A-WEAI was implemented, rather than the WEAI, and some additional indicators were added.

## **TABLE A2.** EMPOWERMENT OUTCOMES BY SEX IN NEPAL

| | A-WEAI SAMPLE | | | | | | |
|---|---|---|---|---|---|---|---|
| | WOMEN | | | MEN | | | |
| | N | MEAN | SE | N | MEAN | SE | P-VALUE |
| ***Production*** | | | | | | | |
| **# of work activities** | 724 | 2.83 | 0.05 | 271 | 2.78 | 0.04 | |
| **# of agriculture activities** | 724 | 2.67 | 0.05 | 271 | 2.41 | 0.03 | *** |
| **Input in decision-making in AT LEAST TWO productive domains†** | 697 | 0.96 | 0.01 | 260 | 0.98 | 0.01 | |
| **Decision-making, solely or jointly, land†** | 692 | 0.85 | 0.02 | 260 | 0.92 | 0.02 | |
| **Access to agriculture information†** | 696 | 0.93 | 0.01 | 259 | 0.98 | 0.01 | ** |
| ***Resources*** | | | | | | | |
| **Respondent owns assets, solely or jointly†** | 724 | 0.99 | 0.00 | 271 | 1.00 | 0.00 | |
| **Respondent owns land, solely or jointly†** | 692 | 0.32 | 0.02 | 260 | 0.64 | 0.04 | *** |
| **Decision-making on credit†** | 724 | 0.48 | 0.02 | 271 | 0.50 | 0.04 | |
| **Has a bank account†** | 724 | 0.52 | 0.02 | 271 | 0.48 | 0.04 | |
| ***Income*** | | | | | | | |
| **Decision-making: agricultural income†** | 724 | 0.93 | 0.01 | 271 | 0.95 | 0.01 | |
| **Decision-making: nonagricultural income†** | 724 | 0.15 | 0.02 | 271 | 0.35 | 0.04 | |
| ***Leadership*** | | | | | | | |
| **Membership (any group)†** | 724 | 0.52 | 0.02 | 271 | 0.41 | 0.04 | *** |
| ***Time use*** | | | | | | | |
| **# minutes work** | 724 | 589.66 | 6.69 | 271 | 454.62 | 15.27 | *** |
| **Respondent worked <10.5hrs in previous 24hrs†** | 724 | 0.51 | 0.02 | 271 | 0.79 | 0.03 | *** |

* the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. ‡ An active member of that group. SE = standard error.

## **TABLE A3.** EMPOWERMENT OUTCOMES BY SEX IN SENEGAL

| | A-WEAI SAMPLE | | | | | | |
|---|---|---|---|---|---|---|---|
| | WOMEN | | | MEN | | | |
| | N | MEAN | SE | N | MEAN | SE | P-VALUE |
| ***Production*** | | | | | | | |
| **# of work activities** | 534 | 0.56 | 0.05 | 375 | 0.94 | 0.04 | *** |
| **# of agriculture activities** | 534 | 0.50 | 0.05 | 375 | 0.84 | 0.04 | *** |
| **Input in decision-making in AT LEAST TWO productive domains†** | 534 | 0.30 | 0.03 | 375 | 0.47 | 0.02 | *** |
| **Decision-making, solely or jointly, land†** | 353 | 0.36 | 0.07 | 303 | 0.94 | 0.01 | *** |
| **Access to agriculture information†** | 532 | 0.26 | 0.02 | 372 | 0.41 | 0.02 | *** |
| ***Resources*** | | | | | | | |
| **Respondent owns assets, solely or jointly†** | 534 | 0.86 | 0.01 | 375 | 0.86 | 0.02 | |
| **Respondent owns land, solely or jointly†** | 352 | 0.56 | 0.03 | 303 | 0.88 | 0.03 | *** |
| **Decision-making on credit†** | 534 | 0.14 | 0.02 | 375 | 0.24 | 0.01 | *** |
| **Has a bank account†** | 534 | 0.03 | 0.01 | 375 | 0.06 | 0.01 | ** |
| ***Income*** | | | | | | | |
| **Decision-making: agricultural income†** | 534 | 0.26 | 0.02 | 375 | 0.39 | 0.02 | *** |
| **Decision-making: nonagricultural income†** | 534 | 0.03 | 0.01 | 375 | 0.08 | 0.00 | *** |
| ***Leadership*** | | | | | | | |
| **Membership (any group)†** | 534 | 0.33 | 0.02 | 375 | 0.32 | 0.02 | |

* the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. ‡ An active member of that group. SE = standard error.

