

This is a pre-publication draft of the following article:
Zinda, John Aloysius, and Amit Anshumali. 2022. "How Gender Dynamics Shape Off-Farm Work in Upland Southwest China." *Rural Sociology*. doi: 10.1111/ruso.12456.

How Gender Dynamics Shape Off-Farm Work in Upland Southwest China

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Abstract

Gendered demands for productive and reproductive labor differently affect men's and women's decisions about not only whether to undertake off-farm work, but where. With data from a survey of households in southwestern China, we examine the effects of individual, household, and community attributes on decisions to take local or distant off-farm work. Men's and women's off-farm work decisions respond differently to care and farmwork needs. For women, the primary trade-off is between distant off-farm work and none. For men, the primary trade-off is between distant and local off-farm work. Women in households with more working-age members are more likely to take distant off-farm work rather than stay on the farm. Increased education and household labor make men more likely to take distant relative to local off-farm work. Household land holdings also have differing effects: for women, increased cropland area reduces odds of migration, while for men it increases odds of local relative to distant off-farm work. By disaggregating off-farm work location, we uncover gendered patterns that binary approaches to off-farm work or migration obscure.

Introduction

How do gender and household structure converge to shape people’s decisions about where to take up off-farm work? Off-farm work has become a core component of rural livelihoods in many locales (Rigg 2006). In some cases off-farm workers transition to permanent urban residence, but in many contexts, off-farm work brings income that supports continued smallholder farming within translocal, multigenerational household strategies (Fan, Sun, and Zheng 2011; Ploeg and Ye 2010; Rigg, Salamanca, and Thompson 2016). The options and demands a household livelihood strategy presents depend on an individual’s age, gender, and role in the household as well as the structure and assets of the household and social and economic conditions that vary geographically (Caviglia-Harris and Sills 2005; Ellis 2000; Piotrowski, Ghimire, and Rindfuss 2013; Tong, Shu, and Piotrowski 2019).

These conditions bear not just on whether a person seeks off-farm employment, but on the timing and location of that work. Individuals whose labor is needed for sowing or harvest may seek work in times or places that enable them to be available for these tasks. Children and elderly household members often need care that requires caregivers to stay home or nearby. Recent work on off-farm labor decisions has begun to look beyond binary choices of whether to take off-farm work or migrate, examining multiple dimensions of off-farm work decisions, including duration (Willmore, Cao, and Xin 2012), location (Chang, MacPhail, and Dong 2011; Gray 2009a; Piotrowski et al. 2013), and occupation (VanWey and Vithayathil 2013). Some analysts have turned their focus on the forces driving not just mobility but immobility—situations in which people stay in place (Schewel 2020). The ways gender, life-course, and household life-cycle factors influence off-farm work participation have also drawn closer attention (Mao, Connelly, and Chen 2018; VanWey and Vithayathil 2013; Xie, Liu, and Xu 2019).

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This study asks how individual attributes and household composition affect off-farm work decisions in a peripheral region, with a focus on gender differences. Using survey data from upland southwest China, we examine associations between individual, household, and community attributes and individual engagement in distant, local, or no off-farm work for women and men respectively.

Our core finding is that women and men respond differently to variation in household demographic composition not just in deciding *whether* to take off-farm work, but *where*. For women, the primary trade-off is between distant off-farm work and none. Women in households with more working-age members are more likely to take distant off-farm work rather than stay on the farm. For men, the primary trade-off is between distant and local off-farm work.

Household assets and land holdings also have differing effects: for women, who do most day-to-day farmwork, increased cropland area reduces odds of distant relative to no off-farm work, while for men it increases odds of local relative to distant off-farm work. Women in communities with less land per household are also more likely to take distant off-farm work. By specifying the location of off-farm work, this study illuminates complex gendered patterns that cannot be distinguished by analyses that treat migration as a binary decision of whether to leave or not.

Background

Off-farm labor decisions do not only involve productive labor; they also reflect allocations of time and effort to the reproductive labor of care for household members. Both ability to work and care demands vary with household structure and over time within household life-cycles (Chen and Korinek 2010; Mao et al. 2018). On-farm labor, local off-farm work, and long-distance migration each present distinct opportunities and constraints. Hence, to understand off-

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farm work decisions, it is important to examine how both local and distant off-farm work options articulate with gendered life courses within households.

From likelihood to location of off-farm work

Much research on off-farm work decisions focuses on long-distance migration. Extensive population flows between urban and rural areas have wide-ranging effects. However, if we start from a perspective rooted in the places migrants come from, we see that long-distance migration is often one of multiple options people consider pulling into their livelihood portfolios (Ellis 2000; Manivong, Cramb, and Newby 2014; Ye 2018). The extent to which long-distance migration predominates in off-farm work decisions in China has changed over time. Early in China's economic boom, township and village enterprises drove a renaissance of rural off-farm employment, mainly in eastern provinces (Y. Huang 2008; Oi 1999). By the 1990s, interprovincial migration to coastal manufacturing centers had come to predominate (Fan 2005). Yet local off-farm work was still available in many areas. Guang and Zheng (2005) demonstrated that many people in rural China tend to prefer local off-farm work to migration, undertaking the latter only when advantageous local opportunities are lacking. Difficulties long-distance travel poses, poor working and living conditions and discriminatory policies migrants encounter at their destinations, and attachments to home and family contribute to this pattern (Piotrowski and Tong 2013; Swider 2016). This point has been borne out as rising labor costs in coastal areas and inland economic development have brought a backflow of workers to inland areas (Liang, Li, and Ma 2014; Yang and Gallagher 2017; Zhu and Pickles 2014). Moreover, infrastructure construction, expanding resource extraction, tourism, and investment in small cities and towns have expanded local off-farm work opportunities in many rural areas (Huber et al. 2014; Ploeg and Ye 2010; Zinda 2017). Recent studies document increases in workers in

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historically migrant-sending areas choosing local off-farm work over migration (Chen and Zhao 2017; Yin et al. 2020). Meanwhile, hundreds of millions of "stayers" maintain variously diversified livelihoods and rural identities (Ye 2018).

How do long-distance migrants and people who take local off-farm work differ? The sorts of jobs available in local and distant places matter a great deal. Wage and salaried employment options in rural China vary greatly by locale. They may include jobs in local government, education, and retail in towns as well as construction, resource extraction, transportation, and farm labor. In some places, small-scale manufacturing work is available. Given the common preference for local work discussed above, we might expect people with more options to work locally rather than far away: those with higher education levels, in households with greater wealth. However, education can have limited returns for local work, as rural communities may not offer employment that fits the qualifications of college graduates. Some studies find education has an increasing, then decreasing effect on the probability of long-distance migration (Xiao and Zhao 2018). A recent study in eastern China found that individuals with college degrees are more likely to work in large cities than small cities or rural townships (Hao and Tang 2018). Younger adults are more likely to take off-farm work outside their home county, while older adults are more likely to work off-farm in the home village or township (Liu et al. 2014). Men who return from migration are more likely than non-migrants to be locally self-employed, suggesting that long-distance migration can enable individuals to accumulate capital, knowledge, and connections that they bring home and employ in entrepreneurship (Démurger and Xu 2011; Murphy 2002). This pattern highlights gender differences in patterns of local and distant off-farm work.

