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Does connectivity reduce gender gaps in off-farm employment?

Evidence from 12 low- and middle-income countries

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Abstract: Gender gaps in labour force participation in developing countries persist despite income growth or structural change. We assess this persistence across economic geographies within countries, focusing on youth employment in off-farm wage jobs. We combine household survey data from 12 low- and middle-income countries in Asia, Latin America, and sub-Saharan Africa with geospatial data on population density, and estimate simultaneous probit models of different activity choices across the rural-urban gradient. The gender gap increases with connectivity from rural to peri-urban areas, and disappears in high-density urban areas. In non-rural areas, child dependency does not constrain young women, and secondary education improves their access to off-farm employment. The gender gap persists for married young women independent of connectivity improvements, indicating social norm constraints. Marital status and child dependency are associated positively with male participation, and negatively with female participation; other factors such as education are show a positive association for both sexes. These results indicate entry points for policy.

Key words: gender gap, youth, off-farm employment, Asia, Latin America, sub-Saharan Africa

JEL classification: J16, J21, O18, R23

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1 Introduction

Young women's participation in the labour force, and especially in off-farm wage employment (OFWE), has been associated with various positive outcomes for the women themselves, their families (in particular children), and the broader economy. Employment among young women directly contributes to economic growth, and indirectly does so as participation delays their age of marriage and first child (Heath and Mobarak 2015; Jensen 2012), speeding up demographic transformation (Stecklov and Menashe-Oren 2019). Furthermore, evidence from different regions suggests that employment expansion to (young) women improves their children's health, nutrition, and education outcomes (Chari et al. 2017; Perez-Alvarez and Favara 2020; Quisumbing 2003). Off-farm employment is not only a growing sector associated with positive livelihood outcomes (Dedehouanou et al. 2018; Van Hoyweghen et al. 2020), but also a significant predictor of women's decision-making power (Annan et al. 2019; Buvinić and Furst-Nichols 2016). Nevertheless, Van den Broeck and Kilic (2019) estimate that around 7.8 million women are 'missing' from off-farm employment in five African countries, suggesting that around 33 million can be said to be 'missing' from this sector in the 12 countries in Asia, Latin America, and Africa studied in this paper.[1]

In this study, we aim to contribute to the literature on persisting gender gaps in female labour force participation (FLFP) in developing countries, focusing specifically on economic geography and young people's OFWE. We assess gender gaps across comparable geographies within countries by using geospatial data to create a rural-urban gradient. A location where a young woman lives can yield different levels of demand for her labour and provide different levels of peer network and connections to other women that can help her to gain access to jobs. For example, Ghani et al. (2014) tested the impact of improved infrastructure and agglomeration on female businesses in India, and found that the market entry of female-led businesses grew in response to both variables, suggesting strong connectivity effects. Furthermore, urbanization and the associated higher population density eases access to information and reduces uncertainty around FLFP (Fogli and Veldkamp 2011). Population density might also reduce gaps caused by social norms, for example by increasing interaction with others, exposure to diversity, or access to education and childcare in urban areas. Social norms have been recognized as one of the most important constraints on young women's labour force participation (LFP) in the literature (for a review, see Jayachandran 2020).

One reason why these hypotheses have not yet been empirically tested is that most surveys only provide administrative categorizations of rural and urban, which are not comparable across countries and cannot account for the changing continuum of livelihood portfolios in-between. Increasingly, livelihoods are purely dependent neither on agricultural smallholder farming nor on manufacturing and service jobs. Arslan et al. (2020) propose a new measure: a rural-urban gradient based on global population density data, which represents connectivity to markets and people in rural, semi-rural, peri-urban, and urban spaces. They document that this matches distinct livelihood and welfare profiles for rural youth in the same 12 countries we study. Dolislager et al. (2020) use this framework to assess LFP and sectoral and functional employment patterns for youth as well as adults. In this study, we employ a rural-urban gradient to test whether and how gender gaps persist in comparable geographies across countries.

[1] The number is the difference between men and women working in off-farm jobs in the 12 nationally representative household surveys used in this study, applying survey weights.

The literature has so far tested the relationship between economic development, measured by income or structural change, and FLFP at country level, and found that while there exists an inverse U-shaped relationship, a lot of cross-country variation remains unexplained (Gaddis and Klasen 2014; Heath and Jayachandran 2017; Klasen and Pieters 2015). As the rural-urban gradient is associated with different levels of economic transformation within countries, we implicitly test the persistence of gender gaps along transformation levels, adding to the above literature. Most recently, and most comparably to our study, Klasen et al. (2020) use individual data from eight countries to analyse the drivers of FLFP at the micro level. The authors find that country-specific factors explain most of the differences between countries, but rising educational attainment and fertility decline consistently increase FLFP over time within countries. However, their sample covers only urban prime-age women, whereas we focus on youth in all areas of the countries in our sample. Youth is a transition period when many important decisions are taken at the same time (marriage, fertility, further education, and labour supply), and young women face additional constraints due to their age and gender (Doss et al. 2019). Any gender gaps at this age have the potential to persist or even widen over the life course.

More specifically, we address three main questions. First, does the youth gender gap in OFWE differ by connectivity over the rural-urban gradient? Second, how do individual and household characteristics previously associated with gender gaps—specifically marital status, childcare burden, education, household headship, wealth, time-saving assets, and access to peer networks—contribute to the gender gap? Lastly, when we control for these characteristics, does the bias against females persist across connectivity categories?

We estimate a set of simultaneous activity choice models, controlling for various observable individual, household, and local characteristics as well as country-specific effects, and compare the estimates across the rural, semi-rural, peri-urban, and urban samples. Our results yield four main findings. First, social norms associated with marriage leave young married women worse off than their unmarried young female or male counterparts, independent of their connectivity. Second, and in contrast to our first finding, child dependency is only a binding constraint in rural areas, suggesting connectivity effects. Third, secondary education improves young women's participation relative to their less educated counterparts, but more so in non-rural areas, and it eliminates the gender gap in OFWE everywhere. Fourth, when we control for other relevant drivers of gender gaps, simply being female and unobservables associated with this still put young women at significant disadvantage compared with young men. Furthermore, this gap increases from rural to peri-urban areas, but disappears in urban areas.

Our results align with previous studies that have found strong persistence of social norms or context-specific factors independent of the level of structural change or income (Alesina et al. 2013; Gaddis and Klasen 2014; Jayachandran 2020; Klasen 2019; Klasen and Pieters 2015; Klasen et al. 2020). We also show that some drivers of the gender gap decrease with greater connectivity. One of our contributions is the demonstration that gender gaps persist or disappear across comparable geographical spaces within different country contexts.

The paper is structured as follows. In section 2, we present a conceptual framework through a review of the literature. We describe our data sources in section 3 and introduce our estimation strategy in section 4. We present descriptive statistics of variables of interest in section 5, followed by the presentation and discussion of results in section 6. We conclude in section 7 with potential caveats and policy implications.

2 Conceptual framework

This paper focuses on the gender gap in OFWE among youth across different levels of connectivity over the rural-urban gradient. This is motivated by the combination of increasing labour demand in the off-farm wage sector due to rural and structural transformation, the importance of youth population in terms of future development, and a persistent overall gender gap in LFP.

With the structural transformation of an economy, people become more likely to earn their incomes outside the agricultural sector by increasing the share of income from (and working time in) off-farm self-employment or wage labour (Davis et al. 2017). In the initial stages of the process, people shift from farm self-employment to non-farm self-employment. Then, as incomes rise and markets expand, those enterprises start hiring workers, leading to a shift towards wage employment (Gollin et al. 2002; Haggbalde et al. 2010; IFAD 2016; Reardon and Timmer 2014; Reardon, Stamoulis et al. 2007). At the same time, these changes in the labour market create local demand for agricultural products (Christiaensen and Todo 2014; Christiaensen et al. 2013), which contributes to rural transformation by creating off-farm jobs, often linked to the agri-food system (Reardon et al. 2003, 2004, 2012; Reardon, Henson et al. 2007; Tschirley et al. 2015, 2017; Van den Broeck et al. 2017).[2] These rural non-farm activities are also associated with improvements in welfare. For example, Bezu et al. (2012) show positive consumption growth for higher non-farm income shares as well as larger returns to human and physical capital in this sector for Ethiopian households. Van Hoyweghen et al. (2020) find a notable positive effect of wage employment on per capita income, poverty reduction, and food insecurity in rural Senegal. Similarly, Dedehouanou et al. (2018) demonstrate that participation in off-farm self-employment is linked to increased agricultural spending on crop and livestock inputs in rural Niger.

This employment transformation has driven an urbanization process (Christiaensen et al. 2013), which has not only increased the urban population but also produced a network of secondary cities and rural towns (Henderson 2010; Henderson and Wang 2005). Indeed, the rural transformation augments linkages between rural and urban areas through the development of agricultural value chains, which extend the reach of markets into new areas. In turn, the development of urban markets contributes to the emergence of farming opportunities and the strengthening of those value chains (Ingelaere et al. 2018; Vandercasteelen et al. 2018). These forward and backward linkages in the agri-food system lead to two main facts. First, labour supply in off-farm employment rises not only in urban but also in rural areas, and in other areas in-between. Second, the typical dichotomous classification of rural and urban can no longer capture all of these transformations (Lerner and Eakin 2011), requiring a more fluid spatial definition including the concept of intermediate areas (Simon 2008; Simon et al. 2012).

The rural-urban gradient proposed by Arslan et al. (2020) addresses this second point by creating comparable categorizations of this continuum using population density. The authors highlight the importance of a spatially disaggregated approach in the analysis of labour policies by demonstrating that population density and household livelihoods are closely related. Overall, connectivity to cities and markets increases commercial opportunities for rural areas (Arslan et al. 2020; Dolislager et al. 2020), while agglomeration generates localized external economies of scale, technological innovations, social networking, and knowledge accumulation, further stimulating employment opportunities (Bloom et al. 2008).

[2] Off-farm segments of the agri-food system include processing, wholesale, logistics, retail, and service segments.

In this transformative context, youth become an important cohort of the population. First, individual decisions during this period have a strong bearing on future well-being. Persistent gender gaps in LFP may prevent young women from achieving their potential and lead to lifelong poverty or other long-term negative outcomes (Fox 2019). Second, around 80 per cent of today's youth live in low- and middle-income countries, placing them at the heart of the debate on sustainable development (IFAD 2019). Sub-Saharan Africa has the highest projected growth rate in the youth population, which if associated with lower per capita income growth may create political, social, and economic consequences (Filmer and Fox 2014). Although the young working-age population has stabilized and the youth population is declining in Asia (Stecklov and Mensashe-Oren 2019), the share of youth not in employment, education, or training (NEET) is a strategic challenge for this region (World Bank 2019). Similarly, in most Latin American countries the population and workforce are ageing, but youth unemployment remains high (Fox and Kaul 2018).

In response to the need to create job opportunities for young people, a literature on youth labour economics has emerged (Chakravarty et al. 2017; Filmer and Fox 2014; Fox and Kaul 2018; Mararia et al. 2019). The growing off-farm employment sector may present an important opportunity for the younger generations, although demographic factors strongly affect off-farm participation and differently drive male and female participation (Fox and Sohnensen 2016; Van de Broeck and Kilic 2019). In particular, social norms associated with gender may reproduce preconceived notions of acceptable occupational choices for young women (Kabeer 2016). For example, there is ample literature discussing the gender imbalances in agricultural activities (Carr 2008; Gĩthĩnji et al. 2014; Kilic et al. 2015; Lambrecht 2016; Oseni et al. 2015; Peterman et al. 2014). Similar gender divisions prevail in non-farm businesses, where women are often more involved in food preparation and delivery, while men focus on machinery and technological jobs (De Pryck and Termine 2014).

The LFP decisions and occupation choices of women are strongly correlated with their marital status and parenthood. In most cultural contexts, marriage is associated with childbirth and early school-leaving. Social norms exert a strong influence on the age at which a woman has her first child, birth spacing, and the total number of desired children; women's agency, knowledge, and access to family planning; and the life expectancy of infants and children (e.g., Chari et al. 2017; Heath and Mobarak 2015; Jensen 2012; Perez-Alvarez and Favara 2020; Quisumbing 2003). At the same time, early marriage implies lower levels of educational attainment for young women, decreasing their probability of working in high-skilled jobs (Dolislager et al. 2020; Filmer and Fox 2014).

Another limitation to women's access to employment opportunities stems from time constraints due to childbearing, childrearing, and household chores, which are socially considered female responsibilities in many societies. The literature showing evidence that childcare availability increases FLFP is vast: in Mexico by Talamas (2019), in Rio de Janeiro by Barros et al. (2011), in Chile by Martínez and Perticará (2017), in Nicaragua by Hojman and López Bóo (2019), in Nairobi by Clark et al. (2019), and in Indonesia by Halim (2017), among others. Childbearing and childrearing may force women to carry out income-generating activities that can be done close to home or combined with home chores yet are associated with lower profits (Maloney 2004). Similarly, a reduction in the time burden of domestic work (e.g., through access to electricity and water, or the adoption of time-saving technologies at home) induces women to reallocate time from home chores to work, increasing FLFP. For example, in newly electrified communities in South Africa, women decrease the time spent on activities such as collecting firewood (Dinkelman 2011). In Indonesia, the introduction of liquefied petroleum gas has enabled significantly shorter food preparation times for women (Bharati et al. 2020). In Nicaragua, electricity access has increased the female propensity to work outside the home by about 23 per cent (Grogan and Sadanand 2013). Similarly, household appliances such as refrigerators and washing machines have

reduced housework and increased employment among rural Chinese women (Tewari and Wang 2019).

Lastly, social networks are important for access to credit, insurance, and jobs, and the attainment of soft skills (Chakravarty et al. 2017; Field et al. 2016; Mani and Riley 2019). Peers and role models are part of social networks and shape aspirations, influencing labour market outcomes (Beaman et al. 2012; Ray 2006). However, young women may often have limited access to such networks, due to social norms around their mobility outside their homes (Jayachandran 2020) or gendered networking preferences among men (Beaman et al. 2013; Magruder 2010).

The question of how these factors affect FLFP within countries during structural and rural transformation (with spatial implications) remains largely unanswered in a cross-country but micro setting. Empowering young women by reducing the constraints on them and connecting them with peers, communities, and markets is particularly important, for three reasons. First, fully incorporating young women into the economy and raising their productivity can significantly speed up economic development. Second, young women working in OFWE are more likely to marry later and have fewer children, giving them a greater chance to obtain better health and economic outcomes for themselves and their children. Third, lower fertility speeds up the demographic transition, helping countries to reap the demographic dividend (Stecklov and Menashe-Oren 2019).

3 Data

3.1 Household surveys

All the household surveys used in this study are chosen based on three criteria. First, they are all nationally representative.[3] Second, they contain comparable information at the individual level about employment, hours worked, sector of work, and other personal and household characteristics. Third, they contain georeferenced information that allows us to combine the survey data with satellite data.