# ANNEX B:
# DESCRIPTIVE ANALYSIS OF KEY VARIABLES

## TABLE B1. CHARACTERISTICS OF FEMALE FAMILY MEMBERS, NEPAL

| VARIABLE | (1) WOMEN IN HOUSEHOLD WITH INTERNATIONAL MIGRANTS | | | (2) WOMEN FROM ALL OTHER HOUSEHOLDS | | | P-VALUE |
|---|---|---|---|---|---|---|---|
| | N | MEAN | SE | N | MEAN | SE | |
| *Individual Characteristics* | | | | | | | |
| Age (years) | 763 | 36.61 | 0.69 | 904 | 37.38 | 0.75 | |
| Female† | 763 | 1.00 | | 904 | 1.00 | | |
| Married† | 763 | 0.78 | 0.02 | 904 | 0.73 | 0.02 | * |
| Never married† | 763 | 0.14 | 0.01 | 904 | 0.16 | 0.02 | |
| Cohabiting† | 763 | 0.00 | 0.00 | 904 | 0.00 | 0.00 | |
| Widowed/separated† | 763 | 0.08 | 0.01 | 904 | 0.10 | 0.01 | |
| No education† | 763 | 0.44 | 0.02 | 904 | 0.44 | 0.02 | |
| Primary education† | 763 | 0.12 | 0.01 | 904 | 0.16 | 0.02 | |
| Secondary education† | 763 | 0.44 | 0.02 | 904 | 0.40 | 0.02 | |
| High caste† | 763 | 0.43 | 0.02 | 904 | 0.42 | 0.02 | |
| Low caste† | 763 | 0.17 | 0.02 | 904 | 0.10 | 0.01 | *** |
| Other caste† | 763 | 0.37 | 0.02 | 904 | 0.47 | 0.02 | *** |
| Muslim† | 763 | 0.03 | 0.01 | 904 | 0.01 | 0.00 | ** |
| *Household Characteristics* | | | | | | | |
| # children <5 years | 763 | 0.49 | 0.03 | 904 | 0.38 | 0.02 | *** |
| # children 5-10 years | 763 | 0.56 | 0.03 | 904 | 0.53 | 0.03 | |
| # males 11-14 years | 763 | 0.20 | 0.02 | 904 | 0.22 | 0.02 | |
| # females 11-14 years | 763 | 0.18 | 0.02 | 904 | 0.18 | 0.02 | |
| # males 15-17 years | 763 | 0.19 | 0.02 | 904 | 0.17 | 0.02 | |
| # females 15-17 years | 763 | 0.19 | 0.02 | 904 | 0.24 | 0.02 | |
| # female adults | 763 | 2.11 | 0.04 | 904 | 1.81 | 0.03 | *** |
| # male adults | 763 | 2.15 | 0.04 | 904 | 1.65 | 0.03 | *** |

*Note:* * the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. SE = standard error.

## **TABLE B2.** CHARACTERISTICS OF FEMALE FAMILY MEMBERS, SENEGAL

| | (1) WOMEN IN HOUSEHOLD WITH INTERNATIONAL MIGRANTS | | | (2) WOMEN IN HOUSEHOLD WITH INTERNAL MIGRANTS | | | (3) WOMEN IN HOUSEHOLD WITH NO MIGRANTS | | | (1) VS (3) |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | MEAN | SE | N | MEAN | SE | N | MEAN | SE | P-VALUE |
| ***Individual Characteristics*** | | | | | | | | | | |
| **Age (years)** | 894 | 35.71 | 2.34 | 981 | 35.29 | 2.02 | 951 | 34.95 | 1.84 | |
| **Female†** | 894 | 1.00 | | 981 | 1.00 | | 951 | 1.00 | | |
| **Never married†** | 894 | 0.14 | 0.03 | 981 | 0.16 | 0.04 | 951 | 0.16 | 0.06 | |
| **Married monogamous†** | 894 | 0.48 | 0.03 | 981 | 0.43 | 0.05 | 951 | 0.44 | 0.07 | |
| **Married polygamous†** | 894 | 0.25 | 0.05 | 981 | 0.28 | 0.03 | 951 | 0.27 | 0.04 | |
| **Widowed/divorced†** | 894 | 0.14 | 0.04 | 981 | 0.13 | 0.03 | 951 | 0.13 | 0.03 | |
| **No education†** | 894 | 0.77 | 0.03 | 981 | 0.79 | 0.04 | 951 | 0.81 | 0.03 | ** |
| **Primary education†** | 894 | 0.07 | 0.01 | 981 | 0.06 | 0.01 | 951 | 0.06 | 0.00 | |
| **Secondary education†** | 894 | 0.15 | 0.03 | 981 | 0.15 | 0.03 | 951 | 0.13 | 0.03 | * |
| **Ethnicity: Pular†** | 894 | 0.77 | 0.02 | 981 | 0.49 | 0.02 | 951 | 0.50 | 0.02 | *** |
| **Ethnicity: Sirer†** | 894 | 0.07 | 0.02 | 981 | 0.13 | 0.02 | 951 | 0.22 | 0.01 | *** |
| **Ethnicity: Wolof/Libou†** | 894 | 0.14 | 0.01 | 981 | 0.36 | 0.02 | 951 | 0.24 | 0.01 | *** |
| ***Household Characteristics*** | | | | | | | | | | |
| **# children <5 years** | 894 | 1.12 | 0.08 | 981 | 1.26 | 0.10 | 951 | 1.39 | 0.08 | ** |
| **# children 5-10 years** | 894 | 1.85 | 0.10 | 981 | 2.05 | 0.13 | 951 | 2.07 | 0.09 | *** |
| **# males 11-14 years** | 894 | 0.53 | 0.03 | 981 | 0.63 | 0.07 | 951 | 0.54 | 0.03 | |
| **# females 11-14 years** | 894 | 0.45 | 0.04 | 981 | 0.45 | 0.03 | 951 | 0.54 | 0.03 | *** |
| **# males 15-17 years** | 894 | 0.50 | 0.04 | 981 | 0.48 | 0.03 | 951 | 0.42 | 0.02 | ** |
| **# females 15-17 years** | 894 | 0.51 | 0.04 | 981 | 0.71 | 0.06 | 951 | 0.45 | 0.04 | |
| **# female adults** | 894 | 4.62 | 0.26 | 981 | 3.73 | 0.24 | 951 | 3.16 | 0.27 | *** |
| **# male adults** | 894 | 4.14 | 0.17 | 981 | 3.63 | 0.17 | 951 | 2.52 | 0.14 | *** |