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Gender, Off-Farm Work, and Care

People make decisions about off-farm work in relation to gendered roles within households that may send out migrants, receive remittances, tend crops and livestock, raise children, and care for elders. Feminist scholars have critiqued household livelihoods research for failing to unpack the uneven, unequal, and often conflictual relationships within which household members negotiate livelihood decisions (Chant 1998; Lawson 1998; Radcliffe 1991). The terminology of livelihood strategies can suggest rationally planned decision-making, but in practice livelihood strategies are more often contingent, conflictual, and based as much in values and guesses as calculation (Eder 2006). Household studies may also privilege particular conceptions of household, ignoring identities and livelihood strategies that stretch beyond single habitations or nuclear kin units (Chant 1998). Individual differences in resources and abilities articulate with gendered norms that privilege men in making decisions and undervalue women's labor (Lawson 1998; Rao et al. 2020). While we do not directly examine the mechanics of intra-household negotiations and extra-household connections, our analysis addresses the outflows of these negotiations in how individual and household factors jointly shape off-farm work decisions.¹

Within the People's Republic of China, through the 1990s, two-thirds of rural-urban migrant workers were men (Fan 2005). Recently, the numerical gender gap has narrowed, and over the life course women and men now migrate in nearly equal numbers (Chiang, Hannum, and Kao 2015). Nonetheless, important differences persist. Women and men migrate at different ages. Among younger migrants, surveys frequently find near gender parity (Fan and Chen 2013). However, men migrate at high rates throughout adulthood, while women's migration peaks in early adulthood (Li et al. 2013). Job markets and family dynamics combine to produce this disparity. Manufacturers in some sectors prefer women for assembly line work because women

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workers command lower wages and are perceived to be docile (Lee 1998). Women predominate in domestic, hotel, and restaurant work, as employers exploit gendered expectations (Fan 2003). Household and community members often expect young women to migrate to provide income for the household until they marry, and then to return to tend farms and children (Chuang 2016)—though many women resist these demands (Gaetano 2015). Women are more likely than men to migrate to larger cities, where manufacturing and service employment is concentrated, than to small and medium-sized cities (Hao and Tang 2018). Men dominate local off-farm work in rural areas (Liu et al. 2014; Tong et al. 2019). Women who stay in rural areas or return from migrant work are less likely than men to start businesses at home, in part because they are saddled with carework and in part because of social norms that assist men and hinder women in entrepreneurship (Chuang 2016; Tong et al. 2019).

Off-farm work articulates with agriculture in complicated ways. On one hand, income from off-farm work can pay for agricultural intensification. On the other hand, it can divert resources away from farming (Gray 2009b; Qin and Liao 2016; Taylor et al. 2003). Depending on labor market and land access conditions, agricultural machinery and synthetic inputs can free up labor for off-farm work or deter migration by making farming more rewarding (Piotrowski et al. 2013). Within households, gender norms surrounding specific on-farm activities may create demands for men's or women's labor at particular times (Zinda and Kapoor 2019). In some cases off-farm work may destabilize these norms. With husbands away, women may undertake activities men had previously managed. In others, gendered agricultural labor demands may shape when and where men and women undertake off-farm work. Research in China has found that when a migrant leaves a household, women's and elderly household members' time allocation to agricultural and domestic work increases (Cook and Dong 2011). Women often

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manage farms in men's absence, and hence migration by women reduces households' engagement in agriculture (K. Huang et al. 2020; Tong et al. 2019).

Given the trade-offs and demands posed by off-farm work, multi-generational bargaining within families shapes when and how women and men work off the farm. Ploeg and Ye (2010) present rural-to-urban labor migration in China as part of a moral economy of intergenerational reciprocity centered on men. Young men go out to earn income to support children and the elderly while the older generation cares for children. After some years away, men return to tend grandchildren and the farm as members of the next generation migrate. This picture elides the roles of women and the practices that underpin men's migration. Often, women migrate before marriage to support the family financially and then return to raise children, care for elders, and run the farm to maintain a rural safety-net for their husbands' precarious migrant forays (Chuang 2016). Married women face a double bind, expected to support migrant spouses as well as ensure that their spouses' parents are provided for. Rather than simply reproducing past practices, disparate wages and expectations for men and women at distant workplaces create a what Chuang (ibid.) calls a "new patriarchal bargain."

In this context, demands for childcare and the availability of grandparents to provide childcare are important determinants of gender-varying participation in off-farm employment. Studies that do not differentiate by gender often find that children reduce migration probability (Xiao and Zhao 2018). Where effects for both men and women are evaluated, children, particularly younger than school age, often decrease women's probability of off-farm work but not men's (Ding, Dong, and Maurer-Fazio 2018; Willmore et al. 2012; Xie et al. 2019).

Elderly adults may provide support for farmwork and childcare but may also require care themselves (Qiao et al. 2015). Some studies find a positive effect of elderly household members

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on off-farm work for men, but no effect for women (Xie et al. 2019): with elderly household members available to do farmwork and childcare, men are more free to work off-farm, while women may remain home to take part in these tasks as well as to care for elderly household members. Older or unwell adults may not be able to perform these tasks and, moreover, may require care from younger adults in the household. This could reduce propensities to take off-farm work. Fengbo Chen and colleagues (2016) find that individuals in a household that includes both individuals over age 60 and young children are more likely to migrate. If an elderly household member has a serious illness, the probability of migrating increases, presumably due to income demands of medical care (ibid.).

People between childbearing years and old age may play a key role in these processes. Members of this group, sometimes referred to as the "sandwich generation," are often able to assist with farmwork and care for both children and elderly household members, facilitating off-farm work by younger adult household members (Mao et al. 2018). Since sandwich generation individuals frequently participate in on-farm and off-farm work, studies frequently include this age group in categories of working-age individuals. However, middle-aged adults show distinctive patterns relative to both younger and older cohorts, often tending children and farms so that younger adults can work off-farm (ibid.). Using data from areas with high concentrations of ethnic minorities, Ding, Sai, and Maurer-Fazio (2018) find that the presence of men and women in this age group increases likelihood of nonlocal off-farm work for both men and women and decreases men's likelihood of local off-farm work. Given this role, we examine whether the joint presence of young children and adults in the sandwich generation increases odds of off-farm work.

Land and other physical assets also impact gendered off-farm work decisions. Assets can enable off-farm work by providing resources that support workers seeking employment (Hunter et al.

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2013; Tiwari and Winters 2019). However, asset poverty can also drive migration (Gray 2009a). Landholdings may affect off-farm work as assets mobilized to support migration, by demanding agricultural labor, by motivating households to invest in expanding their holdings, and by driving divergent behavior through inequality (ibid.; VanWey 2005). In much of rural China during decollectivization in the 1980s, land was allocated to households on a per capita basis, providing for relatively equitable land access. Land rental markets have concentrated landholdings in many places (Ye 2015). However, in areas with weakly developed rental markets, land is not as important in differentiating household wealth, and the labor demand effect is likely to predominate (Zinda and Zhang 2018). As women and elderly people tend to run farms when men are absent (He and Ye 2014; Tong et al. 2019), we may expect greater household landholdings to reduce women's likelihood of off-farm work. At the community level, in upland southwest China, greater village landholdings confer greater access to collective lands used for livestock pasture and forest products (Huber et al. 2014). Forest product use is commonly clustered within households (An and Liu 2010). By reducing access to farmland and forest resources, greater household density may stimulate off-farm work (de Sherbinin et al. 2008). In communities with smaller ratios of households to land, working-age people, particularly women, may be more likely to stay home.