The countries included are Cambodia, Indonesia, and Nepal in Asia; Mexico, Nicaragua, and Peru in Latin America; Ethiopia, Malawi, Niger, Nigeria, Uganda, and the United Republic of Tanzania in sub-Saharan Africa. Table A1 in the Appendix provides the detailed list of all the surveys, sample sizes, and years of implementation.

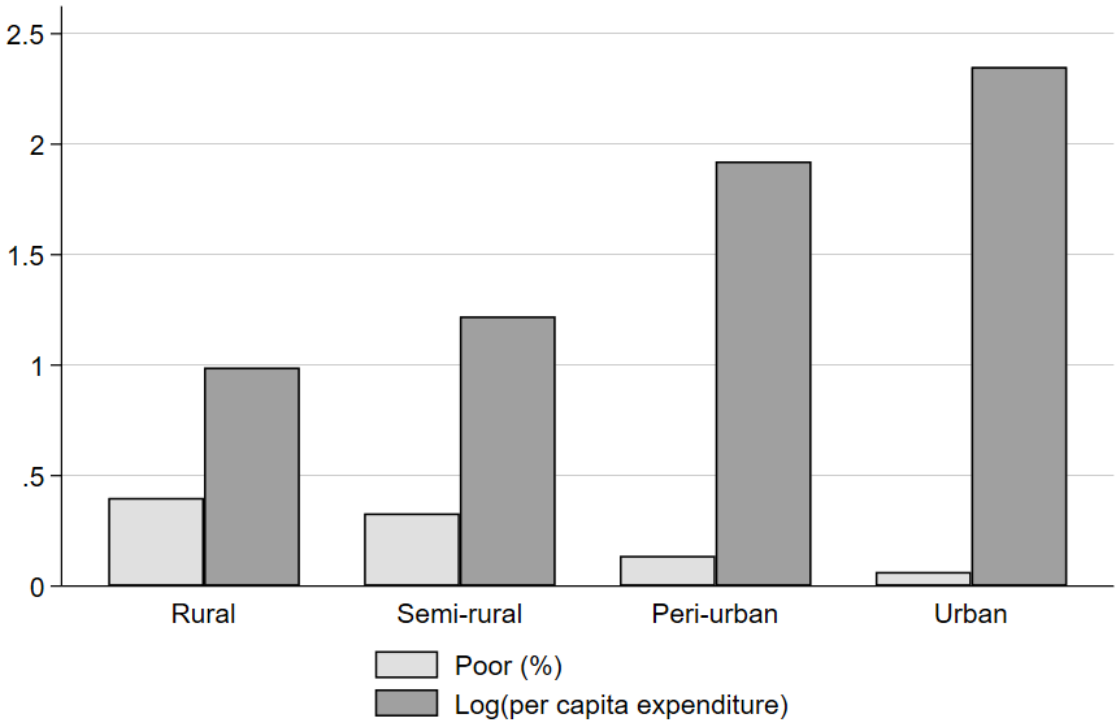
Given the focus of our analysis, we limit the data set to the youth population. In doing this, we use the United Nations definition of youth as individuals aged between 15 and 24 years, to ensure comparability and account for the minimum age for admission to employment fixed by the International Labour Organization. We finally work with a cross-sectional sample of 121,476 individuals, which represents 93.5 million young people in the countries included.

[3] The survey of Indonesia is representative of 80 per cent of the total population.

3.2 Geospatial data

We use high-resolution geospatial databases to construct a variable to capture connectivity, and one variable as a control for agro-ecological potential in the area. We merge these variables using available geospatial information on enumeration areas (EAs) or other administrative sampling units with the household survey data.

Figure 1: Poverty rates and expenditure in all categories of the rural-urban gradient



Note: poverty rates based on household-level consumption per capita at the international poverty line of international US$1.90 per day. Expenditure calculated based on constant 2011 international US dollars in purchasing power parity of local currencies. Population weights applied.

Source: authors' calculations.

We adopt the innovative approach introduced by Arslan et al. (2020), which groups the population of 85 low- and middle-income countries[4] into quartiles based on the population density of the areas in which they live. The population density data comes from the WorldPop project at a 250 m x 250 m resolution.[5] The least dense quartile represents rural areas, while the densest quartile represents urban areas. In-between are semi-rural (second quartile) and peri-urban (third quartile) areas.[6] This approach ensures comparability across regions and countries, and it creates a more precise spatial picture of the economic characteristics of areas than administrative definitions of rural and urban. Arslan et al. (2020) show that each gradient presents different economic opportunities in terms of agricultural commercialization, off-farm diversification, and market

[4] As defined by the World Bank in 2018.

[5] The production of the WorldPop data sets principally follows the methodologies outlined in Tatem et al. (2007), Gaughan et al. (2013), Alegana et al. (2015), and Stevens et al. (2015).

[6] Table A2 in the Appendix shows the population density threshold to define each quartile, and the average population density within each quartile.

access. The rural-urban gradient is a proxy for connectivity to people, markets, and ideas, and can be thought to correspond to economic or employment advantage, especially beyond the farm sector. Indeed, Figure 1 illustrates that poverty rates decline and expenditure levels increase as one moves from rural to urban areas in our sample.

4 Methodology

4.1 Estimation strategy

We estimate the probability of participating in OFWE to test differential effects for young women and men. We are specifically interested in the effect of being female and its interactions with individual characteristics (marital status, household headship, educational level), household characteristics (child dependency ratio, wealth, time-saving assets), and connectivity and peer networks, using the following model:

$$P(Y_i = 1) = \alpha + \gamma_0 fem_i + \gamma_1 X_1 * fem_i + \gamma_2 X_2 * fem_i + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 W_l + C_c + \mu_i \quad [1]$$

where Y_i is the dichotomous dependent variable that is equal to one if individual i has spent any work time in OFWE.[7] X_{1i} is a matrix of variables representing social constraints on female participation (individual and household), and X_{2i} is a matrix of variables for connectivity and peer networks. X_{3i} is the matrix of control variables (individual, household, and context), W_l is the labour demand in OFWE varying at the highest administrative level (admin 1), and μ_i is the idiosyncratic error term. In addition, we include a country dummy, C_c, to control for country-specific policies, institutions, social norms, and economic situations.

We test whether young women are equally likely to access OFWE as young men, in which case γ_0 will be equal to zero, assuming that all other variables capture observable drivers of the gender gap. We further test whether γ_1 and γ_2 are equal to zero, which will be the case if social constraints and connectivity constraints are equally binding for young men and young women. To assess whether and how gender gaps change with spatial connectivity, we estimate the model for subsamples separated by the rural-urban gradient (i.e. rural, semi-rural, peri-urban, and urban areas).

The estimation of equation [1] for participation in OFWE should take account of youth's alternative activity options, such as going to school, not working at all, and working self-employed or on the family farm. We observe in the data that these options are not mutually exclusive, and we assume that these decisions are simultaneous rather than sequential. In fact, it is not clear a priori which of these decisions comes first, and it would not be possible to test for this. Therefore, the probability of participation in OFWE should be jointly estimated with the probability of the other three options. The model can be specified as a set of generalized structural equations with dichotomous dependent variables, each representing the four options previously described and allowing correlation of the error terms without assuming any functional form. This can formally be written as:

[7] This definition is based on all activities, whether primary or secondary employment, and reported hours worked. In some of the surveys this corresponds to the past seven days, as in standard labour force surveys; in others, such as the 'Living Standard Measurement Study – Integrated Surveys on Agriculture', it corresponds to the past 12 months.

$$P(Y_i^1 = 1) = \alpha + \gamma_0^1 fem_i + \gamma_1^1 X_1 * fem_i + \gamma_2^1 X_2 * fem_i + \beta_1^1 X_{1i} + \beta_2^1 X_{2i} + \beta_3^1 X_{3i} + \mu_i \quad [2a]$$

$$P(Y_i^2 = 1) = \alpha + \gamma_0^2 fem_i + \gamma_1^2 X_1 * fem_i + \gamma_2^2 X_2 * fem_i + \beta_1^2 X_{1i} + \beta_2^2 X_{2i} + \beta_3^2 X_{3i} + \mu_i \quad [2b]$$

$$P(Y_i^3 = 1) = \alpha + \gamma_0^3 fem_i + \gamma_1^3 X_1 * fem_i + \gamma_2^3 X_2 * fem_i + \beta_1^3 X_{1i} + \beta_2^3 X_{2i} + \beta_3^3 X_{3i} + \beta_4^3 W_l + \mu_i \quad [2c]$$

$$P(Y_i^4 = 1) = \alpha + \gamma_0^4 fem_i + \gamma_1^4 X_1 * fem_i + \gamma_2^4 X_2 * fem_i + \beta_1^4 X_{1i} + \beta_2^4 X_{2i} + \beta_3^4 X_{3i} + \beta_4^4 W_l + \mu_i \quad [2d]$$

Y^1, Y^2, Y^3, Y^4 are the four activity options: respectively, no work activity, currently in school, working in OFWE, and working in other employment. The other variables correspond to those specified in equation [1].

We focus our analysis on equation [2c], participation in OFWE, and in particular on $\gamma_0^3, \gamma_1^3, \gamma_2^3$. Using these coefficients, we compute the marginal effects as needed to be able to meaningfully interpret the results. We adjust for the facts that the marginal effect in a non-linear model is not constant over its entire range (Karaca-Mandic et al. 2012) and the marginal effect of a change in interacted variables is not equal to the marginal effect of changing just the interaction term (Ai and Norton 2003). Therefore, as illustrated by Ai and Norton (2003), we calculate the full interaction effect as the cross-partial derivate of the expected value of y:

$$\frac{\partial^2 \Phi(u)}{\partial fem \partial x_1} = \gamma_1 \Phi'(u) + (\gamma_0 + \gamma_1 x_1)(\beta_1 + \gamma_1 fem)\Phi''(u) \quad [3]$$

This has four important implications. The interaction effect can be non-zero even if $\gamma_1 = 0$.[8] The statistical significance of the interaction effect cannot be tested with a simple t-test on the coefficient of the interaction term γ_1. Instead, the statistical significance of the entire cross-derivate must be calculated. The interaction effect is conditional on the independent variables, unlike the interaction effect in linear models. Because there are two additive terms, each of which can be positive or negative, the interaction effect may have different signs for different values of covariates. Therefore, the sign of γ_1 does not necessarily indicate the sign of the interaction effect (Karaca-Mandic et al. 2012).

We apply post-stratification weights by making surveys comparable with each other. We first adjust the sampling weights provided in the surveys from the household level to the individual level, and then adjust for the representativeness of age and gender population structure (Deville and Särndal 1992; Deville et al. 1993; Särndal 2007). Finally, we adjust the new weights for the sample size of cross-national surveys (Kaminska and Lynn 2017; Lynn et al. 2007). This allows us to pool all individuals together and obtain population estimates without one country dominating due to its sample size.

Our empirical approach aims not to establish causal relationships but to describe correlations, accounting for the simultaneity of activity decisions and controlling for relevant observables.

[8] In this case, the interaction effect is $\frac{\partial^2 \Phi(u)}{\partial fem \partial x_1}\Big|_{\gamma_1 = 0} = \gamma_0 \beta_1 \Phi''(u)$.

Omitted variable bias is a concern, as we cannot control for unobservable characteristics that have been shown to be important for young women's wage employment participation, such as self-confidence (McKelway 2020), beliefs (Bordalo et al. 2019), intrahousehold relationships (Bertrand et al. 2015), or community norms (Bernhardt et al. 2018). These might be captured with individual or household fixed effects, which would require longitudinal data. Another way would be to use proxy variables, but it is difficult to find comparable proxies in all 12 surveys. Another concern arises from reverse causality. For example, marriage can influence employment decisions, but employment status might also influence the decision when and whom to marry, especially in the sample of young adults. Ideally, one would draw on quasi-experimental methods to resolve this, but these would be challenging to apply to so many different countries in a comparable manner and for so many variables of interest. We therefore interpret our results cautiously, with relevant references to the literature.

4.2 Variable definitions

As mentioned above, participation in the four main activities is not mutually exclusive. We identify such pluri-activity in the data by computing the full-time equivalent (FTE)[9] of each work activity for each individual aged 15 years or older. This allows us to capture even those who work for a few hours on the family farm while also working in a full-time wage job, whether as a primary or secondary occupation. The first dependent variable represents participation in the labour force and takes the value of one if the young person does not carry out any work activity. The second variable equals one whenever the individual is enrolled in the school system. The third variable represents participation in OFWE and equals one if the individual FTE of off-farm wage work is greater than zero. OFWE is defined as any wage work activity that is neither helping out on the household's own business/farm[10] nor working on one's own business/farm. The fourth variable equals one if a young person has spent any other FTE unit on a miscellaneous activity, such as farm work or self-employment.

Being female is our core variable, according to which the other characteristics differently influence the activity choices. In the conceptual framework in section 2, we reviewed the literature that motivates our focus on marital status, household headship, secondary education, child dependency, wealth, time-saving assets, and peer networks. Marital status, household head status, and secondary education attainment are defined as dummy variables, respectively taking the value of one if the individual is married, is the household head, or has concluded secondary education. The child dependency ratio is a proxy for childcare within the household, typically a chore fulfilled by women. The variable is defined as the number of household members below the age of ten over the number of members aged ten and above (Van den Broeck and Kilic 2019). Further, we construct a wealth index following the procedure of the international wealth index (Smits and Steendijk 2015).[11] In the construction of the wealth index, we specifically consider three dimensions, some of which are relevant for gender gaps: communication equipment, which controls for access to information; means of transport, which may reduce travelling time; and

[9] FTE measures the number of working hours spent on all types of employment relative to a standard benchmark of 40 hours per week (FTE=1). It ranges between zero and two, allowing for a maximum of 80 hours' work per week (Dolislager et al. 2020).

[10] If an individual works for remuneration in the family business, it is considered wage employment.

[11] A separate wealth index constructed on the assets available in the survey data would make comparability difficult. Thus, the international wealth index is the most appropriate procedure for the construction of a comparable index among countries and time points (Gwatkin et al. 2007; McKenzie 2005; Smits and Steendijk 2015). We compute the index using polychoric principal component analysis (Kolenikov and Angeles 2009), and we rescale it to a range from zero to 100 (Smits and Steendijk 2015).

quality of housing characteristics. We also construct a time-saving asset index, applying the international wealth index methodology. This index includes household appliances and facilities that affect domestic work primarily done by women.[12] Peer network variables are created for each of the four activity outcomes, distinguished by gender. These are calculated as the share of young females (or males) in the specific activity over the total young female (or male) population within admin 1 in each country, excluding the person for which the share is calculated. With this variable, we aim to capture network effects related to access to information, role models, and social interactions, which can improve access to jobs (Beaman et al. 2012; Chakravarty et al. 2017; Field et al. 2016; Mani and Riley 2019; Ray 2006; Fogli and Veldkamp 2011).[13]

We also include a set of variables controlling for individual, household, and context characteristics. At the individual level, we use a dummy variable that accounts for different age cohorts, to control for differences between teenagers (ages 15 to 17) and young adults (ages 18 to 24). While the former are potentially still in school and more likely to live with their parents, the latter are more likely to start their own lives in terms of work and family. At the household level, we control for the household size and its demographic composition, i.e. the share of women, the share of elderly people (above 64 years old), and the share of working-age adults. We further control for remittance receipt, which can affect the incentive to work, as remittances increase non-labour income (Acosta et al. 2009; Chami et al. 2018).