*Note:* * the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. SE = standard error.

**TABLE B3.** EMPLOYMENT CHARACTERISTICS BY INTERNATIONAL MIGRATION EXPERIENCE FOR ALL WORKING-AGE ADULTS AND FOR WORKING-AGE WOMEN ONLY, NEPAL

| | 1) HOUSEHOLD WITH A CURRENT INTERNATIONAL MIGRANT | | 2) HOUSEHOLD WITH NO CURRENT INTERNATIONAL MIGRANT | | |
|---|---|---|---|---|---|
| | MEAN | SE | MEAN | SE | P-VALUE |
| *A. All working-age adults* | | | | | |
| Employment, any occupation† | 0.884 | 0.010 | 0.898 | 0.009 | |
| Farm self-employed† | 0.361 | 0.017 | 0.334 | 0.015 | |
| Farm contributing family worker† | 0.552 | 0.017 | 0.584 | 0.015 | |
| Agricultural laborer† | 0.050 | 0.007 | 0.087 | 0.008 | *** |
| Processing (agricultural products)† | 0.048 | 0.008 | 0.061 | 0.010 | |
| Trading (agricultural products)† | 0.010 | 0.005 | 0.008 | 0.002 | |
| Nonagricultural employment† | 0.075 | 0.009 | 0.166 | 0.012 | *** |
| Observations | 1181 | | 1726 | | |
| *B. Working-age women only* | | | | | |
| Employment, any occupation† | 0.892 | 0.013 | 0.893 | 0.013 | |
| Farm self-employed† | 0.323 | 0.020 | 0.197 | 0.018 | *** |
| Farm contributing family worker† | 0.594 | 0.021 | 0.722 | 0.019 | *** |
| Agricultural laborer† | 0.049 | 0.008 | 0.069 | 0.010 | |
| Processing (agricultural products)† | 0.046 | 0.010 | 0.068 | 0.014 | |
| Trading (agricultural products)† | 0.003 | 0.003 | 0.001 | 0.001 | |
| Nonagricultural employment† | 0.037 | 0.008 | 0.054 | 0.009 | |
| Observations | 763 | | 904 | | |

*Note:* * the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. SE = standard error.

## **TABLE B4.** EMPLOYMENT CHARACTERISTICS BY MIGRATION STATUS FOR ALL WORKING-AGE ADULTS AND FOR WORKING-AGE WOMEN, SENEGAL

| | (1) HOUSEHOLD WITH A CURRENT INTERNATIONAL MIGRANT | | (2) HOUSEHOLD WITH A CURRENT INTERNAL MIGRANT | | (3) HOUSEHOLD WITH NO CURRENT MIGRANT | | (1) VS (3) |
|---|---|---|---|---|---|---|---|
| | MEAN | SE | MEAN | SE | MEAN | SE | P-VALUE |
| *A. All working-age adults* | | | | | | | |
| Working, any occupation† | 0.392 | 0.015 | 0.604 | 0.013 | 0.612 | 0.016 | *** |
| Farm self-employed† | 0.047 | 0.005 | 0.097 | 0.009 | 0.136 | 0.015 | *** |
| Farm contributing family worker† | 0.245 | 0.014 | 0.425 | 0.013 | 0.396 | 0.013 | *** |
| Agricultural laborer† | 0.002 | 0.001 | 0.010 | 0.003 | 0.007 | 0.002 | *** |
| Processing (agricultural products)† | 0.002 | 0.001 | 0.005 | 0.002 | 0.010 | 0.002 | *** |
| Trading (agricultural products)† | 0.018 | 0.003 | 0.041 | 0.005 | 0.032 | 0.003 | *** |
| Nonagricultural laborer† | 0.091 | 0.008 | 0.095 | 0.007 | 0.098 | 0.010 | |
| Observations | 1428 | | 1694 | | 1849 | | |
| *B. All working-age women* | | | | | | | |
| Working, any occupation† | 0.255 | 0.015 | 0.477 | 0.014 | 0.467 | 0.025 | *** |
| Farm self-employed† | 0.017 | 0.004 | 0.043 | 0.005 | 0.062 | 0.008 | *** |
| Farm contributing family worker† | 0.171 | 0.015 | 0.362 | 0.014 | 0.342 | 0.021 | *** |
| Agricultural laborer† | 0.001 | 0.001 | 0.003 | 0.002 | 0.006 | 0.002 | ** |
| Processing (agricultural products)† | 0.001 | 0.001 | 0.009 | 0.003 | 0.011 | 0.004 | ** |
| Trading (agricultural products)† | 0.016 | 0.003 | 0.033 | 0.006 | 0.026 | 0.004 | * |
| Nonagricultural laborer† | 0.041 | 0.006 | 0.046 | 0.005 | 0.045 | 0.009 | |
| Observations | 894 | | 981 | | 951 | | |

*Note:* * the difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. SE = standard error.