Alongside differing access to jobs, household demands for reproductive labor and on-farm productive labor may lead women and men to make different choices about seeking off-farm work near home or further afield. Existing research suggests that women are more likely than men to work in distant cities and to return to the village after marriage. Having children to care for may keep women at home, though the presence of sandwich generation adults may offset this effect. Men have more opportunities to work locally than women, and as they age they may

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transition from distant to local off-farm work. For both men and women, household land holdings are likely to affect these choices through gender-differentiated farm labor demands.

Methodology

Setting and Data

We analyze data from a survey of households in twelve rural communities² located in the northwestern mountains of Yunnan province, conducted in summer 2014. Communities in two adjacent townships were selected to span key regional socioeconomic and environmental gradients. We sampled four communities each at the banks of the Lancang River (known past China's southern border as the Mekong), four separated from the river by one other community, and four further upslope. These communities vary from fairly well-off to deeply impoverished, and there is substantial socioeconomic variation within each. In ethnic composition, most are predominantly Lisu, with four communities comprising mixtures of Bai, Naxi, Han, and Lisu ethnicities. Crop mixes vary by elevation, with rice and maize planted in the river valleys and a rotation of soy, wheat, and maize complemented by runner beans and medicinal plants grown at high elevations. Most households raise pigs, chickens, and cattle, with some holdings of goats and horses at high elevations. Agricultural activities have changed markedly in the past 3 decades. Cropland areas have fallen due to both state-led tree-planting programs and deliberate cropland abandonment, and many have replaced diverse staple crops with maize, beans, medicinal plants, and walnut orchards (Zinda and Zhang 2019). Off-farm work opportunities were few up to the 1990s, when some residents began to leave for distant locales. Subsequently, migration increased steadily, and local employment in construction, retail, basic manufacturing, and mining emerged. Households often use off-farm income to purchase agricultural machinery

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and synthetic inputs. By 2014, the common refrain was that to get by you had to have someone earning a wage. Half of households surveyed reported members taking off-farm work.

The population of interest is individuals within households that maintain a rural residence and livelihood and who are at risk of taking off-farm work. Within each community, we attempted to survey every household present. We define a household as a collection of people involved together in a common livelihood strategy, usually joined by kinship, including members who migrate to other locations and remit money or goods (Ellis 2000). Community officials provided lists of all households and assisted enumerators in reaching them. Of the total of 500 households listed in formal records in these 12 communities, we obtained valid questionnaires from 408 households (81.6%). Nonrespondent households include elderly individuals or couples who were ill or unable to communicate with interviewers as well as households that had relocated to other locales. Additionally, as our definition of household as livelihood collective did not always coincide with household delineations in the official household registration (*hukou*) system, in several cases individuals in 2 or 3 *hukou* units were surveyed as a single household, so the sample proportion of 81.6% is conservative.

Within each household, trained interviewers administered the survey questionnaire to an adult aged 18 or older. Interviewees ranged in age from 18 to 83, 26.7% were female, and 76.0% reported being currently married. Respondents were asked to list all household members, their age, ethnicity, years of education, and current whereabouts. Then, for a comprehensive range of crops, livestock, and forest products, they were asked to indicate whether the household obtained each in the preceding year, the amount harvested or raised, and income from selling that item. For each category, we asked which household members took part in related tasks, such as plowing, weeding, and harvesting crops, and for how many days in the preceding year. Finally,

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we asked which, if any, household members engaged in off-farm work in the previous year, and for each individual, where they worked, how long, in what occupation, and what amount of money they remitted. We also gathered information about physical assets, credit access, household members who had served as local officials, and forest use. Interviews lasted between 30 minutes and one hour. Most were conducted in Mandarin. In about one-third, respondents were unable to converse in Mandarin, and a local resident fluent in the local language translated. The 408 valid questionnaires comprised 1,648 individuals. We restricted the analytical sample to individuals aged 16 to 60, yielding 1,136 individuals in 399 households.

Due to constraints on sampling, household respondents were not selected randomly and tended to be older and male. To assess potential bias on this account, we divided the sample by the gender of the household respondent and ran the main models separately for each subsample. Because of the small number of cases of women with local off-farm work, the results for comparisons involving that category in the subsample with women respondents are unstable. Otherwise, the results do not differ across subsamples in ways that would affect our conclusions. Nonetheless, we cannot rule out bias due to nonrandom respondent sampling.

In addition, we conducted 82 semi-structured follow-up interviews with respondents from households stratified by income, addressing household livelihood histories and decision-making. During interviews and observations during 4 months of fieldwork, we took extensive notes. Notes were imported into nVivo and coded for themes following Charmaz (2006). Along with our literature review, men's and women's accounts of on-farm labor, local and distant off-farm work, and family affairs sensitized us to concerns relating these domains, shaping our choices in constructing models. We do not report qualitative analysis results in this paper.

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Our focal outcome variable measures the presence and location of off-farm work in the year preceding the survey. Its value is 0 if the individual was reported not to have taken off-farm work, 1 if the individual took off-farm work at a location within the county for at least 1 month, and 2 if the individual took off-farm work at a location outside the county for at least 1 month. We refer to the last option as either distant off-farm work or migration. Consistent with other studies (Chiang et al. 2015; Ding et al. 2018; Tong et al. 2019), we distinguish work within and outside the home county because people working within the county are generally able to commute between their home community and place of work on any workday. For those who work outside the county, travel time is great enough that one would generally need to reside at the place of work. People who commute or do off-farm work in their home county are more likely to be available for care tasks and on-farm work than those who reside far away.

We evaluate predictors at individual, household, and community levels. Individual-level predictors include marital status (unmarried, married, or divorced or widowed), age and age squared, and years of education along with its square. At the household level, predictors include the area of cropland cultivated by the household (log-transformed); an index of household assets constructed by applying polychoric principal components analysis to counts of vehicles, appliances, and other items owned by the household; and counts of the number of household members in different age cohorts. Community-level predictors include household density (the number of households in the community divided by the community's land area in square kilometers) and a cost distance variable measuring the relative travel time to the nearest township center. Households in communities near to towns often have higher rates of off-farm work due to the access to work opportunities and transportation this proximity affords (Liu et al. 2014).