As we model a labour supply decision, we control for local labour demand as well as specific sector size for both OFWE and other employments. Local labour demand is calculated as the working share in the total working-age population (15 to 64 years) within admin 1, excluding the person for whom the share is calculated. We proxy the size of the OFWE sector with the median of the non-farm income share in total income (excluding other sources of income, such as remittances) at the admin 1 level. We use the respective value as a proxy for the sector size of other employment.

The last control variable is the enhanced vegetation index (EVI) of the places where households live, which is a proxy for the agricultural production potential. A high agricultural potential can positively affect LFP, especially in the on- and off-farm segments of the agri-food system (Arslan et al. 2020; Haggblade et al. 2010; Reardon, Stamoulis et al. 2007). Based on Moderate Resolution Imaging Spectroradiometer remote sensing data[14] (Chivasa et al. 2017; Jaafar and Ahmad 2015), we use the three-year average EVI values for the period 2013 to 2015 in each EA to minimize the impact of seasonality and annual agro-climatic variation, as in Arslan et al. (2020).

[12] Table A3 in the Appendix presents a detailed list of the classifications of each variable.

[13] The data does not allow us to control, for example, for individual access to information via mobile phones, the Internet, or similar sources, as this information is only available at the household level.

[14] The EVI data covers all developing countries at 250 m x 250 m resolution, which allows aggregation to the 1 km level to match the resolution of population data for all non-built and non-forested land. The EVI measures the influence of geography on the potential for productivity in farming. It is an improvement over the most common normalized difference vegetation index, which utilizes only the red and infrared bands and is subject to noise caused by underlying soil reflectance, especially in low-density vegetation canopies, and to noise from atmospheric absorption. The EVI utilizes the blue band to correct for atmospheric aerosols (Jaafar and Ahmad 2015).

5 Overview of youth activities

Table 1 summarizes the complete list of variables used in the estimation for the pooled sample as well as the four subsamples of the rural-urban gradient. In terms of youth activities, the majority of youth do not report a work activity, and a similar share are currently in school. Thus, many young people in our sample go to school and do not work. However, 38 per cent of youth work in some form of employment other than wage jobs. With 18 per cent, OFWE might seem relatively small, but it is not negligible, as off-farm wages contribute meaningfully to household income. In households where a youth works in OFWE, this type of income contributes to almost half of household income in rural areas, increasing over the rural-urban gradient up to 75 per cent.

Table 1: Summary statistics of all variables for each sample, mean (standard deviation)

	Pooled	Rural	Semi-rural	Peri-urban	Urban
Dependent variable					
No work activity (1=yes)	0.48	0.30	0.41	0.55	0.58
	(0.50)	(0.55)	(0.58)	(0.43)	(0.42)
In school (1=yes)	0.43	0.34	0.44	0.45	0.48
	(0.50)	(0.56)	(0.59)	(0.43)	(0.42)
OFWE (1=yes)	0.18	0.10	0.14	0.21	0.22
	(0.38)	(0.36)	(0.41)	(0.35)	(0.35)
Other employment (1=yes)	0.38	0.64	0.50	0.27	0.23
	(0.48)	(0.57)	(0.59)	(0.38)	(0.35)
Individual characteristics					
Female (1=yes)	0.47	0.50	0.50	0.49	0.43
	(0.50)	(0.60)	(0.59)	(0.43)	(0.42)
Marital status (1=married)	0.17	0.25	0.21	0.21	0.09
	(0.38)	(0.51)	(0.48)	(0.35)	(0.24)
Household head (1=yes)	0.13	0.08	0.12	0.16	0.14
	(0.33)	(0.33)	(0.38)	(0.32)	(0.29)
Secondary education (1=yes)	0.53	0.32	0.38	0.66	0.63
	(0.50)	(0.56)	(0.57)	(0.41)	(0.41)
Age cohort 15-17 (1=yes)	0.33	0.35	0.37	0.35	0.29
	(0.47)	(0.57)	(0.57)	(0.41)	(0.38)
Age cohort 18-24 (1=yes)	0.67	0.65	0.63	0.65	0.71
	(0.47)	(0.57)	(0.57)	(0.41)	(0.38)
Household characteristics					
Household size	4.76	5.47	4.95	4.41	4.47
	(2.73)	(3.47)	(3.20)	(2.38)	(2.13)
Child dependency ratio	0.20	0.30	0.22	0.17	0.15
	(0.31)	(0.44)	(0.37)	(0.24)	(0.23)
Share of women in household	0.49	0.49	0.51	0.50	0.48
	(0.25)	(0.26)	(0.28)	(0.23)	(0.23)
Share of elderly in household	0.04	0.04	0.04	0.04	0.04
	(0.11)	(0.12)	(0.13)	(0.09)	(0.10)
Share of workers in household	0.63	0.77	0.70	0.57	0.54
	(0.34)	(0.35)	(0.38)	(0.31)	(0.28)
Remittances received (1=yes)	0.33	0.27	0.33	0.46	0.27
	(0.47)	(0.53)	(0.55)	(0.43)	(0.38)
Wealth index (pPCA standardize 0-100)	59.66	43.36	49.30	69.22	68.40

	(27.11)	(33.74)	(33.16)	(22.11)	(16.14)
Time-saving asset index (pPCA standardize 0-100)	50.01	28.57	36.97	59.33	63.51
	(32.12)	(34.46)	(34.22)	(26.78)	(22.16)
Context variables					
EVI (3-year average)	0.28	0.32	0.33	0.33	0.21
	(0.13)	(0.15)	(0.15)	(0.09)	(0.09)
Local labour demand	0.67	0.74	0.73	0.67	0.61
	(0.11)	(0.12)	(0.11)	(0.08)	(0.08)
Off-farm labour demand	0.72	0.44	0.50	0.81	0.93
	(0.36)	(0.42)	(0.46)	(0.27)	(0.12)
Labour demand for other employment	0.28	0.56	0.50	0.19	0.07
	(0.36)	(0.42)	(0.46)	(0.27)	(0.12)
Peer network					
Female peer network in no work activities	0.56	0.47	0.49	0.58	0.65
	(0.17)	(0.21)	(0.20)	(0.13)	(0.11)
Male peer network in no work activities	0.44	0.33	0.36	0.45	0.53
	(0.17)	(0.17)	(0.18)	(0.11)	(0.12)
Female peer network in school	0.45	0.38	0.43	0.43	0.50
	(0.13)	(0.16)	(0.15)	(0.11)	(0.10)
Male peer network in school	0.46	0.43	0.49	0.47	0.46
	(0.11)	(0.14)	(0.13)	(0.09)	(0.09)
Female peer network in OFWE	0.13	0.10	0.10	0.16	0.14
	(0.09)	(0.09)	(0.10)	(0.08)	(0.08)
Male peer network in OFWE	0.19	0.15	0.16	0.24	0.20
	(0.13)	(0.14)	(0.14)	(0.12)	(0.11)
Female peer network in other employment	0.32	0.45	0.42	0.28	0.22
	(0.22)	(0.25)	(0.26)	(0.19)	(0.13)
Male peer network in other employment	0.40	0.57	0.51	0.34	0.29
	(0.24)	(0.26)	(0.27)	(0.19)	(0.16)
Connectivity					
Location: rural	0.22				
	(0.42)				
Location: semi-rural	0.17				
	(0.38)				
Location: peri-urban	0.25				
	(0.43)				
Location: urban	0.35				
	(0.48)				
No. of observations	121,476	38,730	29,351	22,691	30,704
Population size	93,489,569				

Note: pPCA: polychoric principal component analysis. All values are weighted means, and standard deviations are in parentheses.

Source: authors' calculations.

Table 2: Summary statistics of gender variables for all samples in every location of rural-urban gradient

		Rural	
	Female	Male	Difference
Marital status (1=married)	0.39	0.11	0.28***
Household head (1=yes)	0.06	0.10	-0.04***
Secondary education (1=yes)	0.32	0.32	0.00
Child dependency ratio	0.37	0.22	0.14***
Wealth index	42.97	43.76	-0.79
Time-saving asset index	29.32	27.82	1.49
Female peer network in off-farm wage	0.10	0.09	0.01*
Male peer network in off-farm wage	0.16	0.14	0.01***
		Semi-rural	
	Female	Male	Difference
Marital status (1=married)	0.33	0.09	0.23***
Household head (1=yes)	0.10	0.14	-0.04
Secondary education (1=yes)	0.41	0.34	0.07***
Child dependency ratio	0.27	0.17	0.10***
Wealth index	50.51	48.11	2.40*
Time-saving asset index	39.10	34.85	4.25***
Female peer network in off-farm wage	0.11	0.10	0.01**
Male peer network in off-farm wage	0.17	0.15	0.02***
		Peri-urban	
	Female	Male	Difference
Marital status (1=married)	0.33	0.10	0.23***
Household head (1=yes)	0.14	0.18	-0.04**
Secondary education (1=yes)	0.68	0.64	0.04**
Child dependency ratio	0.22	0.13	0.09***
Wealth index	70.01	68.47	1.54
Time-saving asset index	61.56	57.20	4.36***
Female peer network in off-farm wage	0.16	0.15	0.01***
Male peer network in off-farm wage	0.25	0.23	0.02***
		Urban	
	Female	Male	Difference
Marital status (1=married)	0.12	0.06	0.06**
Household head (1=yes)	0.14	0.14	-0.00
Secondary education (1=yes)	0.67	0.61	0.06
Child dependency ratio	0.18	0.12	0.05***
Wealth index	69.94	67.24	2.70***
Time-saving asset index	65.71	61.86	3.85**
Female peer network in off-farm wage	0.15	0.14	0.01***
Male peer network in off-farm wage	0.22	0.19	0.03***

Note: difference reports the difference in means, and asterisks indicate the level of statistical significance from a simple t-test: *<0.10; **<0.05; ***<0.01.

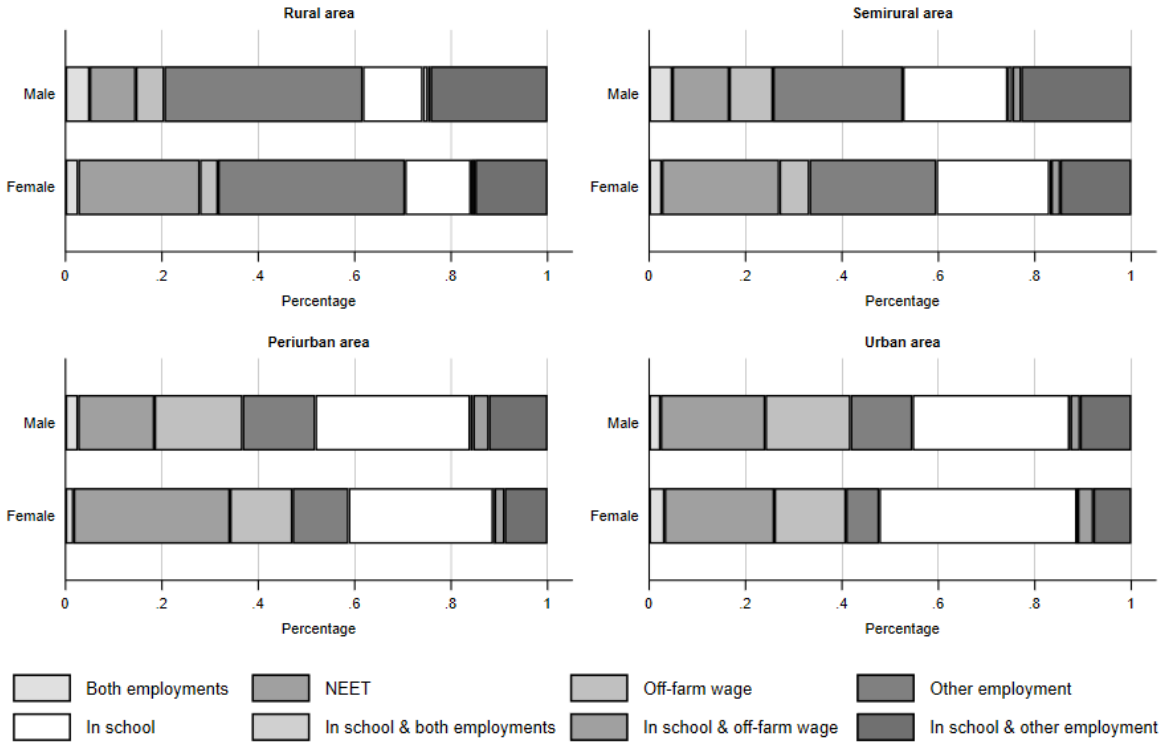
Source: authors' calculations.

In Table 2, we present the factors expected to influence gender gaps in OFWE across the rural-urban gradient, and we test the difference between young men and women in the sample. More young women are already married compared with their male peers, with a large difference ranging from 23 percentage points in peri-urban areas to 28 percentage points in rural areas. Only in urban areas are far fewer youth married, and the gap between the sexes is only six percentage points. Young women tend to get married at younger ages, and mostly to men who are older than they are (Doss et al. 2019), resulting in these large differences. In many contexts, marriage brings

children. Consequently, young women live in households with relatively higher child dependency ratios, which decrease from rural to urban areas, in line with findings from other studies showing lower fertility in urban areas (Stecklov and Menashe-Oren 2019). Household headship is on average more common among young men in rural and peri-urban areas, but at 13 per cent relatively few young people are already considered a head of household. Secondary educational achievement is above 60 per cent in peri-urban and urban areas, with young women outperforming young men. Relatively more young women have concluded secondary schooling in semi-rural areas too, but at an overall lower rate. As one might expect, in rural areas only around a third of the youth in our sample have attained a secondary education, albeit without a gender gap. The size of peer networks in off-farm wage work increases along the rural-urban gradient, pointing to a higher number of opportunities in this sector for young people in more densely populated areas. However, on average young men are surrounded by relatively more young men in this type of activity compared with young women and their female peer networks.

As explained in the methodology section, youth activities are not mutually exclusive, resulting in a diverse set of combinations. Figure 2 presents the share of youth by gender in each of the possible activity combinations along the rural-urban gradient. The rural-urban gradient reflects the structural transformation levels of the economies, which in turn determine the availability of the different activities (IFAD 2019). Gender differences in activity portfolios may be related to social norms (Jayachandran 2020).

Figure 2: Share of youth in different activities along the rural-urban gradient by gender



Source: authors' calculations.

From left to right, we observe that only very few youth work in both OFWE and other employment. When we look at the hours worked, we find that young people who work in OFWE spend on average at least 80 per cent of their total work hours on these jobs, increasing over the rural-urban gradient. This indicates that such jobs tend to be full-time and are rarely combined with other main activities. Similarly small is the share of youth working in such off-farm jobs while

also attending school (second last bar component). The second group from the left are NEETs. This share increases over the rural-urban gradient for young men. There are relatively more young women in this category, with almost 25 per cent in rural areas and the highest share in peri-urban areas. As the previous literature asserts, family farming is an easy entry activity in rural areas; thus rural youth tend to be involved in some work activities, with low rates of inactivity (Dolislager et al. 2020), and most youth start working on the farm at an early age, usually while going to school (Fox 2019). In contrast, although urban areas may offer more job opportunities in general, the lack of an easy entry activity for youth increases the share of young NEETs (Bloom et al. 2008; Henderson 2010).