## **TABLE B5.** WOMEN'S EMPOWERMENT OUTCOMES BY MIGRATION STATUS, NEPAL

| | WOMEN ONLY, A-WEAI SAMPLE | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1) HOUSEHOLD WITH A CURRENT INTERNATIONAL MIGRANT | | | (2) HOUSEHOLD WITH NO CURRENT MIGRANT | | | |
| | N | MEAN | SE | N | MEAN | SE | P-VALUE |
| ***Production*** | | | | | | | |
| **# of work activities** | 421 | 2.76 | 0.07 | 303 | 2.92 | 0.04 | ** |
| **# of agriculture activities** | 421 | 2.64 | 0.05 | 303 | 2.72 | 0.04 | ** |
| **Input in decision-making in AT LEAST TWO productive domains†** | 408 | 0.96 | 0.01 | 289 | 0.96 | 0.01 | |
| **Decision-making, solely or jointly, land†** | 405 | 0.86 | 0.07 | 287 | 0.85 | 0.08 | |
| **Access to agriculture information†** | 407 | 0.91 | 0.04 | 289 | 0.95 | 0.01 | |
| ***Resources*** | | | | | | | |
| **Respondent owns assets, solely or jointly†** | 421 | 0.99 | 0.00 | 303 | 1.00 | 0.00 | |
| **Respondent owns land, solely or jointly†** | 405 | 0.33 | 0.03 | 287 | 0.31 | 0.05 | |
| **Decision-making on credit†** | 421 | 0.46 | 0.03 | 303 | 0.51 | 0.03 | * |
| **Has a bank account†** | 421 | 0.55 | 0.01 | 303 | 0.48 | 0.06 | |
| ***Income*** | | | | | | | |
| **Decision-making: agricultural income†** | 421 | 0.93 | 0.03 | 303 | 0.94 | 0.01 | |
| **Decision-making: nonagricultural income†** | 421 | 0.11 | 0.01 | 303 | 0.19 | 0.02 | ** |
| ***Leadership*** | | | | | | | |
| **Membership (any group)†** | 421 | 0.56 | 0.03 | 303 | 0.47 | 0.00 | ** |
| ***Time use*** | | | | | | | |
| **# minutes worked** | 421 | 593.01 | 16.12 | 303 | 585.43 | 2.80 | |
| **Respondent worked <10.5 hours in previous 24 hours†** | 421 | 0.48 | 0.05 | 303 | 0.55 | 0.03 | * |

*Note:* * The difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. SE = standard error.

## **TABLE B6.** WOMEN'S EMPOWERMENT OUTCOMES BY MIGRATION STATUS, SENEGAL

| | WOMEN ONLY, A-WEAI SAMPLE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) HOUSEHOLD WITH A CURRENT INTERNATIONAL MIGRANT | | | (2) HOUSEHOLD WITH A CURRENT INTERNAL MIGRANT | | | (3) HOUSEHOLD WITH NO CURRENT MIGRANT | | | (1) vs (3) |
| | N | MEAN | SE | N | MEAN | SE | N | MEAN | SE | P-VALUE |
| ***Productive activities*** | | | | | | | | | | |
| **# of work activities** | 153 | 0.51 | 0.08 | 181 | 0.78 | 0.05 | 200 | 0.52 | 0.06 | |
| **# of agriculture activities** | 153 | 0.44 | 0.08 | 181 | 0.71 | 0.05 | 200 | 0.47 | 0.06 | |
| **Input in decision-making in AT LEAST TWO productive domains†** | 153 | 0.26 | 0.04 | 181 | 0.35 | 0.03 | 200 | 0.29 | 0.03 | |
| **Decision-making, solely or jointly, land†** | 96 | 0.37 | 0.10 | 111 | 0.34 | 0.09 | 146 | 0.36 | 0.07 | |
| **Access to agriculture information†** | 153 | 0.20 | 0.03 | 181 | 0.31 | 0.03 | 198 | 0.25 | 0.03 | |
| ***Asset ownership*** | | | | | | | | | | |
| **Respondent owns assets, solely or jointly†** | 153 | 0.78 | 0.03 | 181 | 0.88 | 0.02 | 200 | 0.87 | 0.01 | ** |
| **Respondent owns land, solely or jointly†** | 96 | 0.56 | 0.05 | 110 | 0.55 | 0.05 | 146 | 0.56 | 0.03 | |
| **Decision-making on credit†** | 153 | 0.13 | 0.02 | 181 | 0.27 | 0.03 | 200 | 0.11 | 0.02 | |
| **Has a bank account†** | 153 | 0.05 | 0.02 | 181 | 0.02 | 0.01 | 200 | 0.03 | 0.01 | * |
| ***Decision-making: land and income*** | | | | | | | | | | |
| **Decision-making: agricultural income†** | 154 | 0.21 | 0.03 | 181 | 0.32 | 0.02 | 200 | 0.25 | 0.03 | |
| **Decision-making: nonagricultural income†** | 154 | 0.06 | 0.02 | 181 | 0.05 | 0.02 | 200 | 0.02 | 0.01 | ** |
| ***Group membership*** | | | | | | | | | | |
| **Membership (any group)†** | 154 | 0.26 | 0.06 | 181 | 0.35 | 0.02 | 200 | 0.33 | 0.02 | |