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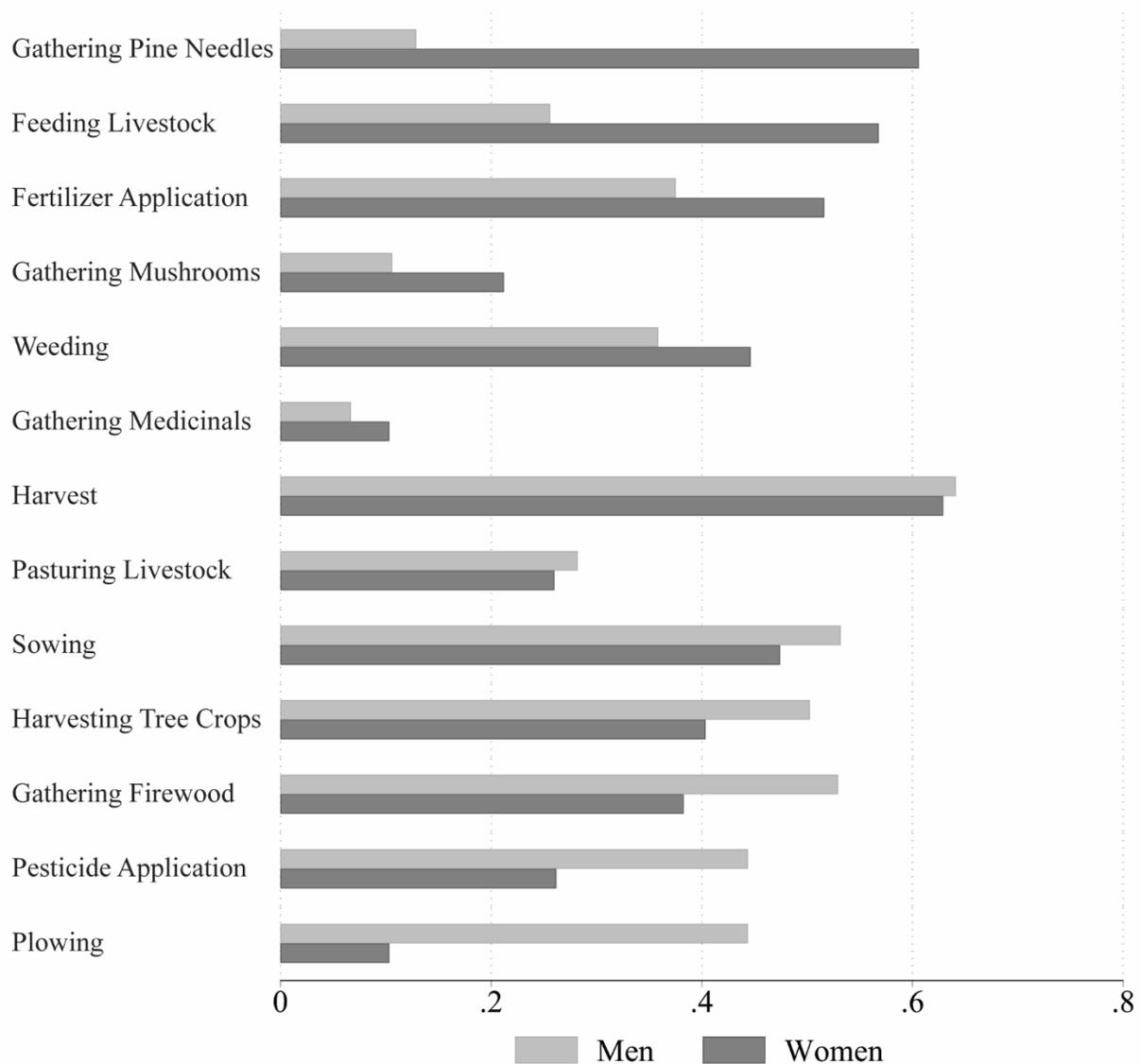
Analyses

Our core analyses are multinomial logistic regression models predicting an individual's relative odds of taking no off-farm work, doing off-farm work inside the county, and taking off-farm work outside the county. Multinomial logistic regression simultaneously estimates binary logistic regression equations predicting the log odds of a case falling into different outcome categories conditional on the values of predicting variables (Long 2014). We present analyses of subsamples of men and women. Given the potential for bias due to nesting of observations within groups, we use robust standard errors clustered at the household level. Diagnostics do not indicate a need for mixed models at the household or community level.

Results

In qualitative interviews and field observations, both people who did and who did not undertake off-farm work stressed the importance of agricultural labor. Migrants working within the province might visit during grain harvest or join plowing and sowing after new year celebrations. Migrants further afield might return only for the new year if at all. People engaged in local off-farm work often mentioned taking a few days off now and then for tasks like harvesting tree crops. The different activities women and men undertake place differing constraints on off-farm work. Women predominate in tasks that take place throughout the growing season or beyond, like feeding penned livestock and weeding, as survey responses confirm (Figure 1). Men participate more in activities like harvest and plowing, which are concentrated in brief periods of time each year, or tasks older men tend to do, like pasturing cattle and sheep. These patterns draw on both past agricultural practices and gendered off-farm work norms that have taken shape over time.

Figure 1 Proportion participating in on-farm activities by gender



In Table 1, we present descriptive statistics for the whole sample as well as subsamples who took part in no, local, or distant off-farm work. The proportion of local off-farm workers identified as women is about half that among those without off-farm work. A somewhat larger proportion of distant than local off-farm workers are women, but this difference is not statistically significant. Compared to those without off-farm work and with local off-farm work, fewer distant off-farm workers are married. Distant off-farm workers are on average five years younger than local off-

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farm workers, who in turn are on average 3.7 years younger than those with no off-farm work. Both local and distant off-farm workers average two years more of education than individuals without off-farm work. Distant off-farm workers average significantly more household members aged 16-44 than people without off-farm work. Other household composition measures do not show significant differences. Average household asset index is significantly higher for those with local off-farm work than for people taking either distant or no off-farm work. Household cropland area is significantly higher for local off-farm workers than distant off-farm workers. Off-farm workers, both local and distant, tend to be from communities with higher household density than those without off-farm work. Finally, travel time to the nearest township is lowest on average for individuals with local off-farm work.