As observed in the summary statistics, relatively few youth work in OFWE compared with being in school or working in other types of employment. The share of youth engagement in these jobs increases along the rural-urban gradient, and there are more young men than women in such jobs. The next two categories, only working in other employment or only being in school, take up the largest shares in all areas. However, in rural areas other employment dominates, while in urban areas education is more common. Other employment includes working on one's own or the family farm, on a farm for a wage, or self-employed. In rural areas the former two activities dominate, while in peri-urban and urban areas self-employment or running a business are more common (IFAD 2019). Here we note that such self-employment is less common than wage employment among youth, for men and women alike. While the share of youth who are in school and work in both types of employment or in wage jobs off the farm is almost negligible, there are up to around 20 per cent of youth who work in another employment alongside their school attendance. Such work might either be helping out on the family farm or having small self-employment on the side that allows flexibility to work after school.

In terms of gender differences, two findings stand out. First, young women seem more likely than young men to be NEET, independent of their connectivity. Second, they appear less likely than their male counterparts to work in off-farm wage jobs, but they may have much better chances in (peri-)urban areas. None of these observations account for individual, household, local, or country characteristics, or for the simultaneous decision to participate in these various activities. The results of our simultaneous estimation model, presented in the next section, address these issues.

6 Results

The results of the simultaneous equation probit model are presented in Table A4 in the Appendix. The table reports the estimates of the four outcome equations (i.e. no work activity, in school, OFWE, other employment). The first column presents the estimates of the rural sample, while columns 2, 3, and 4 report the results for the other rural-urban gradient categories, i.e. semi-rural, peri-urban, and urban respectively. The corresponding marginal effects of the main variables in the OFWE equation are presented in Table A5.[15]

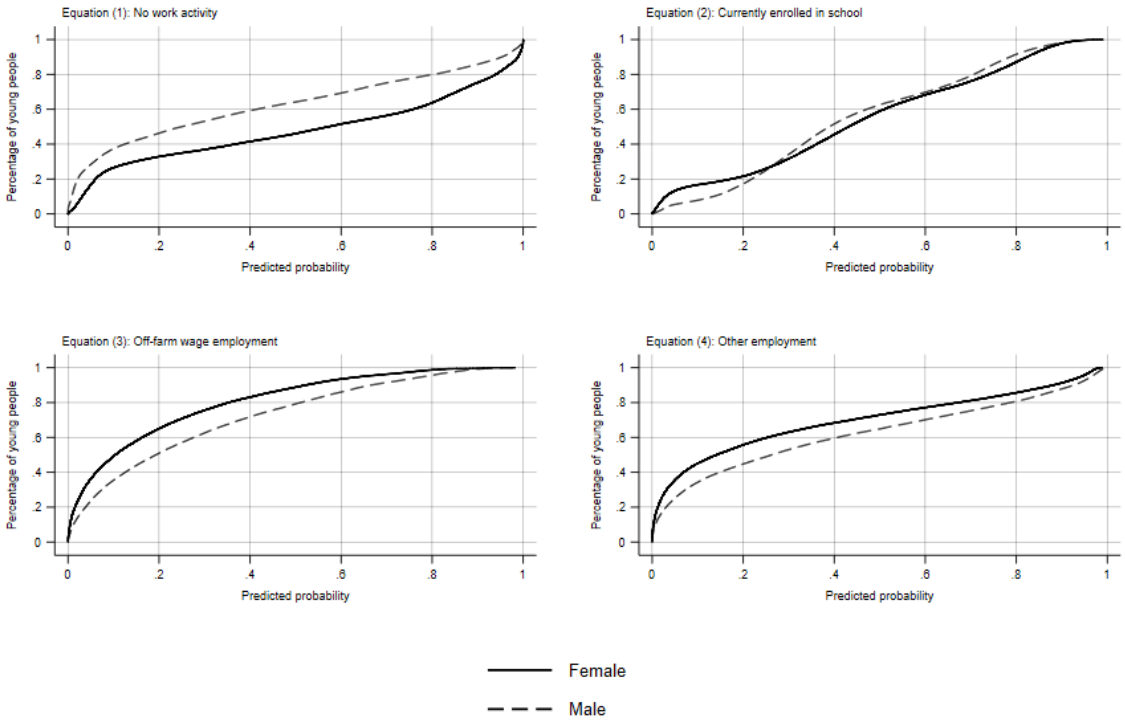
[15] In Appendix Table A6, we test that the coefficients of the three equations (no work, student, other employment), as well as the set of control variables and the countries dummy in the equation of OFWE, are simultaneously equal to zero. Rejecting the hypothesis, we confirm that including the three equations as well as the control variables and countries dummy in each of these equations creates a statistically significant improvement in the fit of the model.

6.1 Predicted probability for different activities

Figure 3 shows the cumulative predicted probabilities of the four outcome equations. We observe a gender gap in all outcomes aside from school attendance. A high percentage of young women are excluded from the labour market, demonstrating that equal access to work (one of the indicators for Sustainable Development Goal 2.3) is still distant. For example, when we compare 60 per cent of both sexes, young women have a cumulative probability of around 80 per cent of not working, while young men have a cumulative probability of only around 40 per cent.

Even though the gender gap seems smaller within the labour force, young women are less likely to participate in both OFWE and other types of work. In OFWE, for instance, if we look at the 80th percentile of the population, young females are 40 per cent likely to be in OFWE, whereas young males have a likelihood of 50 per cent. By contrast, a higher percentage of young females and males have equal probabilities of being in education, suggesting that efforts to equalize access to education over past decades have been more successful than efforts to equalize access to off-farm employment.

Figure 3: Cumulative predicted probabilities of the four outcome equations in the simultaneous equation probit model of the pooled sample, separated by gender



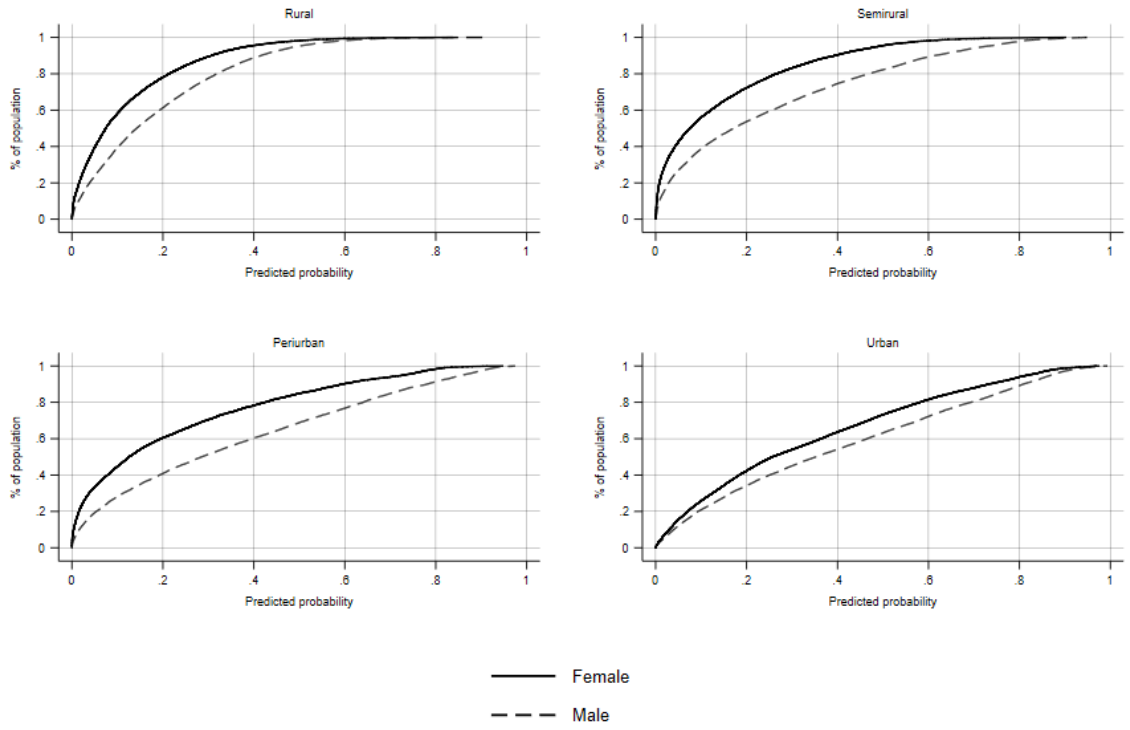
Note: cumulative predicted probabilities refer to the four outcomes (no work, student, OFWE, other employment). Results of the pooled sample simultaneous equation probit model estimation are provided in Table A4.

Source: authors' calculations.

6.2 Probability of working in OFWE along the rural-urban gradient

Figure 4 shows the cumulative predicted probabilities of OFWE separated by female and male participation in the four different locations (rural, semirural, peri-urban, and urban). Overall, young men are more likely to be employed in OFWE when we control for individual, household, and context characteristics as well as simultaneous activity choice. Even though the gap is observable in all locations of the rural-urban gradient, it is greater in semi-rural and peri-urban areas. For example, in peri-urban areas, 60 per cent of young women have a 20 per cent cumulative probability of participating in OFWE, compared with a 40 per cent cumulative probability for 60 per cent of young men. In urban areas, OFWE rates are overall higher, and the difference between young men's and young women's likelihood of working in such jobs is relatively small.

Figure 4: Cumulative predicted probabilities of OFWE equation by gender, separated by rural-urban gradient



Note: cumulative predicted probabilities refer to equation [3], OFWE, in Table A4.

Source: authors' calculations.

While we employ a different methodology, the Blinder-Oaxaca decomposition (Blinder 1973; Oaxaca 1973)[16] is often used to examine gender gaps and their drivers (for example, see a recent application in Klasen et al. 2020). We run a simple two-way decomposition on our sample to assess how much of the gap is explained by differences in observable characteristics of our model and how much by differences in the coefficients. Table 3 presents the results and confirms the previous

[16] The Blinder-Oaxaca decomposition divides the outcome variable between two groups into a part that is explained by differences in the observed characteristics (explained part) and a part attributable to differences in the estimated coefficients (unexplained part). Formally, $G = E + U$ where G is the gender gap $\bar{Y}_{male} - \bar{Y}_{female}$, E is the explained part $\{E(X_{male}) - E(X_{female})\}'\beta^*$, and U is the unexplained part $E(X_{male})'(\beta_{male} - \beta^*) + E(X_{female})'(\beta_{female} - \beta^*)$. β^* is a non-discriminatory coefficient vector estimated by using the coefficients from the pooled model over both groups.

finding. The gender gap increases along the rural-urban gradient, reaching the highest disparity in the peri-urban area, and it declines in the urban area. The unexplained part (i.e. the difference in coefficients) drives the gender gap in all locations: 88 per cent in rural, 81 per cent in semi-rural, 198 per cent in peri-urban, and 42 per cent in urban areas. The part of the gender gap attributed to the differences in the coefficients is therefore greater than that attributed to differences in the characteristics of young people. As we show in the following sections, some characteristics are differently associated with OFWE participation depending on a young person's gender. Another important finding from this exercise is that country dummies hardly enter significantly in the explanation of the gender gap—neither the explained nor the unexplained part. This challenges previous findings that argue that country-specific factors explain a large part of gender gaps (e.g., Heath and Jayachandaran 2017; Klasen et al. 2020).[17]

Table 3: Blinder-Oaxaca decomposition

	Rural	Semi-rural	Peri-urban	Urban
Gender gap	0.052***	0.054***	0.078***	0.007
	(0.012)	(0.014)	(0.018)	(0.025)
Explained part	0.006	0.013	-0.026	-0.015
	(0.010)	(0.017)	(0.020)	(0.024)
Unexplained part	0.046***	0.042***	0.103***	0.022
	(0.013)	(0.016)	(0.018)	(0.032)

Note: standard errors in parentheses. Statistical significance: *<0.10; **<0.05; ***<0.01.

Source: authors' calculations.

6.3 Drivers of the gender gap along the rural-urban gradient

For the purpose of this discussion, we graphically present the marginal effects of being a young woman in interaction with different potential drivers of the gender gap in participation in OFWE. For each variable of interest, we present two marginal effects. The first marginal effect compares the effect of an increase in the respective variable on a young woman's participation with that of a young woman for whom the variable remains constant—for example, comparing married with unmarried young women. The second marginal effect compares a young woman with a young man with respect to the same level of the variable of interest (all estimates of marginal effects are reported in Table A5 in the Appendix).

Figure 5 graphs these marginal effects for four potential drivers of the gender gap: being married, the child dependency ratio, being the household head, and having completed secondary education. The effects are separately estimated for each category of the rural-urban gradient. Based on the weights applied, these can be read as weighted population averages of the full rural, semi-rural, peri-urban, and urban sample across all countries.

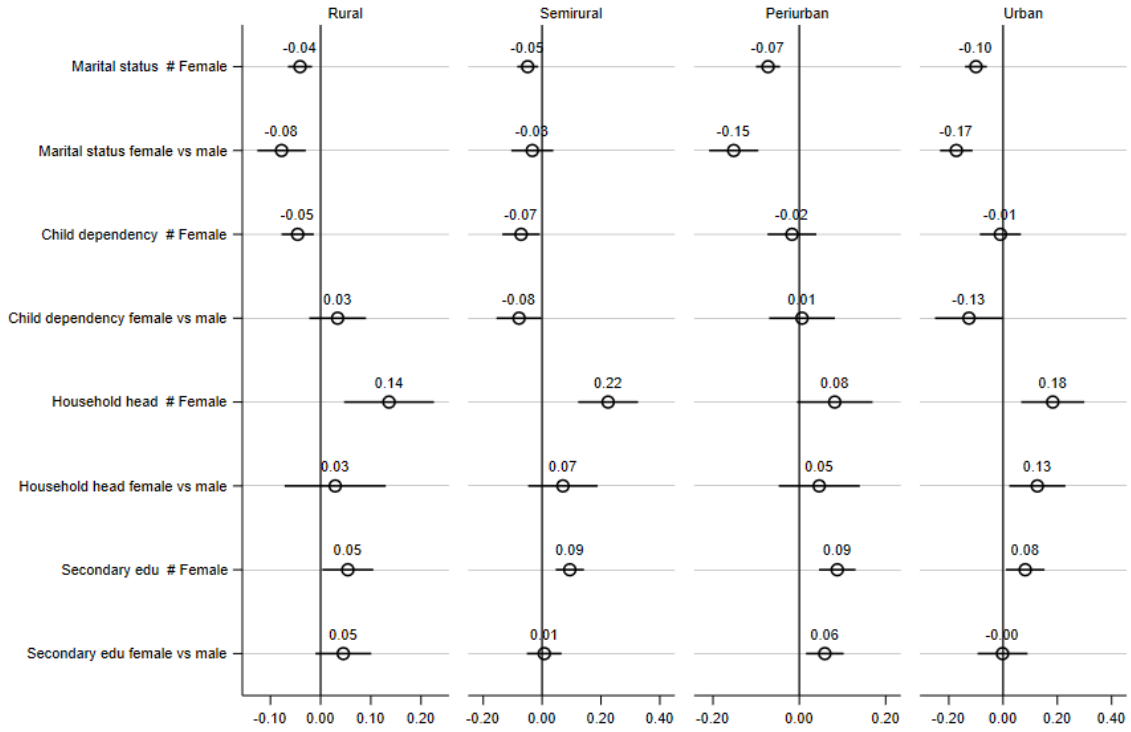
Marriage is associated with opposite probabilities of OFWE for young women and men. Married young women are significantly less likely to participate in OFWE compared with unmarried young women, by four, five, seven and ten percentage points respectively in rural, semirural, peri-urban, and urban areas. At the same time, married young men are more likely to work in such jobs, resulting in an even larger gap between the sexes. Young married women have a participation rate that is lower than that of young married men by eight, 15, and 15 percentage points respectively in rural, peri-urban, and urban areas. The gender difference between married youth is insignificant

[17] Full results of the Oaxaca-Blinder decomposition are presented in Table A7 in the Appendix.

in semi-rural areas. Marital status thus significantly limits young women's participation in off-farm jobs, which are characterized by full-time work outside the household.