*Note:* * The difference is significant at the 10% level; ** – at the 5%: *** – at the 1% level. † A dummy variable. SE = standard error.

# ANNEX C:
# ASSOCIATION BETWEEN FOOD INSECURITY EXPERIENCE SCALE AND MIGRATION STATUS

**TABLE C1.** THE CORRELATION BETWEEN MIGRATION STATUS, REMITTANCES, AND HOUSEHOLD FOOD INSECURITY, NEPAL

| | FImod+sev | FImod+sev | FImod+sev | FImod+sev | FImod+sev |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **International migrant in household** | –0.00689 | 0.00387 | 0.00375 | 0.00767 | 0.00944 |
| | (0.0188) | (0.0277) | (0.0215) | (0.0252) | (0.0225) |
| **Remittances** | | –0.0146 | | | |
| | | (0.0293) | | | |
| **Total remittances in US$, outliers removed** | | | –5.84e–06 | –1.16e–05 | 1.04e–05 |
| | | | (4.34e–06) | (1.63e–05) | (1.72e–05) |
| **Total remittances SQUARED in US$, outliers removed** | | | | 9.62e–10 | |
| | | | | (2.28e–09) | |
| **Total remittances in US$ INTERACTED with ABROAD migration, outliers removed** | | | | | –1.77e–05 |
| | | | | | (1.73e–05) |
| **Observations** | 994 | 994 | 994 | 994 | 994 |

*Note:* Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
All models also include the following controls: Household head age and age squared; marital status; sex; education; whether the head belongs to high or low caste; whether the head is a Muslim; the maximum education achieved by anyone in the household; household demographic structure (the number of children under 5, children 5-10 years old, male and female children 11-14 years old, males and females 15-17 years old, number of adult men and adult women in the household); wealth variables (including material of walls, roof, and floor, the type of toilet, access to electricity, access to piped water, whether the drinking water source is on the household grounds, whether the household owns land and area of land owned, livestock ownership measured in TLU); whether the respondent is a woman; and district-level dummies.

## **TABLE C2.** THE CORRELATION BETWEEN MIGRATION STATUS, REMITTANCES, AND HOUSEHOLD FOOD INSECURITY, SENEGAL

| | FImod+sev | FImod+sev | FImod+sev | FImod+sev | FImod+sev |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **International migrant in household†** | –0.0149 | 0.0450 | –0.00858 | 0.0280 | 0.0239 |
| | (0.0522) | (0.0575) | (0.0544) | (0.0523) | (0.0533) |
| **Internal migrant in household†** | 0.0509 | 0.0920** | 0.0527 | 0.0738* | 0.0640 |
| | (0.0406) | (0.0450) | (0.0411) | (0.0403) | (0.0418) |
| **Remittances†** | | –0.128** | | | |
| | | (0.0534) | | | |
| **Total remittances in US$, outliers removed** | | | –4.72e–05 | –0.00069*** | 0.000204* |
| | | | (0.000109) | (0.00016) | (0.000111) |
| **Total remittances SQUARED in US$, outliers removed** | | | | 3.81e–07*** | |
| | | | | (1.05e–07) | |
| **Total remittances in US$ INTERACTED with ABROAD migration, outliers removed** | | | | | –0.00044*** |
| | | | | | (0.00013) |
| **Total remittances in US$ INTERACTED with INTERNAL migration, outliers removed** | | | | | –0.000346** |
| | | | | | (0.000147) |
| **Observations** | 976 | 976 | 976 | 976 | 976 |

*Note:* Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
All models also include the following controls: Household head age and age squared; marital status; sex; education; whether the head belongs to Pular, Sirer, or Wolof/Libou ethnic groups; the maximum education achieved by anyone in the household; household demographic structure (the number of children under 5, children 5–10 years old, male and female children 11–14 years old, males and females 15-17 years old, number of adult men and adult women in the household); wealth variables (including material of walls, roof, and floor, the type of toilet, access to electricity, access to piped water, whether the drinking water source is on the household grounds, whether the household owns land and area of land owned, livestock ownership measured in TLU); whether the respondent is a woman; and whether the household receives social transfers.