Table 1 Descriptive statistics

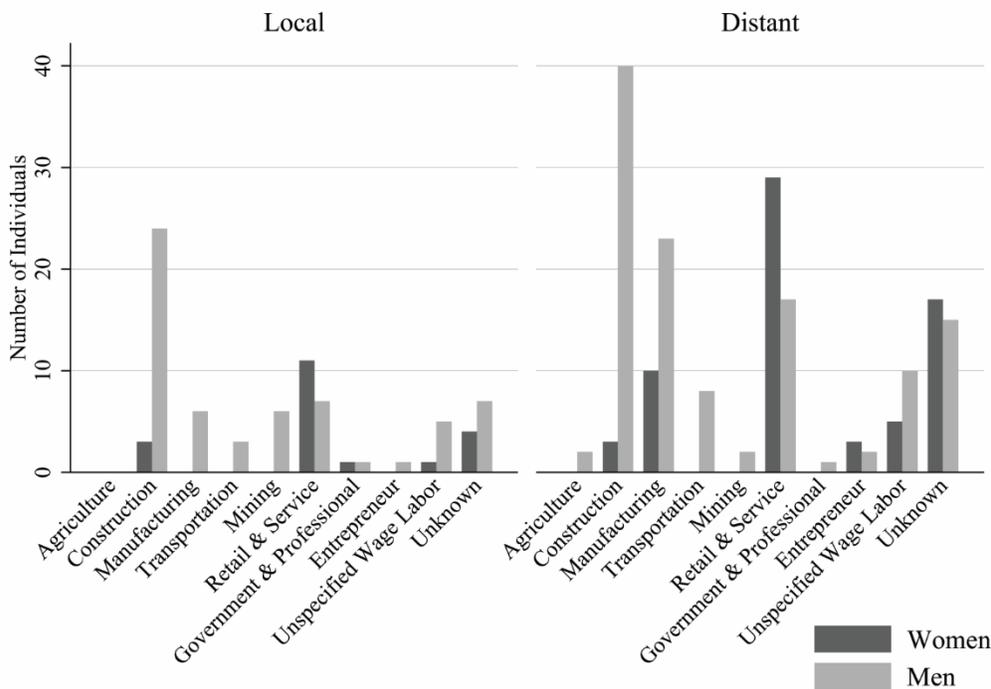
TABLE 1 Descriptive statistics

Variable	Full Sample		No off-farm		Local		Distant	
	Mean or Percentage	SD						
Female	46.0%		50.2% ^b		25.0% ^a		35.6% ^a	
Married	67.5%		73.3% ^b		71.3% ^b		39.4% ^a	
Widowed or Divorced	5.2%		5.3% ^a		3.7% ^a		5.3% ^a	
Age	34.87	12.16	36.62 ^c	12.50	32.94 ^b	9.50	27.62 ^a	8.17
Years of Education	5.17	3.83	4.66 ^a	3.88	6.78 ^b	3.32	6.86 ^b	3.12
Household Members <8 years	0.47	0.66	0.48 ^a	0.66	0.46 ^a	0.67	0.40 ^a	0.63
Household Members 8-16 years	0.35	0.62	0.36 ^a	0.63	0.40 ^a	0.67	0.31 ^a	0.59
Household Members 16-44 years	2.49	1.10	2.45 ^a	1.09	2.55 ^{ab}	1.17	2.67 ^b	1.07
Household Members 45-64 years	1.00	0.89	1.01 ^a	0.91	0.84 ^a	0.92	1.00 ^a	0.81
Household Members ≥ 65 years	0.27	0.54	0.25 ^a	0.52	0.35 ^a	0.66	0.35 ^a	0.59
Children and Individuals Aged 45-64 Both Present	21.7%		22.8% ^a		12.5% ^a		20.2% ^a	
Asset Index	0.12	0.81	0.12 ^a	0.82	0.41 ^b	0.88	0.02 ^a	0.72
Cropland Area (log transformed)	2.14	0.48	2.14 ^{ab}	0.48	2.26 ^b	0.55	2.09 ^a	0.45
Community Households per Square Kilometer	29.09	9.05	28.37 ^a	8.89	31.64 ^b	9.71	31.33 ^b	8.96
Community Cost Distance to Township, Minutes	30.79	17.65	31.89 ^b	17.47	23.18 ^a	18.48	28.94 ^b	17.24
n	1136		868		80		188	

Note: superscripts indicate differences significant at the $p < 0.05$ level on all 3 of Bonferroni, Scheffe, and Sidak tests. Groups that do not share a given superscript are significantly different from each other. For example, for cropland area, the mean for those with local off-farm work (b) is significantly higher than for individuals with distant off-farm work (a), and the mean for those with no off-farm work (ab) is not significantly different from either of the other two.

Jobs undertaken vary by gender and location (Figure 2). Among women, retail and service jobs predominate for both local and distant work. Some women also worked locally in construction. Among migrant women, retail and service jobs are followed by manufacturing. For men, construction is most common for both local and distant off-farm work. Within the county, retail and service is second most common, followed by mining and manufacturing. Among migrants, manufacturing, retail and service, and unspecified wage labor follow construction. Unspecified wage labor (*dagong*) could refer to any wage occupation. In 16.2% of cases, respondents did not know what job their household member undertook.

Figure 2 Off-farm work type by gender and location



Multinomial logistic regression results appear in Table 2. To evaluate predictors of off-farm work location, each model predicts an individual’s relative odds of undertaking no off-farm

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work, local off-farm work, and distant off-farm work. Due to women's and men's differing places in household divisions of labor, the choices they make about off-farm work likely present different patterns. Hence we conducted regression analyses for subsamples of women and men. For each subsample, we present two models, one with individual, household, and community predictors, and a second adding the indicator of joint presence of children and sandwich generation adults.³ For women, both Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) indicate stronger fit for Model 1. For men, Model 2 is favored based on AIC, but Model 1 is favored based on BIC. We present effects as relative risk ratios (RRR), analogous to odds ratios in binary logistic regression.

Table 2 Multinomial logistic regression results

Variable	Women		Men			
	Model 1	Model 2	Model 1		Model 2	
	RRR	RRR	RRR		RRR	
Local relative to none						
Married	0.256	0.257	2.996	*	3.405	*
Widowed or Divorced	1.666	1.662	0.00000411	***	0.00000534	***
Age	1.377	1.373	1.175		1.205	
Age Squared	0.996	0.996	0.997	†	0.996	*
Years of Education	1.532	* 1.535	1.079		1.068	
Years of Education Squared	0.971	* 0.971	1.002		1.004	
Members <8 years	0.557	0.592	0.815		1.197	
Members 8-15 years	1.172	1.166	1.111		1.219	
Members 16-44 years	1.548	1.548	0.805		0.868	
Members 45-64 years	1.517	1.495	0.723	†	0.977	
Members ≥ 65 years	0.918	0.922	1.056		1.015	
Children and Caretakers		0.933			0.239	**
Asset Index	0.902	0.904	1.400	†	1.456	†
Cropland Area	0.804	0.809	1.399		1.389	
Household Density	1.061	1.062	1.005		1.005	
Cost Distance	0.996	0.996	0.984		0.986	
Distant relative to none						
Married	0.249	** 0.242	0.495	*	0.505	*
Widowed or Divorced	0.744	0.705	1.950		2.002	
Age	1.443	† 1.419	1.295	**	1.297	*
Age Squared	0.994	† 0.994	0.995	**	0.995	**
Years of Education	1.280	* 1.274	1.507	**	1.502	**
Years of Education Squared	0.984	* 0.984	0.975	**	0.976	**
Members <8 years	0.744	0.473	† 0.980		1.038	
Members 8-15 years	0.920	0.883	1.043		1.045	
Members 16-44 years	1.213	1.149	1.166		1.176	
Members 45-64 years	1.739	** 1.450	† 1.157		1.200	
Members ≥ 65 years	1.272	1.320	1.516	*	1.512	*
Children and Caretakers		2.683	†		0.833	
Asset Index	0.645	† 0.618	0.785		0.791	
Cropland Area	0.467	* 0.482	0.617	†	0.611	†
Household Density	1.045	* 1.044	1.042	*	1.042	*
Cost Distance	1.012	1.009	1.001		1.001	
Distant relative to local						
Married	0.973	0.943	0.165	***	0.148	***
Widowed or Divorced	0.447	0.424	474832	***	374543	***
Age	1.048	1.034	1.102		1.076	
Age Squared	0.998	0.998	0.998		0.999	
Years of Education	0.836	0.830	1.397	*	1.407	*
Years of Education Squared	1.014	1.014	0.974	*	0.972	*
Members <8 years	1.335	0.800	1.202		0.867	
Members 8-15 years	0.785	0.757	0.938		0.858	
Members 16-44 years	0.784	0.743	1.449	*	1.355	†
Members 45-64 years	1.147	0.970	1.601	*	1.228	
Members ≥ 65 years	1.386	1.432	1.436		1.490	
Children and Caretakers		2.877			3.479	*

Asset Index	0.715	0.683	0.561 *	0.543 *
Cropland Area	0.581	0.596	0.441 *	0.440 †
Household Density	0.985	0.983	1.036	1.036
Cost Distance	1.016	1.013	1.017	1.015
N	523	523	613	613
AIC	511.9	512.8	875.3	872.8
BIC	648.2	657.6	1016.7	1023.0

Robust standard errors are clustered by household. *** p<0.001, ** p<0.01, * p<0.05, † p<0.1.