Higher connectivity is not associated with a reduction in this constraint, but rather with a stronger division. This may be partially explained by the observations made in other studies that in more developed contexts—in this case, peri-urban and urban areas—married women can afford to stay home and not work, while in rural and less developed areas every household member contributes to household income (Field et al. 2010; Jayachandran 2020). However, as we control for household wealth and model other activity choices, this result points to persistent norms around young women's roles when married. Our results for other activity outcomes confirm this pattern (see Table A4 in the Appendix). Married young women are significantly less likely to work in other activities, especially in rural and semi-rural areas, while the effect is insignificant in peri-urban and urban areas. Young men, by contrast, are always more likely to work if they are married. The no-work outcome displays the opposite pattern, with significant work-discouraging effects in all categories of spatial connectivity for young married women. Yet when it comes to schooling, marital status poses a general constraint for young people without a gender gap, aside from in rural areas.

Figure 5: Marginal effects of marital status, child dependency ratio, household headship, and secondary education on OFWE in every category of the rural-urban gradient



Note: each panel presents the marginal effects of being married, the child dependency ratio, being the household head, and having concluded secondary education in every category of the rural-urban gradient (rural, semirural, peri-urban, and urban). Estimates come from Appendix Table A5, columns 1 (rural), 2 (semi-rural), 3 (peri-urban), and 4 (urban). The base category is young women at a lower level of the given variable, i.e. unmarried young women, young women with the average child dependency ratio, young women that are not household heads, and young women with an educational level below secondary. The female vs male rows are the difference in the marginal effect between young women and men at the same level of the corresponding variable. Confidence levels are set at 90 per cent.

Source: authors' calculations.

Similarly to marital status, childcare in the household differently affects young women and men. In this case, an increase in the child dependency ratio is associated with lower female off-farm wage participation, particularly in rural and semi-rural areas (five and seven percentage points), compared with young women with average child dependency ratios. Peri-urban and urban areas might offer more options for childcare to reduce this constraint. Not shown in Figure 5 but observed in Table A5, the marginal effect of the child dependency ratio is positive for young men in urban areas (12 percentage points). As a result, a higher child dependency ratio puts young women at a weakly significant disadvantage compared with young men in semi-rural and urban areas. In semi-rural areas, this gap is driven by young women's constraint possibly due to lack of childcare options, while in urban areas it appears to be driven by young men's stronger LFP pressure with increasing child dependency—and relatively more off-farm jobs available in such areas.

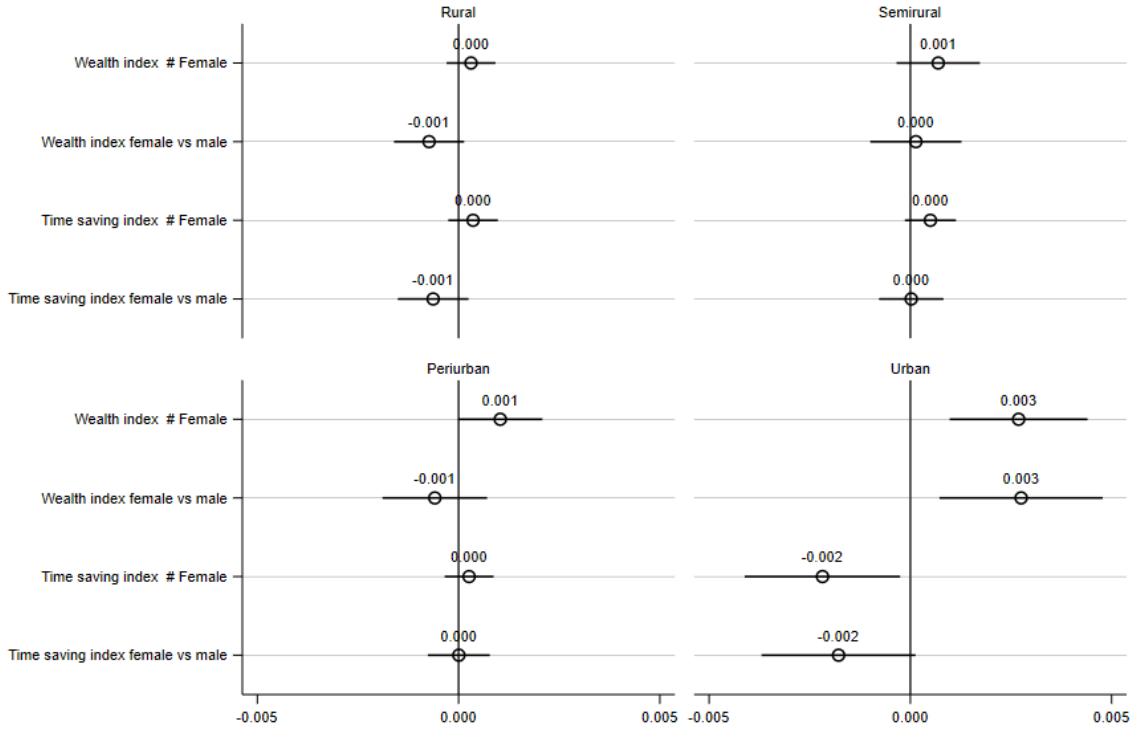
Young women who are household heads in rural, semi-rural, peri-urban, and urban areas are respectively 14, 22, eight, and 18 percentage points more likely to work in OFWE compared with young women who are not household heads. It should be noted that on average only between six and 14 per cent of young women in rural and urban areas respectively are household heads. There are two possible directions of influence at work here. One is that with headship comes decision-making power. This may simply be due to the absence of a male partner or dominant older female in the household, thus enabling the young woman to access jobs outside her home. At the same time, Annan et al. (2019) document that OFWE is associated with stronger decision-making power, and headship may thus be a result of this type of employment. As noted earlier, our method documents correlations and cannot disentangle such endogenous relationships. This pattern consistently appears across connectivity categories; to state it differently, it seems to hold independent of location on the rural-urban gradient. In comparison with young men, young women's headship is not associated with a disadvantage. In urban areas, young female household heads are even significantly more likely than young men to work in OFWE. This may again be related to the two possible explanations above.

The marginal effect of secondary education is statistically significant everywhere, and it increases female participation by five, nine, nine, and eight percentage points in in rural, semi-rural, peri-urban, and urban areas respectively. As expected and documented in the literature, secondary education improves access to off-farm jobs (Dolislager et al. 2020; Essers 2016; Van den Broeck and Kilic 2019). While this is the case for all youth, young women are even more likely than young men to access off-farm jobs in peri-urban areas if they have attained secondary education, by six percentage points.

Figure 6 shows the marginal effects of household wealth and time-saving asset wealth on participation in off-farm wage jobs. The only significant marginal effects in this figure are those of the household wealth index for young women's OFWE. Young women in wealthier households are significantly more likely to work in off-farm wage jobs than young women from less wealthy households, in peri-urban and more so in urban areas. In urban areas, this results in an advantage for young women compared with young men in wealthier households, driven by the fact that for young men, household wealth does not appear to make a significant difference to their OFWE participation. However, we note that the effect size is very small. Contrary to what we would expect, ownership of time-saving assets does not significantly interact with young women's OFWE participation. It even has a negative marginal effect in urban areas. This may be partially explained by the very high rate of ownership and hence the low variation in our data (the index is on average 90 in urban households, indicating that almost every household owns almost all the time-saving assets we can measure in our data). At the same time, education opportunities are higher in urban areas, and young women in households with time-saving assets might pursue more education

rather than wage employment. Indeed, the estimation results of the outcome 'currently in school' show a positive coefficient of the time-saving asset index in peri-urban areas for all youth.

Figure 6: Marginal effects of wealth index and time-saving asset index on OFWE in every category of the rural-urban gradient

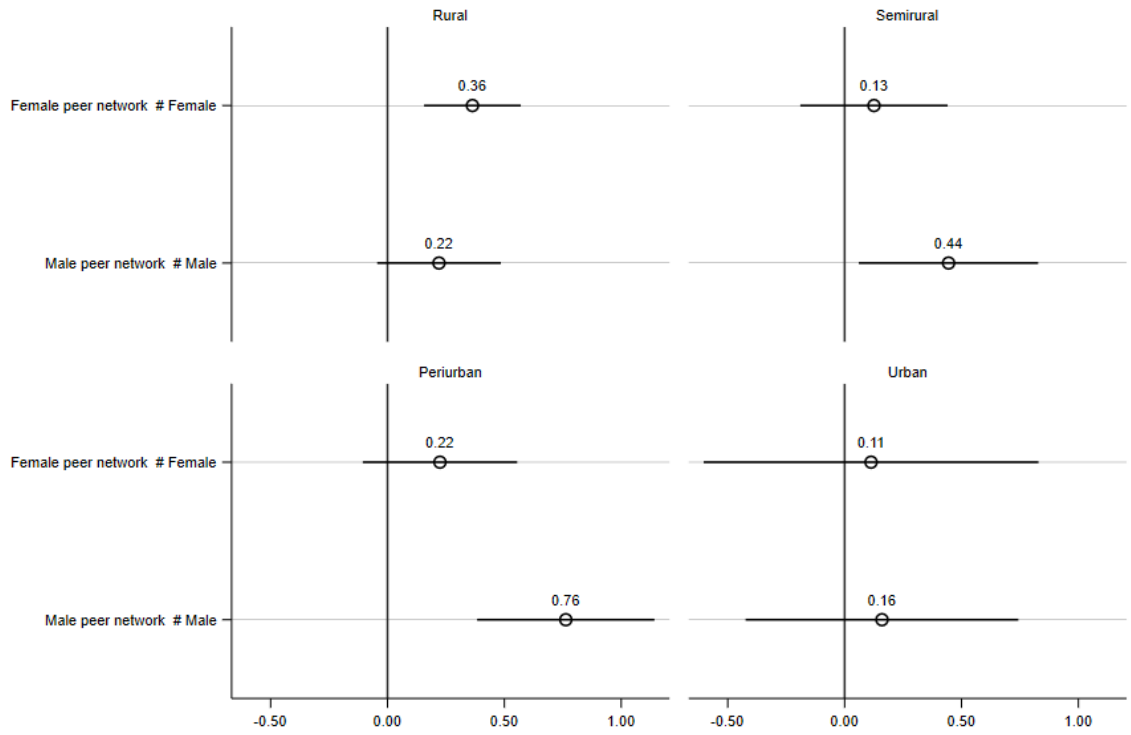


Note: each panel presents the marginal effects of the wealth index or time-saving asset index in every category of the rural-urban gradient (rural, semirural, peri-urban, and urban). Estimates come from Appendix Table A5, columns 1 (rural), 2 (semi-rural), 3 (peri-urban), and 4 (urban). The base category is young women at the average level of the variable. The female vs male estimates are the difference in the marginal effect between young women and men at the same level of the corresponding variable. For peer networks, we do not have a female vs male comparison; therefore we report marginal effects of both female and male peer networks, which can be compared to assess the different effect of peer networks on female and male participation. Confidence levels are set at 90 per cent.

Source: authors' calculations.

Lastly, we investigate the role of peer networks in the OFWE sector. Figure 7 presents the marginal effects of the network size for young women and young men along the rural-urban gradient. We do not compute the gender difference in the marginal effect here, as we focus on the gender-specific network size and directly compare the respective marginal effects. It should be noted that we separately control for overall and sector-specific labour demand, so our peer network effect is net of those effects.

Figure 7: Marginal effects of peer networks in every category of the rural-urban gradient



Note: each panel presents the marginal effects of female and male peer networks in every category of the rural-urban gradient (rural, semi-rural, peri-urban, and urban). Estimates come from Appendix Table A5, columns 1 (rural), 2 (semi-rural), 3 (peri-urban), and 4 (urban). The base category is young women or young men at the average level of the peer network variable. We do not have a female vs male comparison; therefore, we report the effect of peer networks on female and male participation. Confidence levels are set at 90 per cent.

Source: authors' calculations.

Peer network size has a positive marginal effect for both sexes, but the magnitude is greater for young men, and it is significant for young women only in rural areas. The likelihood of working in OFWE in a rural area increases by 36 percentage points for a young woman if her peer network increases by one unit (a one per cent greater OFWE rate among peers in admin 1 of each individual). This points to the importance of such agglomeration effects in relatively less connected areas, while for young men the marginal effect is largest in the areas between rural and urban, namely semi-rural and peri-urban areas. In urban areas, peer network size does not seem to influence participation.

7 Conclusions

In this study, we assess the persistence of gender gaps in wage employment across globally comparable geographies, using micro data from 12 low- and middle-income countries merged with geospatial data on population density. The analysis focuses on OFWE of youth, as it has important livelihood and welfare implications for this increasingly policy-relevant demographic group. We also adopt a spatial approach and assess the gender gap over the rural-urban gradient, rather than using the traditional binary rural-urban divide, which is increasingly at odds with how people live as economies transform and connectivity increases.

We find that the largest and most persistent gender gaps for married youth, independent of their connectivity, are explained largely by the negative effect of marital status on young women's participation and its simultaneous positive effect on young men's participation, pointing to persistent social norms around roles and responsibilities within marriage. Also, child dependency displays a gender gap, which is largely explained by its positive marginal effect on male participation. Secondary education improves young women's participation rates, more so in non-rural areas. Overall, there is no consistent improvement of the gender gap over the rural-urban gradient related to observable characteristics. Being female by itself is associated with an increase in the gender gap over the rural-urban gradient, but it disappears in urban areas, pointing to potential positive connectivity effects.