## ANNEX D:

# REGRESSION OF INTEREST (EMPLOYMENT OUTCOMES)

## TABLE D1. THE IMPACT OF MIGRATION ON EMPLOYMENT OUTCOMES FOR WOMEN, NEPAL

| VARIABLES | Employed (any) (1) | Farm self-employed (2) | Farm contributing family workers (3) | Agricultural (wage) laborers (4) | Processing (agricultural products) (5) | Trading (agricultural products) (6) | Nonagricultural workers (7) | Professional (8) |
|---|---|---|---|---|---|---|---|---|
| *A. Base model - no controls for remittances (N=1667) , OLS* | | | | | | | | |
| International migrant in household | –0.00508 | 0.167*** | –0.177*** | 0.00199 | –0.0332** | 0.00309 | –0.00604 | 0.00298 |
| | (0.0174) | (0.0241) | (0.0274) | (0.0118) | (0.0168) | (0.00382) | (0.0124) | (0.00952) |
| *B. Controlling for migration and remittances (N=1618‡), OLS* | | | | | | | | |
| Household with an international migrant, with remittances | 6.71e–05 | 0.214*** | –0.218*** | –0.00104 | –0.0400** | 0.00311 | 0.000198 | 0.00227 |
| | (0.0186) | (0.0252) | (0.0291) | (0.0134) | (0.0188) | (0.00419) | (0.0130) | (0.0103) |
| Household with an international migrant, no remittances | –0.0419 | 0.0745* | –0.135*** | –0.0326 | –0.00817 | 0.00372 | 0.00239 | –0.00703 |
| | (0.0427) | (0.0425) | (0.0512) | (0.0230) | (0.0268) | (0.00289) | (0.0203) | (0.00940) |
| Internal migrant in household | –0.0234 | 0.190*** | –0.252*** | –0.0320* | –0.0403 | 0.000553 | 0.0248 | –0.00813 |
| | (0.0382) | (0.0499) | (0.0589) | (0.0190) | (0.0337) | (0.00174) | (0.0278) | (0.00774) |

*Note:* Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

‡ For greater clarity, women in households that receive remittances but do not have an international migrant are excluded from the estimation in Panel B (these women constitute around 3 percent of the finale female sample). In Panel B the base category includes households with no internal or international migrants that do not receive remittances either.

All models also include the following controls: age; age squared; marital status; educational attainment; whether the woman is high caste or low caste; whether she is Muslim; household demographic structure (the number of children under 5, children 5–10 years old, male and female children 11–14 years old, males and females 15–17 years old, number of adult men and adult women in the household); wealth variables (including material of walls, roof, and floor, the type of toilet, access to electricity, access to piped water, whether the drinking water source is on the household grounds, whether the household owns land and area of land owned, livestock ownership measured in TLU); and district dummies.

## TABLE D2. THE IMPACT OF MIGRATION ON EMPLOYMENT OUTCOMES FOR WOMEN, SENEGAL

| VARIABLES | Employed (any) (1) | Farm self-employed (2) | Farm contributing family workers (3) | Agricultural (wage) laborers (4) | Processing (agricultural products) (5) | Trading (agricultural products) (6) | Nonagricultural work (7) | Professional (8) | Other (9) |
|---|---|---|---|---|---|---|---|---|---|
| *A. Base model - no controls for remittances (N=2826), OLS* | | | | | | | | | |
| International migrant in household | –0.0188 | –0.00442 | –0.0122 | –0.00325 | –0.000912 | –0.00610 | –0.00512 | 0.00782 | 0.0119* |
| | (0.0248) | (0.00970) | (0.0213) | (0.00253) | (0.00355) | (0.00805) | (0.0125) | (0.00497) | (0.00661) |
| Internal migrant in household | 0.0214 | –0.0121 | 0.0279 | –0.000696 | –0.00388 | 0.00544 | 0.00286 | 0.00616 | –0.00427 |
| | (0.0236) | (0.0121) | (0.0222) | (0.00370) | (0.00543) | (0.00823) | (0.0112) | (0.00487) | (0.00805) |
| *B. Controlling for migration and remittances (N=2795‡), OLS* | | | | | | | | | |
| Household with an international migrant, with remittances | –0.0396 | –0.00372 | –0.0243 | –0.00455* | –0.00321 | –0.0110 | 0.00723 | 0.00347 | 0.00505 |
| | (0.0285) | (0.0117) | (0.0247) | (0.00237) | (0.00463) | (0.00889) | (0.0145) | (0.00627) | (0.00738) |
| Household with an international migrant, no remittances | –0.0173 | –0.0163 | –0.0113 | –0.00225 | 0.00133 | –0.00179 | –0.0203 | 0.0131** | 0.0198** |
| | (0.0325) | (0.0105) | (0.0280) | (0.00415) | (0.00288) | (0.0100) | (0.0150) | (0.00657) | (0.00960) |
| Internal migrant in household | 0.00421 | –0.0172 | 0.0159 | –0.000933 | –0.00457 | 0.00358 | 0.00462 | 0.00559 | –0.00607 |
| | (0.0243) | (0.0124) | (0.0229) | (0.00376) | (0.00578) | (0.00826) | (0.0115) | (0.00506) | (0.00885) |

*Note:* Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

‡ For greater clarity, women in households that receive remittances but do not have any migrants are excluded from the model. About one percent of women in the final sample belong to households that report receiving remittances although they do not have an international migrant. In Panel B the base category includes households with no internal or international migrants that do not receive remittances.