Differences in the significance and direction of several effects are evident. First, marital status has a negative, non-significant effect on women's odds of taking local off-farm work relative to none, but for men, being married nearly triples odds of local versus no off-farm work. Contrasted with unmarried women, married women have 75% lower odds of taking distant off-farm work rather than none, but marital status does not have a statistically significant effect on a woman's odds of taking distant versus local off-farm work. In contrast, being married decreases a man's odds of distant relative to local off-farm work by 83.5%. Relative to no off-farm work, marriage decreases a man's odds of distant employment by 50%. Widowed or divorced men are far less likely to take local off-farm work than none. The extreme magnitude of effects of divorced or widowed status for men result from the absence of local off-farm work in this category. Of the 48 divorced or widowed men in the sample, 42 undertook no off-farm work, and 6 took part in distant off-farm work. These small numbers constrain the reliability of statistical inferences. Still, the evident pattern and its contrasts with other groups suggest a distinct social reality for this group, and we present results in this category for reference.

Age and education also show contrasts. For both men and women, age shows curvilinear effects on distant off-farm work relative to none, with effects for men showing higher levels of statistical significance. For local work relative to none, a negative quadratic effect for men is marginally significant in model 1 and significant in Model 2. For both women and men,

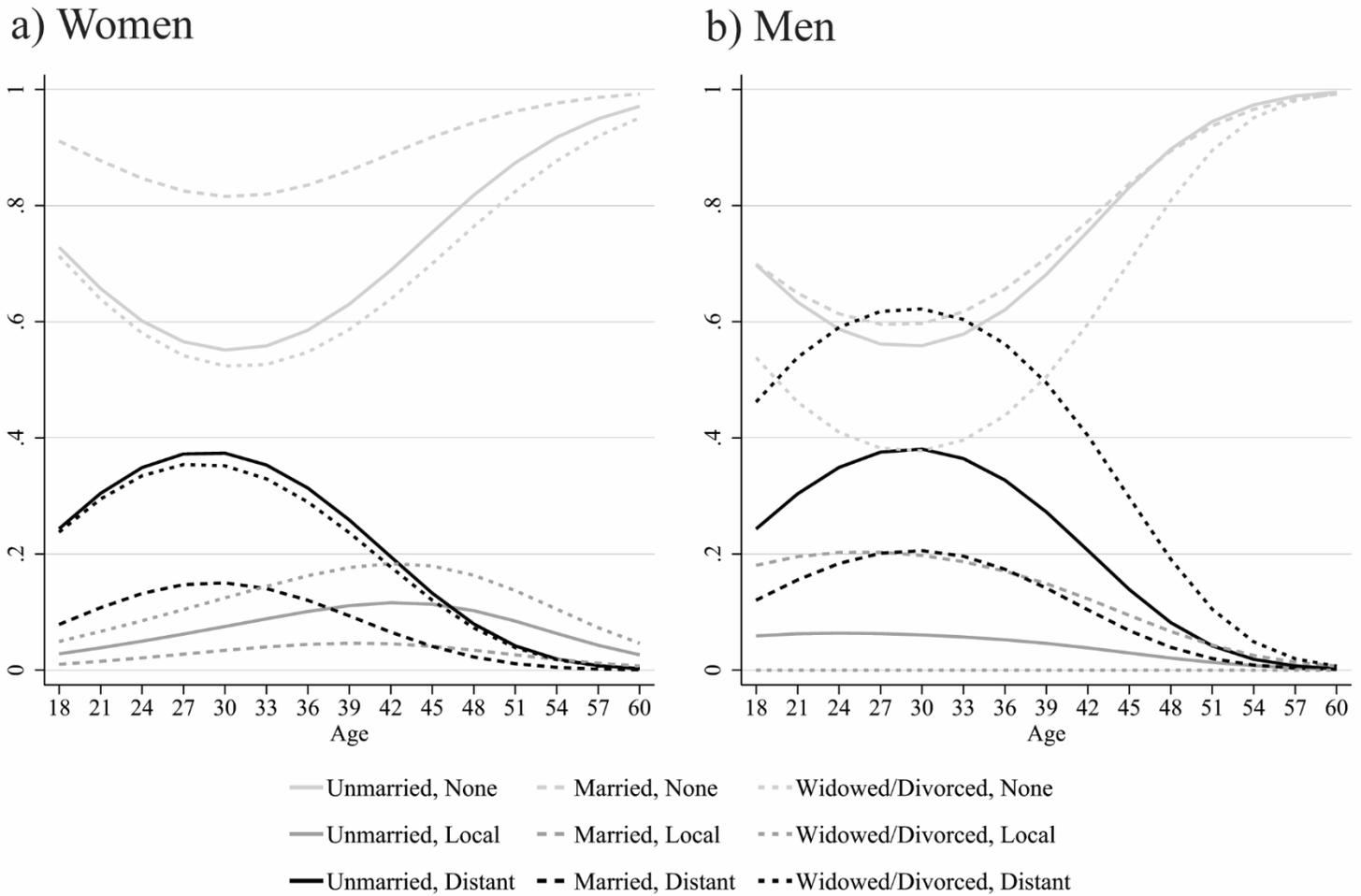
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additional years of education have an increasing, then decreasing effect on distant off-farm work relative to none. For women, education has significant curvilinear effect on local off-farm work relative to none, increasing and then decreasing. For men, however, education does not have a significant effect on odds of local relative to no off-farm work, while education has a curvilinear effect on odds of distant relative to local off-farm work. For women, the effect of education on odds of distant relative to local off-farm work are not significant, and coefficient signs are in the opposite direction from men.

Marginal probability plots from Model 1 with other variables held at their means show how differing relationships of marital status and off-farm work decisions play out across the life course for women and men (Figure 3). Across age cohorts, both unmarried and divorced women are more than twice as likely to take off-farm work as married women. Younger women tend to take distant off-farm work. In contrast, predicted probabilities of taking no off-farm work are only modestly higher for married men than unmarried men. While married men are much less likely to take distant off-farm work than unmarried and widowed or divorced men, predicted probabilities of local off-farm employment are highest among married men between 20 and 35 years old—and comparable to married men's probabilities of distant off-farm work.

Figure 3 Predicted probability of off-farm work decisions by age and marital status, women and men



Effects of household composition also vary across men and women. For women, having more household members aged 45-64 increases odds of distant off-farm work relative to none, but does not significantly affect odds of local off-farm work. This effect may reflect gender-specific domestic responsibilities; in models disaggregating age cohorts by gender, only the number of women in this cohort shows a significant effect, and there is also a positive effect of women aged 16-44 (Table A1, Appendix). In Model 1, neither the number of children nor of elderly

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household members shows a significant effect on women's off-farm work decisions. However, when the joint presence of children and older caregivers is included, several effects on odds of distant relative to no off-farm work appear, significant at a 90% confidence level. The negative effect of young children becomes marginally significant, and the positive effect of sandwich generation adults weakens, while the joint presence of children and caretakers increases odds of distant relative to local off-farm work by 2.68 times.

The pattern for men differs. The number of children in the household has no significant effects on men's off-farm work decisions. Increased household members aged both 16-44 and 45-64 significantly raise odds of distant off-farm work relative to local off-farm work in Model 1.

Household members aged 45-64 have a marginally significant negative effect for local relative to no off-farm work. Elderly household members bring a positive effect on distant off-farm work relative to none for men. The joint presence of children and older caregivers more than triples men's odds of distant relative to local off-farm work while diminishing the main effect of sandwich generation adults. It also shows a significant negative effect on odds of local relative to no off-farm work for men.