Our analysis adds to the literature on gender gaps in employment in developing countries by using a large sample that is representative of 93.5 million young people in the 12 countries in our data, and by adopting a spatial approach to the rural-urban gradient. Nonetheless, some important questions cannot be addressed by our analysis. The transition into the labour market is an important dynamic process in people's lives, especially for youth, although we only have cross-sectional data and cannot capture these dynamics. This also implies that we cannot control for unobservable characteristics that have been shown to be important for young women's wage employment participation, such as self-confidence (McKelway 2020), beliefs (Bordalo et al. 2019), intrahousehold relationships (Bertrand et al. 2015), or community norms (Bernhardt et al. 2018). Another important question is whether the participation gender gap also reflects qualitative differences, such as in wages, formality, and job conditions (Borrowman and Klasen 2020), and how these might vary along the rural-urban gradient. Our data set does not contain information to address these important considerations, which are left for future research.

Despite these caveats, we provide evidence that investments related to improved physical and digital connectivity might contribute to economic development (e.g., Aggarwal 2018) but would not be sufficient to overcome gender gaps on their own. Instead, our analysis confirms what other papers have shown: social norms around gender roles are persistent in spite of the increasingly connected populations over the rural-urban gradient. Thus, reducing gender gaps will require a cultural and social change at a young age that cannot be achieved exclusively by implementing programmes that aim towards physical or infrastructural advances, human and social capital improvement, or technological and business development. Development programmes should integrate policy interventions based on gender equality and women's empowerment to achieve sustainable progress on these goals.

An example is the gender action learning system methodology, a participatory approach to community-led empowerment widely used by non-governmental and international organizations. It aims for behavioural changes to deal with intrahousehold and community gender inequalities in livelihoods, decision-making, and access to and control of resources. The gender action learning system involves women and men at the same time through role-playing and visual tools, creating a favourable environment to overcome cultural norms and systems that discriminate against women. Other interventions engage with women at a young age when they can still take decisions around schooling, marriage, and childbearing; such interventions have shown significant impacts on young women's empowerment in these spheres, thus slowly changing social norms (Bandiera et al. 2018).

References

Acosta, P.A., E.K. Lartey, and F.S. Mandelman (2009). 'Remittances and the Dutch Disease'. *Journal of International Economics*, 79(1): 102–16. https://doi.org/10.1016/j.jinteco.2009.06.007

Aggarwal, S. (2018). 'Do Rural Roads Create Pathways Out of Poverty? Evidence from India'. *Journal of Development Economics*, 133: 375–95. https://doi.org/10.1016/j.jdeveco.2018.01.004

Ai, C., and E.C. Norton (2003). 'Interaction Terms in Logit and Probit Models'. *Economics Letters*, 80(1): 123–29. https://doi.org/10.1016/S0165-1765(03)00032-6

Alegana, V.A., P.M. Atkinson, C. Pezzulo, A. Sorichetta, D. Weiss, T. Bird, E. Erbach-Schoenberg, and A.J. Tatem (2015). 'Fine Resolution Mapping of Population Age-Structures for Health and Development Applications'. *Journal of the Royal Society Interface*, 12(105): 20150073. https://doi.org/10.1098/rsif.2015.0073

Alesina, A., P. Giuliano, and N. Nunn (2013). 'On the Origins of Gender Roles: Women and the Plough'. *Quarterly Journal of Economics*, 182(2): 469–530. https://doi.org/10.1093/qje/qjt005

Annan, J., A. Donald, M. Goldstein, P. Gonzalez Martinez, and G. Koolwal (2019). 'Taking Power: Women's Empowerment and Household Well-Being in Sub-Saharan Africa'. Policy Research Working Paper 9034. Washington, DC: World Bank. https://doi.org/10.1596/1813-9450-9034

Arslan, A., D. Tschirley, and E.M. Egger (2020). 'Rural Youth Welfare Along the Rural-Urban Gradient: An Empirical Analysis Across the Developing World'. *Journal of Development Studies*. https://doi.org/10.1080/00220388.2020.1808197

Bandiera, O., N. Buehren, R. Burgess, M. Goldstein, S. Gulesci, I. Rasul, and M. Sulaiman (2018). 'Women's Empowerment in Action: Evidence from a Randomized Control Trial in Africa'. American Economic Journal: Applied Economics, 12(1): 210–59. https://doi.org/10.1257/app.20170416

Barros, R., P. Olinto, T. Lunde, and M. Carvalho (2011). 'The Impact of Access to Free Childcare on Women's Labor Market Outcomes: Evidence from a Randomized Trial in Low-Income Neighborhoods of Rio de Janeiro'. Paper prepared for 2011 World Bank Economists' Forum.

Beaman, L., E. Duflo, R. Pande, and P. Topalova (2012). 'Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India'. *Science*, 335(6068): 582–86. https://doi.org/10.1126/science.1212382

Beaman, L., N. Keleher, and J. Magruder (2013). 'Do Job Networks Disadvantage Women? Evidence from a Recruitment Experiment in Malawi'. Working Paper. Evanston, IL: Northwestern University, Department of Economics.

Bernhardt, A., E. Field, R. Pande, N. Rigol, S. Schaner, and C. Troyer-Moore (2018). 'Male Social Status and Women's Work'. *AEA Papers and Proceedings*, 108: 363–67. https://doi.org/10.1257/pandp.20181086

Bertrand, M., E. Kamenica, and J. Pan (2015). 'Gender Identity and Relative Income within Households'. *Quarterly Journal of Economics*, 130(2): 571–614. https://doi.org/10.1093/qje/qjv001

Bezu, S., C.B. Barrett, and S.T. Holden (2012). 'Does the Nonfarm Economy Offer Pathways for Upward Mobility? Evidence from a Panel Data Study in Ethiopia'. *World Development*, 40(8): 1634–46. https://doi.org/10.1016/j.worlddev.2012.04.019

Bharati, T., Y. Qian, and J. Yun (2020). 'Fueling the Engines of Liberation with Cleaner Cooking Fuel: Evidence from Indonesia'. Economics Discussion/Working Papers 20-03. Perth: University of Western Australia, Department of Economics.

Blinder, A.S. (1973). 'Wage Discrimination: Reduced Form and Structural Estimates'. *Journal of Human Resources*, 8: 436–455. https://doi.org/10.2307/144855

Bloom, D.E., D. Canning, and G. Fink (2008). 'Urbanization and the Wealth of Nations'. *Science*, 319(5864): 772–75. https://doi.org/10.1126/science.1153057

Bordalo, P., K. Coffman, N. Gennaioli, and A. Shleifer (2019). 'Beliefs About Gender'. *American Economic Review*, 109(3): 739–73. https://doi.org/10.1257/aer.20170007

Borrowman, M., and S. Klasen (2020). 'Drivers of Gendered Sectoral and Occupational Segregation in Developing Countries'. *Feminist Economics*, 26(2): 62–94. https://doi.org/10.1080/13545701.2019.1649708

Buvinić, M., and R. Furst-Nichols (2016). 'Promoting Women's Economic Empowerment: What Works?' *World Bank Research Observer*, 31(1): 59–101. https://doi.org/10.1093/wbro/lku013

Carr, E.R. (2008). 'Men's Crops and Women's Crops: The Importance of Gender to the Understanding of Agricultural and Development Outcomes in Ghana's Central Region'. *World Development*, 36(5): 900–15. https://doi.org/10.1016/j.worlddev.2007.05.009

Chakravarty, S., S. Das, and J. Vaillant (2017). 'Gender and Youth Employment in Sub-Saharan Africa: A Review of Constraints and Effective Interventions'. Policy Research Working Paper 8245. Washington, DC: World Bank. https://doi.org/10.1596/1813-9450-8245

Chami, R., E. Ernst, C. Fullenkamp, and A. Oeking (2018). 'Are Remittances Good for Labor Markets in LICs, MICs and Fragile States? Evidence from Cross-Country Data'. Working Paper WP/18/102. Washington, DC: IMF. https://doi.org/10.5089/9781484353615.001

Chari, A., R. Heath, A. Maertens, and F. Fatima (2017). 'The Causal Effect of Maternal Age at Marriage on Child Wellbeing: Evidence from India'. *Journal of Development Economics*, 127: 42–55. https://doi.org/10.1016/j.jdeveco.2017.02.002

Chivasa, W., O. Mutanga, and C. Biradar (2017). 'Application of Remote Sensing in Estimating Maize Grain Yield in Heterogeneous African Agricultural Landscapes: A Review'. *International Journal of Remote Sensing*, 38(23): 6816–45. https://doi.org/10.1080/01431161.2017.1365390

Christiaensen, L., and Y. Todo (2014). 'Poverty Reduction During the Rural-Urban Transformation: The Role of the Missing Middle'. *World Development*, 63: 43–58. https://doi.org/10.1016/j.worlddev.2013.10.002

Christiaensen, L., J. Weerdt, and Y. Todo (2013). 'Urbanization and Poverty Reduction: The Role of Rural Diversification and Secondary Towns'. *Agricultural Economics*, 4(44): 435–47. https://doi.org/10.1111/agec.12028

Clark, S., C.W. Kabiru, S. Laszlo, and S. Muthuri (2019). 'The Impact of Childcare on Poor Urban Women's Economic Empowerment in Africa'. *Demography*, 56(4): 1247–72. https://doi.org/10.1007/s13524-019-00793-3

Davis, B., S. Di Giuseppe, and A. Zezza (2017). 'Are African Households (Not) Leaving Agriculture? Patterns of Households' Income Sources in Rural Sub-Saharan Africa'. *Food Policy*, 67: 153–74.

De Pryck, J.D., and P. Termine (2014). 'Gender Inequalities in Rural Labor Markets'. In A.R. Quisumbing, R. Meinzen-Dick, T.L. Raney, A. Croppenstedt, J.A. Behrman, and A. Peterman (eds), *Gender in Agriculture*. Dordrecht: Springer.

Dedehouanou, S.F.A., A. Araar, A. Ousseini, A.L. Harouna, and M. Jabir (2018). 'Spillovers from Off-Farm Self-Employment Opportunities in Rural Niger'. *World Development*, 105: 428–42. https://doi.org/10.1016/j.worlddev.2017.12.005

Deville, J.C., and C.E. Särndal (1992). 'Calibration Estimators in Survey Sampling'. *Journal of the American Statistical Association*, 87: 376–82. https://doi.org/10.1080/01621459.1992.10475217

Deville, J.C., C.E. Särndal, and O. Sautory (1993). 'Generalized Raking Procedures in Survey Sampling'. *Journal of the American Statistical Association*, 88: 1013–20. https://doi.org/10.1080/01621459.1993.10476369

Dinkelman, T. (2011). 'The Effects of Rural Electrification on Employment: New Evidence from South Africa'. *American Economic Review*, 101(7): 3078–108. https://doi.org/10.1257/aer.101.7.3078

Dolislager, M., T. Reardon, A. Arslan, L. Fox, S. Liverpool-Tasie, C. Sauer, and D. Tischerly (2020). 'Youth and Adult Agrifood System Employment in Developing Regions: Rural (Peri-Urban to Hinterland) vs. Urban'. *Journal of Development Studies*. https://doi.org/10.1080/00220388.2020.1808198

Doss, C., J. Heckert, E. Myers, A. Pereira, and A. Quisumbing (2019). 'Gender, Rural Youth and Structural Transformation: Evidence to Inform Innovative Youth Programming'. IFAD Research Series 44. Background Paper for Rural Development Report 2019. Rome: IFAD. https://doi.org/10.2139/ssrn.3520616

Essers, D. (2016). 'South African Labour Market Transitions Since the Global Financial and Economic Crisis: Evidence from Two Longitudinal Datasets'. *Journal of African Economies*, 26(2): 192–222. https://doi.org/10.1093/jae/ejw024

Field, E., S. Jayachandran, and R. Pande (2010). 'Do Traditional Institutions Constrain Female Entrepreneurship? A Field Experiment on Business Training in India'. *American Economic Review*, 100: 125–29. https://doi.org/10.1257/aer.100.2.125

Field, E., S. Jayachandran, R. Pande, and N. Rigol (2016). 'Friendship at Work: Can Peer Effects Catalyze Female Entrepreneurship?' *Economic Journal: Economic Policy*, 8(2): 125–53. https://doi.org/10.1257/pol.20140215

Filmer, D., and L. Fox (2014). *Youth Employment in Sub-Saharan Africa*. Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-0107-5

Fogli, A., and L. Veldkamp (2011). 'Nature or Nurture? Learning and the Geography of Female Labor Force Participation'. *Econometrica*, 79(4): 1103–38. https://doi.org/10.3982/ECTA7767

Fox, L. (2019). 'Economic Participation of Rural Youth: What Matters?' IFAD Research Series 46. Background Paper for Rural Development Report 2019. Rome: IFAD. https://doi.org/10.2139/ssrn.3521170

Fox, L., and U. Kaul (2018). 'The Evidence Is in: How Should Youth Employment Programs in Low-Income Countries Be Designed?' Policy Research Working Paper 8500. Washington, DC: World Bank. https://doi.org/10.1596/1813-9450-8500

Fox, L., and T.P. Sohnesen (2016). 'Household Enterprises and Poverty Reduction in Sub-Saharan Africa'. *Development Policy Review*, 34(2): 197–221. https://doi.org/10.1111/dpr.12152

Gaddis, I., and S. Klasen (2014). 'Economic Development, Structural Change, and Women's Labor Force Participation'. *Journal of Population Economics*, 27(3): 639–81. https://doi.org/10.1007/s00148-013-0488-2

Gaughan, A.E., F.R. Stevens, C. Linard, P. Jia, and A.J. Tatem (2013). 'High Resolution Population Distribution Maps for Southeast Asia in 2010 and 2015'. *PloS One*, 8(2): e55882. https://doi.org/10.1371/journal.pone.0055882

Ghani, E., W.R. Kerr, and S. O'Connell (2014). 'Spatial Determinants of Entrepreneurship in India'. *Regional Studies*, 48(6): 1071–89. https://doi.org/10.1080/00343404.2013.839869

Gĩthĩnji, M.W., C. Konstantinidis, and A. Barenberg (2014). 'Small and Productive: Kenyan Women and Crop Choice'. *Feminist Economics*, 20(1): 101–29. https://doi.org/10.1080/13545701.2013.878467

Gollin, D., S. Parente, and R. Rogerson (2002). 'The Role of Agriculture in Development'. *American Economic Review*, 92(2): 160–64. https://doi.org/10.1257/000282802320189177

Grogan, L., and A. Sadanand (2013). 'Rural Electrification and Employment in Poor Countries: Evidence from Nicaragua'. *World Development*, 43: 252–65. https://doi.org/10.1016/j.worlddev.2012.09.002

Gwatkin, D.R., S. Rutstein, K. Johnson, E. Suliman, A. Wagstaff, and A. Amouzou (2007). 'Socio-economic Differences in Health, Nutrition, and Population Within Developing Countries'. Country Report on HNP and Poverty 48361. Washington, DC: World Bank.

Haggblade, S., P. Hazell, and T. Reardon (2010). 'The Rural Non-Farm Economy: Prospects for Growth and Poverty Reduction'. *World Development*, 38(10): 1429–41. https://doi.org/10.1016/j.worlddev.2009.06.008

Halim, D., H. Johnson, and E. Perova (2017). 'Could Childcare Services Improve Women's Labor Market Outcomes in Indonesia?' Policy Brief. Washington, DC: World Bank.