All models also include the following controls: age; age squared; marital status; educational attainment; whether the women is Pular, Sirer, or Wolof/Libou ethnicity; household demographic structure (the number of children under 5, children 5–10 years old, male and female children 11–14 years old, males and females 15–17 years old, number of adult men and adult women in the household); wealth variables (including material of walls, roof, and floor, the type of toilet, access to electricity, access to piped water, whether the drinking water source is on the household grounds, whether the household owns land and area of land owned, livestock ownership measured in TLU); whether the household receives social transfers; and department dummies.

## ANNEX E:

# REGRESSION OF INTEREST (EMPOWERMENT OUTCOMES)

## **TABLE E1.** THE ASSOCIATION BETWEEN MIGRATION (WITH AND WITHOUT REMITTANCES) AND THE EMPOWERMENT OF WOMEN, NEPAL, OLS

| | # of activities in which individual participates | # of AG activities in which individual participates | Input in decisions in AT LEAST 2 domains | Access info for at least 1 AG activity | Solely or jointly owns AT LEAST two small assets | Makes decisions about credit | Access to a financial account | Makes decisions about what to plant on ANY land | Resp. solely or jointly owns land | Decides about the use of AG income | Decides about the use of non-AG income | Member of at least 1 community group | Minutes spent on work | Respondent worked less than 10.5 hours in previous 24 hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| ***A. Base model - no controls for remittances, OLS*** | | | | | | | | | | | | | | |
| **International migrant in household** | –0.185* | –0.0933 | 0.0013 | –0.0077 | 2.16e–05 | –0.0249 | 0.0386 | 0.070** | 0.0636 | 0.0136 | –0.089*** | 0.120*** | –4.851 | –0.0315 |
| | (0.097) | (0.096) | (0.018) | (0.021) | (0.005) | (0.049) | (0.042) | (0.031) | (0.043) | (0.022) | (0.034) | (0.046) | (12.59) | (0.045) |
| **Observations** | 726 | 726 | 699 | 698 | 726 | 726 | 726 | 694 | 694 | 726 | 726 | 726 | 726 | 726 |
| ***B. Controlling for migration and remittances‡, OLS*** | | | | | | | | | | | | | | |
| **Household with an international migrant, with remittances** | –0.223** | –0.104 | –0.0131 | 0.00165 | 0.00458 | 0.00820 | 0.0839* | 0.0842** | 0.0679 | 0.0305 | –0.116*** | 0.153*** | 6.120 | –0.0660 |
| | (0.107) | (0.107) | (0.0152) | (0.0216) | (0.00606) | (0.0541) | (0.0469) | (0.0335) | (0.0463) | (0.0252) | (0.0391) | (0.0518) | (13.94) | (0.0500) |
| **Household with an international migrant, no remittances** | –0.547** | –0.418* | –0.0207 | –0.141** | –0.0221 | –0.0185 | –0.0626 | 0.0743 | –0.0625 | –0.0834 | –0.109* | –0.0719 | –26.68 | 0.0558 |
| | (0.230) | (0.218) | (0.0406) | (0.0695) | (0.0351) | (0.0868) | (0.0787) | (0.0735) | (0.0698) | (0.0595) | (0.0631) | (0.0843) | (26.36) | (0.0906) |
| **Internal migrant in household** | –0.271 | –0.118 | –0.0479 | –0.0341 | 0.0129 | 0.0864 | 0.0803 | 0.0589 | –0.0935 | 0.0158 | –0.145** | 0.0862 | 19.62 | –0.0854 |
| | (0.179) | (0.179) | (0.0460) | (0.0557) | (0.0105) | (0.0928) | (0.0997) | (0.0485) | (0.0671) | (0.0501) | (0.0588) | (0.0814) | (25.20) | (0.0913) |
| **Observations** | 706 | 706 | 680 | 679 | 706 | 706 | 706 | 675 | 675 | 706 | 706 | 706 | 706 | 706 |

*Note:* Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. OLS = ordinary least squares.
‡ For greater clarity, women in households that receive remittances but do not have an international migrant are excluded from the estimation in Panel B. In Panel B the base category includes women in households with no internal or international migrants that do not receive remittances.
All models include the same controls as in Table B1.