The effects of household assets and cropland also differ for men and women. For women, a one-unit increase in the household asset index reduces odds of distant off-farm work relative to none by over 35% in both models. A one-unit increase in log crop area reduces odds of distant off-farm work relative to none by over half. For men, cropland also shows a negative effect on distant relative to no off-farm work, but smaller and only marginally significant. Negative effects of cropland as well as asset index on distant relative to local off-farm work for men are significant and greater in magnitude. Also, asset index shows a positive and marginally significant relationship with odds of local relative to no off-farm work. Finally, for both men and

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women, community household density has a significant positive effect on distant off-farm work relative to none. Where a community's endowment of land per household is smaller, the paucity of attendant livelihood options may prod people to migrate.

Discussion and Conclusion

Local and distant off-farm work are qualitatively different options, with different benefits and trade-offs in household negotiations. Hence individual, household, and community factors affect them in different ways. Moreover, these options vary for women and men. Making decisions about local and distant off-farm work, women and men respond differently to variation in household demographic composition and asset endowments. This study contributes to efforts to discriminate between different off-farm work choices as well as understanding factors shaping immobility (Schewel 2020). It also moves forward efforts to clarify the gender-differentiated processes surrounding on-farm and off-farm work.

Focusing on demographic variables, we can see a pattern generated by the "new patriarchal bargain" that Julia Chuang (2016) describes. Young, unmarried women and men both tend to take distant off-farm work. Contrasted with unmarried women, married women have significantly lower chances of taking distant off-farm work rather than none. For a man, being married raises the odds of local off-farm work relative to distant off-farm work or none: men tend to shift from migration to commuting following marriage.

We find contrasting effects of children and elderly household members. While elderly household members showed no significant effects on women's decisions, men with elderly household members are more likely to undertake distant off-farm work relative to none. For men, we find no significant effects of the number of children in a household on off-farm work decisions. For women, in the base model, there is also no significant effect. This contrasts with studies that find

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that women's role as caregivers manifests in negative effects of children on off-farm work (Ding et al.2018; Willmore et al. 2012; Xie et al. 2019). This result may be due in part to the small number of women in the sample undertaking local off-farm work.⁴ However, the joint presence of children and sandwich generation adults increases a woman's odds of distant relative to no off-farm work nearly threefold, possibly due to grandparents performing childcare, as found by Mao and colleagues (2018). With this variable included, the negative effect of young children also strengthens. For men, joint presence of children and sandwich generation adults has a significantly positive effect on odds of distant relative to local off-farm work and a significantly negative effect on the odds of local relative to no off-farm work. By affording assistance in caregiving and farmwork, the presence of middle-aged adults enables both women and men to migrate, particularly when there are children in the household.

Individual marital status also plays a striking, gender-differentiated role in off-farm work patterns. Young, unmarried women and men both tend to take distant off-farm work. Contrasted with unmarried women, married women have significantly lower chances of taking distant off-farm work rather than none. Married men are more likely to take local off-farm work and less likely to migrate or stay on the farm.

Gendered household dynamics are also evident in effects of landholdings. Our results show a negative effect of farmland holdings on women's odds of distant off-farm work relative to no off-farm work, and for men a negative effect on distant relative to local off-farm work. More land brings more demand for, and potential rewards to, agricultural labor. Gendered expectations around farmwork frame the effect of land on labor allocation. In these communities, women do most routine agricultural labor like weeding crops and feeding livestock. Hence, for women, additional farmland brings higher odds of taking no off-farm work. Demand for men's labor on

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the farm is concentrated during sowing and harvest. Hence, in households with more farmland, men are more likely to take local than distant off-farm employment, enabling them to be present at times of high on-farm labor demand. Last, household density propels migration: in communities with scarcer on-farm resources, people tend to take distant off-farm work, which may involve costly travel but often requires less in the way of education and skills than local off-farm options.

These findings reveal contrasting locational trade-offs men and women face in making off-farm decisions. For women, effects of marital status, household demographics, and asset endowments work on trade-offs between distant off-farm work and no off-farm work. Added household labor enables women to migrate. Added assets enable women to stay on the farm instead of migrating, while larger farms require their labor at home. For men, effects primarily surround distant and local off-farm work. Similar trade-offs emerge, but when men are able to stay in the vicinity they tend to seek local work off the farm. In other words, "staying" means different things for men and women. For women, additional resources enable staying on the farm; for men they enable a switch from distant to local off-farm labor. Relationships with household composition show how the give and take among carework, on-farm work, and income needs drives women's and men's contrasting off-farm work decisions. While samples for widowed and divorced individuals are too small to provide reliable statistical estimates, the patterns we observe suggest a distinctive pattern. The experiences of widowed and divorced people in rural China and merit more attention in research on labor allocation.

These findings are broadly consistent with studies finding differential off-farm work patterns for men and women (Chiang et al. 2015; Fan and Chen 2013; Hao and Tang 2018; Li et al. 2013).

By differentiating between local and nonlocal off-farm work, we identify patterns that studies

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examining binary off-farm work choices cannot identify. The lack of direct negative effects of children on off-farm work, particularly for women, contrasts with other studies (Barbieri and Pan 2013; Ding et al. 2018; Willmore et al. 2012; Xie et al. 2019). However, with the incorporation of the joint child and caregiver variable, a marginally significant negative effect of children appears. This result suggests that in the initial model the negative effect of children on women's migration is obscured because in households with both children and sandwich-generation adults, women often do migrate. Controlling for joint presence of children and caregivers makes both patterns evident. This finding may explain why some studies have found variable or inconclusive effects of children on off-farm employment (Zhao 1997, 1999).

Our finding that having elderly household members increases men's likelihood of distant off-farm work is consistent with Xie and colleagues' (2019) results in upland areas of Sichuan, also in China's southwestern region. Unlike Chen and colleagues (2016), we do not find strong support for an effect of joint presence of children and sandwich generation adults on migration relative to no off-farm work for men. The positive effect of joint presence of children and sandwich generation adults on men's odds of staying on the farm relative to taking local off-farm work appears counter-intuitive. Paired with the strong positive effect on distant relative to local off-farm work, it might present situations in which household needs require men either to migrate in search of income or work on farm for subsistence, forestalling local off-farm work.

These patterns draw attention to the multidimensional considerations that surround off-farm work decisions. Some analyses present off-farm work decisions as fundamentally calculations of cost and benefit. This element is clearly present: off-farm work is widespread because its economic returns far exceed those of agriculture. Moreover, in qualitative interviews, participants suggested that the returns of distant off-farm work have become less favorable

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relative to local off-farm work than was once the case, as local wages rise and travel costs pose obstacles. Yet potential off-farm workers also take into account household demands for both productive and reproductive labor. Reproductive labor commitments often bring women home after marriage, leading women to shoulder most daily agricultural tasks. Men too respond to these demands, tending after marriage to choose local off-farm work that facilitates participation in farmwork.

Several aspects of this study constrain our inferences. First, drawn from a cross-sectional survey, our correlational analyses cannot definitively establish causation. On this point, it bears noting that the interactional and interdependent processes through which households construct livelihood strategies are not very amenable to causal modeling (Turner 2012). With these constraints in mind, we designed and interpreted the analyses presented here in dialogue with qualitative inquiries. This engagement with the experiences of research participants strengthens our confidence in our interpretations. Nonetheless, our analyses raise questions that it will take further ethnographic work to illuminate.

Second, the research design enables this study to speak to a particular geographic context in upland southwest China. Geographically varying political economies surrounding cash crops, mining, tourism, and other off-farm jobs generate particular labor opportunities. In our study area, the emergence of walnuts and medicinal plants as cash crops, limited land rental markets, and the relatively recent take-up of off-farm work are major influences on livelihoods (Zinda and Zhang 2018). The patterns we identify may provide insights into the household, community, and broader forces shaping labor allocation across China's southwestern highlands, but other locales likely differ in particulars.