Heath, R., and S. Jayachandran (2017). 'The Causes and Consequences of Increased Female Education and Labor Force Participation in Developing Countries'. In S.L. Averett, L.M. Argys, and S.D. Hoffman (eds), *The Oxford Handbook of Women and the Economy*. Oxford: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190628963.013.10

Heath, R., and A.M. Mobarak (2015). 'Manufacturing Growth and the Lives of Bangladeshi Women'. *Journal of Development Economics*, 115: 1–15. https://doi.org/10.1016/j.jdeveco.2015.01.006

Henderson, J.V. (2010). 'Cities and Development'. *Journal of Regional Science*, 50(1): 515–40. https://doi.org/10.1111/j.1467-9787.2009.00636.x

Henderson, J.V., and H.G. Wang (2005). 'Aspects of the Rural-Urban Transformation of Countries'. *Journal of Economic Geography*, 5(1): 23–42. https://doi.org/10.1093/jnlecg/lbh052

Hojman, A., and F. López Bóo (2019). 'Cost-Effective Public Daycare in a Low-Income Economy Benefits Children and Mothers'. IZA Discussion Paper 12585. Bonn: IZA.

IFAD (2016). *Rural Development Report 2016: Fostering Inclusive Rural Transformation*. Rome: IFAD.

IFAD (2019). *Rural Development Report 2019: Creating Opportunities for Rural Youth*. Rome: IFAD.

Ingelaere, B., L. Christiaensen, J. De Weerdt, and R. Kanbur (2018). 'Why Secondary Towns Can Be Important for Poverty Reduction: A Migrant Perspective'. *World Development*, 105: 273–82. https://doi.org/10.1016/j.worlddev.2017.12.025

Jaafar, H.H., and F.A. Ahmad (2015). 'Crop Yield Prediction from Remotely Sensed Vegetation Indices and Primary Productivity in Arid and Semi-Arid Lands'. *International Journal of Remote Sensing*, 36(18): 4570–89. https://doi.org/10.1080/01431161.2015.1084434

Jayachandran, S. (2020). 'Social Norms as a Barrier to Women's Employment in Developing Countries'. Working Paper 27449. Cambridge, MA: NBER. https://doi.org/10.3386/w27449

Jensen, R. (2012). 'Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India'. *Quarterly Journal of Economics*, 127(2): 753–92. https://doi.org/10.1093/qje/qjs002

Kabeer, N. (2016). 'Gender Equality, Economic Growth, and Women's Agency: The "Endless Variety" and "Monotonous Similarity" of Patriarchal Constraints'. *Feminist Economics*, 22(1): 295–321. https://doi.org/10.1080/13545701.2015.1090009

Kaminska, O., and P. Lynn (2017). 'Survey-Based Cross-Country Comparisons Where Countries Vary in Sample Design: Issues and Solutions'. *Journal of Official Statistics*, 33(1): 123–36. https://doi.org/10.1515/jos-2017-0007

Karaca-Mandic, P., E.C. Norton, and B. Dowd (2012). 'Interaction Terms in Nonlinear Models'. *Health Services Research*, 47(1): 255–74. https://doi.org/10.1111/j.1475-6773.2011.01314.x

Kilic, T., P. Winters, and C. Carletto (2015). 'Gender and Agriculture in Sub-Saharan Africa: Introduction to the Special Issue'. *Agricultural Economics*, 46(3): 281–84. https://doi.org/10.1111/agec.12165

Klasen, S. (2019). 'What Explains Uneven Female Labor Force Participation Levels and Trends in Developing Countries?' *World Bank Research Observer*, 34: 161–97. https://doi.org/10.1093/wbro/lkz005

Klasen, S., and J. Pieters (2015). 'What Explains the Stagnation of Female Labor Force Participation in Urban India?' *World Bank Economic Review*, 29(3): 449–78. https://doi.org/10.1093/wber/lhv003

Klasen, S., T.N.L. Tu, J. Pieters, and M. Santos Silva (2020). 'What Drives Female Labour Force Participation? Comparable Micro-Level Evidence from Eight Developing and Emerging Economies'. *Journal of Development Studies*. https://doi.org/10.1080/00220388.2020.1790533 .

Kolenikov, S., and G. Angeles (2009). 'Socioeconomic Status Measurement with Discrete Proxy Variables: Is Principal Component Analysis a Reliable Answer?' *Review of Income and Wealth*, 55(1): 128–65. https://doi.org/10.1111/j.1475-4991.2008.00309.x

Lambrecht, I.B. (2016). 'As a Husband I Will Love, Lead, and Provide: Gendered Access to Land in Ghana'. *World Development*, 88: 188–200. https://doi.org/10.1016/j.worlddev.2016.07.018

Lerner, A.M., and H. Eakin (2011). 'An Obsolete Dichotomy? Rethinking the Rural-Urban Interface in Terms of Food Security and Production in the Global South'. *Geographical Journal*, 177(4): 311–20. https://doi.org/10.1111/j.1475-4959.2010.00394.x

Lynn, P., S. Hader, S. Gabler, and S. Laaksonen (2007). 'Methods for Achieving Equivalence of Samples in Cross-National Surveys: The European Social Survey Experience'. *Journal of Official Statistics*, 23(1): 107–24.

Magruder, J.R. (2010). 'Intergenerational Networks, Unemployment, and Persistent Inequality in South Africa'. *American Economic Journal: Applied Economics*, 2(1): 62–85. https://doi.org/10.1257/app.2.1.62

Maloney, W.F. (2004). 'Informality Revisited'. *World Development*, 32(7): 1159–78. https://doi.org/10.1016/j.worlddev.2004.01.008

Mani, A., and E. Riley (2019). 'Social Networks, Role Models, Peer Effects, and Aspirations'. WIDER Working Paper 2019/120. Helsinki: UNU-WIDER. https://doi.org/10.35188/UNU-WIDER/2019/756-9

Mararia, J., A. McKay, A. Newell, and C. Rienzo (2018). 'Gender Gaps in the Path to Adulthood for Young Females and Males in Six African Countries from the 1990s to the 2010s'. *IZA Journal of Development and Migration*, 8(16): 1–19. https://doi.org/10.1186/s40176-018-0124-8

Martínez, C., and M. Perticará (2017). 'Childcare Effects on Maternal Employment: Evidence from Chile'. *Journal of Development Economics*, 126: 127–37. https://doi.org/10.1016/j.jdeveco.2017.01.001

McKelway, M. (2020). 'Women's Employment in India: Intra-Household and Intra-Personal Constraints'. Working Paper. Cambridge, MA: MIT.

McKenzie, D.J. (2005). 'Measuring Inequality with Asset Indicators'. *Journal of Population Economics*, 18(2): 229–60. https://doi.org/10.1007/s00148-005-0224-7

Oaxaca, R. (1973). 'Male-Female Wage Differentials in Urban Labor Markets'. *International Economic Review*, 14: 693–709. https://doi.org/10.2307/2525981

Oseni, G., P. Corral, M. Goldstein, and P. Winters (2015). 'Explaining Gender Differentials in Agricultural Production in Nigeria'. *Agricultural Economics*, 46(3): 285–310. https://doi.org/10.1111/agec.12166

Perez-Alvarez, M., and M. Favara (2020). 'Early Motherhood and Offspring: Human Capital in India'. CSAE Working Paper WPS/2020-15. Oxford: CSAE.

Peterman, A., J.A. Behrman, and A.R. Quisumbing (2014). 'A Review of Empirical Evidence on Gender Differences in Nonland Agricultural Inputs, Technology, and Services in Developing Countries'. In A.R. Quisumbing, R. Meinzen-Dick, T.L. Raney, A. Croppenstedt, J.A. Behrman, and A. Peterman (eds), *Gender in Agriculture*. Dordrecht: Springer. https://doi.org/10.1007/978-94-017-8616-4_7

Quisumbing, A. (2003). *Household Decisions, Gender, and Development: A Synthesis of Recent Research*. Washington, DC: IFPRI.

Ray, D. (2006). 'Aspirations, Poverty and Economic Change'. In A.V. Banerjee, R. Bénabou, and D. Mookherjee (eds), *Understanding Poverty*. Oxford: Oxford University Press. https://doi.org/10.1093/0195305191.003.0028

Reardon, T., S. Henson, and J. Berdegué (2007). '"Proactive Fast-Tracking" Diffusion of Supermarkets in Developing Countries: Implications for Market Institutions and Trade'. *Journal of Economic Geography*, 7(4): 399–431. https://doi.org/10.1093/jeg/lbm007

Reardon, T., K. Stamoulis, and P. Pingali (2007). 'Rural Nonfarm Employment in Developing Countries in an Era of Globalization'. *Agricultural Economics*, 37: 173–83. https://doi.org/10.1111/j.1574-0862.2007.00243.x

Reardon, T., and C.P. Timmer (2014). 'Five Inter-Linked Transformations in the Asian Agrifood Economy: Food Security Implications'. *Global Food Security*, 3(2): 108–17. https://doi.org/10.1016/j.gfs.2014.02.001

Reardon, T., C.P. Timmer, C.B. Barrett, and J. Berdegue (2003). 'The Rise of Supermarkets in Africa, Asia, and Latin America'. *American Journal of Agricultural Economics*, 85(5): 1140–46. https://doi.org/10.1111/j.0092-5853.2003.00520.x

Reardon, T., C.P. Timmer, and J.A. Berdegue (2004). 'The Rapid Rise of Supermarkets in Developing Countries: Induced Organizational, Institutional, and Technological Change in Agrifood Systems'. *eJADE: Electronic Journal of Agricultural and Development Economics*, 1(853-2016-56108): 168–83.

Reardon, T., C.P. Timmer, and B. Minten (2012). 'Supermarket Revolution in Asia and Emerging Development Strategies to Include Small Farmers'. *Proceedings of the National Academy of Sciences*, 109(31): 12332–37. https://doi.org/10.1073/pnas.1003160108

Särndal, C.E. (2007). 'The Calibration Approach in Survey Theory and Practice'. *Survey Methodology*, 33(2): 99–119.

Simon, D. (2008). 'Urban Environments: Issues on the Peri-Urban Fringe'. *Annual Review of Environment and Resources*, 33: 167–85. https://doi.org/10.1146/annurev.environ.33.021407.093240

Simon, D., D. McGregor, and D. Thompson (2012). 'Contemporary Perspectives on the Peri-Urban Zones of Cities in Developing Countries'. In D. Simon, D. McGregor, and D. Thompson (eds), *The Peri-urban Interface: Approaches to Sustainable Natural and Human Resource Use*. London: Earthscan. Entire book: https://doi.org/10.4324/9781849775878

Smits, J., and R. Steendijk (2015). 'The International Wealth Index (IWI)'. *Social Indicators Research*, 122(1): 65–85. https://doi.org/10.1007/s11205-014-0683-x

Stecklov, G., and A. Menashe-Oren (2019). 'The Demography of Rural Youth in Developing Countries'. IFAD Research Series 41. Background Paper for Rural Development Report 2019. Rome: IFAD. https://doi.org/10.2139/ssrn.3567731

Stevens, F.R., A.E. Gaughan, C. Linard, and A.J. Tatem (2015). 'Disaggregating Census Data for Population Mapping Using Random Forests with Remotely-Sensed and Ancillary Data'. *PloS One*, 10(2): e0107042. https://doi.org/10.1371/journal.pone.0107042

Talamas, M. (2019). 'Grandmothers, Childcare and the Labor Market Gender Gap: Evidence from Mexico'. Working Paper. Evanston, IL: Northwestern University.

Tatem, A.J., A.M. Noor, C. Von Hagen, A. Di Gregorio, and S.I. Hay (2007). 'High Resolution Population Maps for Low Income Nations: Combining Land Cover and Census in East Africa'. *PloS One*, 2(12): e1298. https://doi.org/10.1371/journal.pone.0001298

Tewari, I., and Y Wang. (2019). 'Durable Ownership, Time Allocation and Female Labor Force Participation: Evidence from China's Home Appliances to the Countryside Rebate'. *Economic Development and Cultural Change*. https://doi.org/10.1086/706824

Tschirley, D., T. Reardon, S. Haggbalde, T.S. Jayne, S. Liverpool-Tasie, T. Awokuse, M. Muyanga, A. Wagalachi, and A. Makani (2017). 'Engaging the Agribusiness Sector in Inclusive Value Chain Development: Opportunities and Challenges'. In AGRA (ed.), *Africa Agriculture Status Report: The Business of Smallholder Agriculture in Sub-Saharan Africa, Issue 5*. Nairobi: AGRA.

Tschirley, D.L., J. Snyder, M. Dolislager, T. Reardon, S. Haggblade, J. Goeb, L. Traub, F. Ejobi, and F. Meyer (2015). 'Africa's Unfolding Diet Transformation: Implications for Agrifood System Employment'. *Journal of Agribusiness in Developing and Emerging Economies*, 5(2): 102–36. https://doi.org/10.1108/JADEE-01-2015-0003

Van den Broeck, G., and T. Kilic (2019). 'Dynamics of Off-Farm Employment in Sub-Saharan Africa: A Gender Perspective'. *World Development*, 119: 81–99. https://doi.org/10.1016/j.worlddev.2019.03.008

Van den Broeck, G., J. Swinnen, and M. Maertens (2017). 'Global Value Chains, Large-Scale Farming, and Poverty: Long-Term Effects in Senegal'. *Food Policy*, 66: 97–107. https://doi.org/10.1016/j.foodpol.2016.12.003

Van Hoyweghen, K., G. Van den Broeck, and M. Maertens (2020). 'Employment Dynamics and Linkages in the Rural Economy: Insights from Senegal'. *Journal of Agricultural Economics*, 71(3): 904–28. https://doi.org/10.1111/1477-9552.12387

Vandercasteelen, J., S.T. Beyene, B. Minten, and J. Swinnen (2018). 'Big Cities, Small Towns, and Poor Farmers: Evidence from Ethiopia'. *World Development*, 106: 393–406. https://doi.org/10.1016/j.worlddev.2018.03.006

World Bank (2019). *The Changing Nature of Work: World Development Report*. Washington, DC: World Bank.

Appendix

Table A1: List of surveys used for the data set

Country	Survey name	Year	Sample size (individuals)	Geolocations
Asia				
Cambodia	Cambodia Socio-Economic Survey	2014	53,968	Village geocodes identified
Indonesia	Indonesian Family Life Survey	2014	58,300	EAs geocoded
Nepal	Nepal Living Standards Survey	2010	28,670	Village geocodes identified
Latin America				
Mexico	Encuesta nacional de ingresos y gastos de los hogares	2016	256,448	EAs geocoded
Nicaragua	Encuesta nacional de hogares sobre medición de nivel de vida	2014	29,381	Municipality geocodes identified
Peru	Encuesta nacional de hogares 2016 (anual) - Condiciones de vida y pobreza	2016	134,235	EAs geocoded
Sub-Saharan Africa				
Ethiopia	Ethiopian Socioeconomic Survey	2015-16	23,393	EAs geocoded
Malawi	Fourth Integrated Household Survey	2016-17	53,885	EAs geocoded
Niger	National Survey on Household Living Conditions in Agriculture - Panel	2014	22,671	EAs geocoded
Nigeria	General Household Survey - Panel	2015-16	24,807	EAs geocoded
Tanzania	National Panel Survey	2014-15	16,285	EAs geocoded
Uganda	Uganda National Panel Survey	2013-14	9,376	EAs geocoded

Note: RAND Corporation-provided geolocations of EAs of Indonesian Family Life Survey.