## **TABLE E2.** THE IMPACTS OF MIGRATION AND REMITTANCES ON THE EMPOWERMENT OF WOMEN, SENEGAL, OLS

| | # of activities in which individual participates | # of AG activities in which individual participates | Input in decisions in AT LEAST 2 domains | Access info for at least 1 AG activity | Solely or jointly owns AT LEAST two small assets | Makes decisions about credit | Access to a financial account | Makes decisions about what to plant on ANY land | Resp. solely or jointly owns land | Decides about the use of AG income | Decides about the use of non-AG income | Member of at least 1 community group |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| ***Female Respondents*** | | | | | | | | | | | | |
| **International migrant in household** | –0.182 | –0.167 | –0.122* | –0.141** | –0.0434 | 0.0792** | 0.0301 | –0.0141 | –0.109 | –0.119* | 0.00515 | –0.0153 |
| | (0.137) | (0.132) | (0.0670) | (0.0636) | (0.0492) | (0.0400) | (0.0267) | (0.0837) | (0.0814) | (0.0658) | (0.0286) | (0.0594) |
| **Internal migrant in household** | 0.139 | 0.110 | –0.00132 | –0.00121 | 0.00139 | 0.159*** | –0.000650 | 0.0219 | –0.0343 | 0.00777 | 0.0340* | –0.0317 |
| | (0.126) | (0.122) | (0.0594) | (0.0569) | (0.0399) | (0.0452) | (0.0186) | (0.0725) | (0.0709) | (0.0580) | (0.0181) | (0.0527) |
| **Observations** | 534 | 534 | 534 | 532 | 534 | 534 | 534 | 353 | 352 | 535 | 535 | 535 |
| **Household with an international migrant, with remittances** | –0.0730 | –0.0654 | –0.0834 | –0.124* | –0.0746 | 0.0566 | 0.0517 | –0.0151 | –0.114 | –0.0844 | 0.00742 | –0.0195 |
| | (0.163) | (0.155) | (0.0774) | (0.0736) | (0.0587) | (0.0437) | (0.0328) | (0.109) | (0.103) | (0.0753) | (0.0336) | (0.0701) |
| **Household with an international migrant, no remittances** | –0.334** | –0.313** | –0.175** | –0.164** | 0.00850 | 0.118** | –0.00232 | –0.00406 | –0.105 | –0.163** | 0.00293 | –0.0191 |
| | (0.150) | (0.141) | (0.0790) | (0.0745) | (0.0618) | (0.0570) | (0.0344) | (0.0923) | (0.100) | (0.0752) | (0.0369) | (0.0750) |
| **Internal migrant in household** | 0.141 | 0.112 | –0.000157 | 0.000437 | 0.00602 | 0.157*** | –0.000874 | 0.0271 | –0.0392 | 0.00833 | 0.0345* | –0.0350 |
| | (0.129) | (0.125) | (0.0604) | (0.0578) | (0.0410) | (0.0454) | (0.0191) | (0.0739) | (0.0727) | (0.0592) | (0.0182) | (0.0538) |
| **Observations** | 529 | 529 | 529 | 527 | 529 | 529 | 529 | 349 | 348 | 530 | 530 | 530 |

*Note:* Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. OLS = ordinary least squares.
‡ For greater clarity, women in households that receive remittances but do not have an international migrant are excluded from the estimation in Panel B. In Panel B the base category includes women in households with no internal or international migrants that do not receive remittances.
All models include the same controls as in Table B2.

**ANNEX F:**

# REGRESSION OF INTEREST (ADDRESSING ENDOGENEITY)

## TABLE F1. THE IMPACT OF MIGRATION ON TYPES OF WORK FOR WOMEN, NEPAL, 2SLS

| | Employed (any) | Farm self-employed | Farm contributing family workers | Agricultural (wage) laborers | Processing (agricultural products) | Trading (agricultural products) | Nonagricultural workers | Professional |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | | | | B. Women (obs. 1,667) | | | | |
| **International migrant in household** | –0.136 | 0.253* | –0.427*** | 0.0596 | 0.108 | 0.0132 | 0.119 | –0.0989 |
| | (0.0924) | (0.135) | (0.151) | (0.0789) | (0.0863) | (0.0190) | (0.0734) | (0.0623) |
| **F-test** | 20.90 | 20.90 | 20.90 | 20.90 | 20.90 | 20.90 | 20.90 | 20.90 |
| **Sargan-Hansen (p value)** | 0.9147 | 0.368 | 0.0540 | 0.246 | 0.00303 | 0.251 | 0.904 | 0.257 |

*Note:* Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
2SLS = two-stage least squares. All models include the same controls as in Table B1.

## TABLE F2. THE IMPACT OF MIGRATION ON TYPES OF WORK FOR WOMEN, SENEGAL, 2SLS

| VARIABLES | Employed (any) | Farm self-employed | Farm contributing family workers | Agricultural (wage) laborers | Processing (agricultural products) | Trading (agricultural products) | Nonagricultural workers | Professional | Other |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | | | | | B. Women (2,637) | | | | |
| International migrant in household | 0.269 | 0.144* | 0.242 | 0.013 | 0.0104 | –0.083 | 0.0706 | 0.0306 | 0.0347 |
| | (0.249) | (0.0834) | (0.205) | (0.0244) | (0.0333) | (0.103) | (0.143) | (0.0193) | (0.0777) |
| Internal migrant in household | 0.00697 | –0.0898 | 0.307 | 0.063 | –0.0369 | –0.0132 | 0.0544 | 0.0406 | 0.292* |
| | (0.25) | (0.144) | (0.258) | (0.0477) | (0.0476) | (0.102) | (0.125) | (0.0285) | (0.162) |
| Observations | 2,637 | 2,637 | 2,637 | 2,637 | 2,637 | 2,637 | 2,637 | 2,637 | 2,637 |
| F-test | 10.38 | 11.55 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 |
| Sargan-Hansen (p value) | 0.752 | 0.0589 | 0.473 | 0.269 | 0.118 | 0.921 | 0.567 | 0.59 | 0.175 |

*Note:* Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
2SLS = two-stage least squares. All models include the same controls as in Table B2.

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