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It is striking that bargains similar to those identified in studies of Han communities elsewhere surface in this predominantly ethnic minority area. We might expect ethnically specific norms to differentiate off-farm work decisions, in line with findings comparing Muslim minority and Han households (Ding et al. 2018). Studies have found that members of many ethnic minorities tend to migrate at lower rates than Han people (Gustafsson and Yang 2015) and demonstrated job market inequalities among Han and minority workers (Maurer-Fazio 2012). However, neither our quantitative nor qualitative data suggests major differences in norms surrounding farmwork, carework, or migration that impact off-farm work patterns. This is not to say that ethnic differences are absent. Lisu, Naxi, and Han communities tend to occupy different elevations and grow different crops. A closer study of family dynamics might uncover important differences. A larger-scale survey might replicate past findings of lower migration rates for ethnic minorities. Nonetheless, it is notable that across ethnic categories, households in these communities share broadly similar approaches to trade-offs among farmwork, carework, and off-farm work.

The roles of time and community in off-farm work decisions merit more attention. Time of off-farm work matters both as the total amount of the year a worker is away, and also as specific timing of absence in relation to agricultural labor and other household needs. While time and location of off-farm work are interrelated, they affect labor availability differently. The roles of community institutions and norms likewise deserve more study. Communities vary in institutions, political dynamics, and environmental conditions that differentiate livelihood patterns. These factors have been studied amply as they affect agricultural livelihoods and natural resource use (Agrawal and Chhatre 2006; Nagendra, Pareeth, and Ghate 2006), but their impacts on migration have received less attention (but see Massey, Goldring, and Durand 1994; Richards and VanWey 2015). While we include community-level travel cost and household

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population density in analyses, these human-ecological factors do not fully encompass the community processes that shape labor allocation decisions.

This study shows how in upland southwest China gendered expectations surrounding productive and reproductive differently pattern women's and men's decisions about whether and where to take off-farm work. Women and men face different demands for care work, agricultural labor, and income generation that shape when and where they undertake off-farm work. A focus on off-farm work location yields insights that are invisible when studies focus on only off-farm work or only migration.

Endnotes

1. We acknowledge that by omitting gender identities beyond woman and man, we prevent a full examination of gender dynamics.
2. By 'community' we refer to the 'natural village' (*ziran cun*). The basic units of administration in rural China are administrative villages (*xingzheng cun*) composed of villager groups (*cunmin xiaozu*). A natural village usually consists of one or more villager groups in close proximity, whose members encounter one another from day to day. This unit fits a conception of 'community' as a collection of people joined by spatial proximity and collective experience.
3. We assessed several additional models, including different specifications of household demographics as well as ethnic category and the presence of a cadre in the household. Results were similar. A model including a binary variable coded 1 if any other household members were reported to work off-farm showed a significant positive effects on women's odds of distant relative to local off-farm and men's odds of distant relative to local and distant relative to no off-

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farm work. Ethnicity and cadre presence showed no significant effects. Available from authors upon request.

4. We thank an anonymous reviewer for this insight.

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Appendix

Table A1. Multinomial logistic regression results with gender-disaggregated age cohorts

Variable	Women		Men	
	Model 1	Model 2	Model 1	Model 2
	RRR	RRR	RRR	RRR
Local relative to none				
Married	0.191 †	0.191 †	3.411 *	3.761 **
Widowed or Divorced	1.099	1.109	0.0000088 ***	0.0000054 ***
Age	1.425 †	1.421 †	1.168	1.197
Age Squared	0.995 †	0.995 †	0.997 †	0.997 *
Years of Education	1.467 *	1.472 *	1.086	1.072
Years of Education Squared	0.971 *	0.971 *	1.001	1.003
Members <8 years	0.581	0.667	0.833	1.216
Members 8-15 years	1.243	1.244	1.121	1.231
Women 16-44 years	1.240	1.258	0.657 †	0.727
Men 16-44 years	2.114 *	2.126 †	0.932	0.981
Women 45-64 years	1.730	1.749	0.642	0.893
Men 45-64 years	1.535	1.541	0.801	1.040
Women ≥ 65 years	0.307 †	0.302 †	1.218	1.165
Men ≥ 65 years	2.144	2.193	0.851	0.831
Children and Caretakers		0.803		0.246 **
Asset Index	0.850	0.856	1.432 †	1.484 *
Cropland Area	0.778	0.780	1.386	1.382
Household Density	1.051	1.052	1.004	1.005
Cost Distance	0.986	0.987	0.984	0.986
Distant relative to none				
Married	0.304 *	0.297 *	0.579 †	0.591
Widowed or Divorced	0.749	0.723	2.101	2.154
Age	1.475 †	1.446 †	1.282 **	1.284 **
Age Squared	0.993 †	0.994 †	0.996 **	0.995 **
Years of Education	1.275 *	1.267 †	1.532 ***	1.527 **
Years of Education Squared	0.984 *	0.984 *	0.974 **	0.975 **
Members <8 years	0.727	0.478 †	0.987	1.042
Members 8-15 years	0.864	0.836	1.042	1.045
Women 16-44 years	1.749 *	1.648 †	0.972	0.979
Men 16-44 years	0.965	0.915	1.352 *	1.363 *
Women 45-64 years	2.386 **	1.980 †	1.174	1.215
Men 45-64 years	1.247	1.057	1.123	1.161
Women ≥ 65 years	1.011	1.091	1.438	1.437
Men ≥ 65 years	1.931	1.920	1.557	1.553
Children and Caretakers		2.523		0.840
Asset Index	0.642 *	0.616 *	0.794	0.799
Cropland Area	0.506 †	0.520 †	0.608 †	0.602 †
Household Density	1.050 *	1.049 *	1.042 *	1.042 *
Cost Distance	1.015	1.012	1.000	1.000
Distant relative to local				
Married	1.597	1.554	0.170 ***	0.157 ***
Widowed or Divorced	0.682	0.652	238835.8 ***	398948.1 ***

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Age	1.035	1.017	1.098	1.073
Age Squared	0.998	0.999	0.999	0.999
Years of Education	0.869	0.860	1.411 *	1.425 *
Years of Education Squared	1.013	1.013	0.973 *	0.971 *
Members <8 years	1.250	0.718	1.185	0.857
Members 8-15 years	0.695	0.672	0.930	0.849
Women 16-44 years	1.411	1.309	1.479	1.346
Men 16-44 years	0.456 †	0.430 †	1.451	1.390
Women 45-64 years	1.379 †	1.132	1.828	1.362
Men 45-64 years	0.812	0.686	1.401	1.117
Women ≥ 65 years	3.296	3.610	1.181	1.234
Men ≥ 65 years	0.900	0.876	1.830	1.868
Children and Caretakers		3.142		3.418 †
Asset Index	0.755	0.720	0.554 *	0.538 *
Cropland Area	0.650	0.667	0.439 *	0.436 †
Household Density	0.999	0.997	1.038	1.037
Cost Distance	1.029	1.025	1.017	1.015
N	523	523	613	613
AIC	513.3	514.5	884.5	882.3
BIC	675.2	684.9	1052.4	1059.0

Robust standard errors are clustered by household. *** p<0.001, ** p<0.01, * p<0.05, † p<0.1.