Source: authors' compilation.

Table A2. Population density thresholds and resulting average population density to define categories of rural-urban gradient, from global WorldPop data

	Population density threshold (1,000 people per km^2)	Average population density
Rural	<=0.16	0.05
Semi-rural	>0.16 & <=0.58	0.32
Peri-urban	>0.58 & <=2.39	1.20
Urban	>2.39	7.56

Source: authors' calculations.

Table A3: Variables used for wealth index

Variable	Description
Communication equipment	
Radio	Yes/no
Television	Yes/no
Phone (landline and mobile)	Yes/no
Means of transport	
Bicycle	Yes/no
Motorbike	Yes/no
Car (including van or camion)	Yes/no
Reduction of domestic workload	
Refrigerator	Yes/no
Washing machine	Yes/no
Iron	Yes/no
Quality of drinking water	1 low (unprotected well, spring, surface water, etc.) 2 middle (public tap, protected well, tanker truck, etc.) 3 high (bottled water, water piped into dwelling or premises)
Quality of cooking fuel	1 low (no access to fuel: household must go into forest/bush to look for fuelwood, crop residue, and other collected fuel) 2 middle (indirect access to fuel: household must go to buy in the market or produce itself - charcoal, kerosene, and other purchased fuel) 3 high (direct access to fuel in the house - electricity, gas, or solar)
Quality of house	
Number of sleeping rooms	1 low (between 0 and 1) 2 middle (2 rooms) 3 high (3 rooms and above)
Quality of floor material	1 low (none, earth, dung, etc.) 2 middle (cement, concrete, raw wood, etc.) 3 high (finished floor with parquet, carpet, tiles, ceramic, etc.)
Quality of toilet facility	1 low (traditional pit latrine, hanging toilet, or no toilet facility) 2 middle (public toilet, improved pit latrine, etc.) 3 high (any kind of private flush toilet)
Quality of lighting facility (access to electricity)	Yes/no

Source: authors' compilation.

Table A4: Simultaneous equation model for pooled sample and rural, semi-rural, peri-urban and urban samples

	Pooled	Rural	Semi-rural	Peri-urban	Urban
	B/se	B/se	B/se	B/se	B/se
Equation [1]: no work activity (=1)					
Female female peer network in no work	1.70***	1.80***	0.95**	2.27***	2.08**
	(0.39)	(0.45)	(0.47)	(0.52)	(0.85)
Female	0.16	0.05	0.27	0.04	0.38
	(0.15)	(0.20)	(0.21)	(0.29)	(0.63)
Marital status (1=married)	-0.67***	-0.55**	-0.84***	-1.01***	-0.60***
	(0.12)	(0.22)	(0.21)	(0.18)	(0.18)
Child dependency ratio	0.12	-0.22	0.21	0.06	0.25

	(0.17)	(0.18)	(0.17)	(0.22)	(0.35)
Household head (1=yes)	-1.16***	-1.40***	-1.38***	-0.99***	-1.07**
	(0.23)	(0.33)	(0.35)	(0.24)	(0.42)
Secondary school completed (1=yes)	-0.23*	-0.38**	-0.08	-0.12	-0.26
	(0.14)	(0.16)	(0.15)	(0.11)	(0.23)
Location: semi-rural	0.09				
	(0.06)				
Location: peri-urban	0.02				
	(0.07)				
Location: urban	0.09				
	(0.10)				
Wealth index	0.01***	0.01*	0.00	0.00	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Time-saving asset index	0.01***	0.00	0.00**	0.00	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female married	0.84***	0.74***	0.95***	1.33***	0.64**
	(0.15)	(0.23)	(0.26)	(0.21)	(0.25)
Female child dependency ratio	0.02	0.07	-0.24	-0.16	0.37
	(0.21)	(0.20)	(0.24)	(0.26)	(0.44)
Female household head	0.01	0.38	0.20	-0.36	0.01
	(0.25)	(0.59)	(0.47)	(0.29)	(0.43)
Female secondary school completed	0.20	0.34*	-0.10	-0.11	0.40
	(0.16)	(0.19)	(0.18)	(0.17)	(0.28)
Female semi-rural	-0.08				
	(0.09)				
Female peri-urban	0.00				
	(0.10)				
Female urban	-0.21				
	(0.17)				
Female wealth index	-0.01**	0.00	0.01	0.00	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Female time-saving asset index	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Age 18-24 (compared with 15-17)	-0.67***	-0.55***	-0.63***	-0.82***	-0.69***
	(0.06)	(0.08)	(0.07)	(0.09)	(0.13)
Household size	-0.03***	0.01	-0.02	-0.04***	-0.05**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Share of females in household	-0.46***	-0.30*	-0.54***	-0.54***	-0.42
	(0.16)	(0.18)	(0.17)	(0.17)	(0.29)
Share of elderly in household	-0.84***	-1.36***	-1.22***	-0.36	-1.07**

	(0.23)	(0.42)	(0.30)	(0.32)	(0.50)
Share of workers among working-aged household members	-5.16***	-6.16***	-5.74***	-5.49***	-4.50***
	(0.14)	(0.18)	(0.17)	(0.17)	(0.23)
Remittances received (yes=1)	0.09*	0.11	0.05	-0.01	0.15
	(0.05)	(0.11)	(0.07)	(0.08)	(0.10)
Local labour demand	2.61***	3.43***	2.36***	2.39***	2.83**
	(0.90)	(0.77)	(0.70)	(0.88)	(1.10)
EVI	0.18	-0.09	-0.32	-0.14	0.47
	(0.26)	(0.33)	(0.30)	(0.32)	(0.53)
Cambodia	-0.06	-0.09	-0.18**	0.05	-0.45**
	(0.08)	(0.11)	(0.09)	(0.15)	(0.22)
Ethiopia	-0.02	-0.18	-0.07	0.00	-0.13
	(0.08)	(0.12)	(0.09)	(0.19)	(0.21)
Indonesia	-0.23*	-0.05	-0.19	-0.13	-0.62**
	(0.12)	(0.21)	(0.16)	(0.23)	(0.28)
Malawi	-0.10	-0.22**	-0.31***	0.08	-0.06
	(0.09)	(0.11)	(0.09)	(0.16)	(0.20)
Mexico	-0.13	-0.07	-0.23	-0.02	-0.54*
	(0.12)	(0.19)	(0.14)	(0.23)	(0.29)
Nepal	-0.05	-0.24**	-0.16*	0.00	-0.13
	(0.09)	(0.12)	(0.10)	(0.17)	(0.20)
Nicaragua	-0.03	0.03	-0.24	0.02	-0.51*
	(0.11)	(0.18)	(0.18)	(0.21)	(0.30)
Niger	0.00	-0.05	-0.22	-0.06	0.04
	(0.11)	(0.16)	(0.19)	(0.19)	(0.22)
Nigeria	0.07	0.08	-0.17	-0.01	0.00
	(0.10)	(0.13)	(0.11)	(0.17)	(0.21)
Peru	-0.14	-0.16	-0.22*	0.05	-0.45*
	(0.12)	(0.15)	(0.13)	(0.20)	(0.25)
Tanzania	-0.05	-0.08	-0.17*	0.21	-0.25
	(0.10)	(0.11)	(0.10)	(0.17)	(0.21)
Constant	1.11	1.06	2.11***	1.84**	0.05
	(0.83)	(0.74)	(0.67)	(0.88)	(0.99)
Equation [2]: student (=1)					
Female female peer network in no work	0.29	0.89	-0.11	1.33*	-1.09
	(0.38)	(0.64)	(0.41)	(0.71)	(0.96)
Female	0.04	0.21	-0.27	-0.19	0.24
	(0.25)	(0.23)	(0.27)	(0.47)	(0.93)
Marital status (1=married)	-1.44***	-1.34***	-1.28***	-1.74***	-1.48**

	(0.23)	(0.18)	(0.18)	(0.20)	(0.61)
Child dependency ratio	-0.08	0.04	-0.33***	0.25	-0.09
	(0.12)	(0.13)	(0.13)	(0.17)	(0.31)
Household head (1=yes)	-0.01	-0.44*	-0.18	-0.01	0.12
	(0.11)	(0.24)	(0.20)	(0.19)	(0.24)
Secondary school completed (1=yes)	-0.60***	-0.51***	-0.22**	-0.46***	-0.86***
	(0.09)	(0.11)	(0.10)	(0.11)	(0.18)
Location: semi-rural	0.07				
	(0.06)				
Location: peri-urban	0.12				
	(0.07)				
Location: urban	0.15*				
	(0.09)				
Wealth index	0.01***	0.01***	0.01***	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Time-saving asset index	0.00**	0.00**	0.00	0.01**	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female married	-0.11	-0.40**	-0.09	0.04	0.25
	(0.27)	(0.18)	(0.42)	(0.26)	(0.66)
Female child dependency ratio	-0.24	-0.38**	-0.30	-0.33	-0.22
	(0.17)	(0.19)	(0.22)	(0.27)	(0.40)
Female household head	-0.13	0.18	-0.31	-0.31	0.02
	(0.17)	(0.37)	(0.33)	(0.27)	(0.29)
Female secondary school completed	0.26*	0.17	0.04	0.05	0.48*
	(0.14)	(0.15)	(0.19)	(0.17)	(0.28)
Female semi-rural	0.05				
	(0.09)				
Female peri-urban	0.00				
	(0.10)				
Female urban	0.12				
	(0.14)				
Female wealth index	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Female time-saving asset index	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age 18-24 (compared with 15-17)	-0.96***	-0.91***	-1.01***	-1.15***	-0.87***
	(0.04)	(0.06)	(0.06)	(0.07)	(0.10)
Household size	0.02	0.03***	0.02	-0.01	0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Share of females in household	-0.07	0.15	0.42**	-0.13	-0.21

	(0.14)	(0.15)	(0.17)	(0.18)	(0.29)
Share of elderly in household	-0.53*	0.13	-0.77**	-0.57*	-0.53
	(0.29)	(0.32)	(0.32)	(0.29)	(0.72)
Share of workers among working-aged household members	-0.61***	-0.23*	-0.41***	-0.69***	-0.88***
	(0.09)	(0.12)	(0.14)	(0.11)	(0.19)
Remittances received (yes=1)	0.24***	0.11	0.24**	0.14*	0.43***
	(0.06)	(0.09)	(0.09)	(0.09)	(0.14)
Local labour demand	1.15***	0.59	1.04***	1.11**	0.87
	(0.31)	(0.52)	(0.40)	(0.48)	(0.66)
EVI	0.26	0.97***	0.55	0.90***	-0.20
	(0.21)	(0.37)	(0.35)	(0.30)	(0.45)
Cambodia	-0.42***	-0.21	-0.61***	-0.22	-0.21
	(0.11)	(0.16)	(0.12)	(0.21)	(0.30)
Ethiopia	-0.01	0.17	0.14	0.03	-0.08
	(0.08)	(0.13)	(0.11)	(0.21)	(0.25)
Indonesia	-0.16	-0.11	-0.47***	-0.23	-0.16
	(0.13)	(0.20)	(0.17)	(0.20)	(0.30)
Malawi	-0.02	0.48***	0.05	0.1	-0.23
	(0.08)	(0.14)	(0.12)	(0.17)	(0.21)
Mexico	0.04	-0.14	-0.47***	-0.10	0.32
	(0.11)	(0.16)	(0.15)	(0.18)	(0.28)
Nepal	0.29***	0.64***	0.27*	0.29*	0.33
	(0.09)	(0.16)	(0.14)	(0.17)	(0.24)
Nicaragua	-0.05	0.11	-0.21	-0.06	0.18
	(0.11)	(0.16)	(0.16)	(0.16)	(0.27)
Niger	-0.51***	-0.38*	-0.55***	0.21	-0.39
	(0.15)	(0.20)	(0.18)	(0.26)	(0.31)
Nigeria	0.04	0.32**	-0.01	0.05	0.19
	(0.08)	(0.15)	(0.11)	(0.15)	(0.31)
Peru	-0.23**	-0.06	-0.36**	-0.12	-0.13
	(0.11)	(0.13)	(0.17)	(0.18)	(0.32)
Tanzania	-0.70***	-0.42***	-0.53***	-0.40*	-1.07***
	(0.11)	(0.15)	(0.13)	(0.23)	(0.30)
Constant	-0.72**	-1.41***	-0.74*	-0.69	0.22
	(0.35)	(0.48)	(0.43)	(0.47)	(0.73)
Equation [3]: OFWE (1=yes)					
Sector size of off-farm employment	-0.10	-0.14	0.24	0.05	0.02
	(0.15)	(0.20)	(0.19)	(0.28)	(0.47)
Female female peer network in no-work	2.09***	3.17***	0.87	1.45	0.63

	(0.71)	(0.88)	(1.11)	(1.08)	(2.05)
Female	-0.05	-0.13	-0.03	-0.41	-0.23
	(0.14)	(0.17)	(0.17)	(0.25)	(0.47)
Marital status (1=married)	0.30***	0.21	-0.09	0.39**	0.37**
	(0.09)	(0.15)	(0.22)	(0.15)	(0.15)
Child dependency ratio	0.12	-0.48**	0.04	-0.12	0.63*
	(0.16)	(0.20)	(0.20)	(0.20)	(0.36)
Household head (1=yes)	0.33***	0.54***	0.67***	0.18	0.29
	(0.11)	(0.18)	(0.20)	(0.19)	(0.21)
Secondary school completed (1=yes)	0.34***	0.05	0.44***	0.15	0.46**
	(0.10)	(0.14)	(0.13)	(0.12)	(0.21)
Location: semi-rural	0.29***				
	(0.09)				
Location: peri-urban	0.52***				
	(0.10)				
Location: urban	0.57***				
	(0.11)				
Wealth index	0.00**	0.01**	0.00	0.01**	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Time-saving asset index	0.00	0.01**	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female married	-0.79***	-0.61***	-0.28	-0.88***	-1.02***
	(0.11)	(0.18)	(0.26)	(0.17)	(0.20)
Female child dependency ratio	-0.36*	0.08	-0.53*	0.01	-0.69
	(0.19)	(0.23)	(0.28)	(0.26)	(0.43)
Female household head	0.45***	0.29	0.40	0.29	0.57**
	(0.14)	(0.27)	(0.26)	(0.29)	(0.27)
Female secondary school completed	0.21	0.38*	0.17	0.45***	0.01
	(0.15)	(0.23)	(0.20)	(0.17)	(0.30)
Female semi-rural	-0.11				
	(0.11)				
Female peri-urban	-0.12				
	(0.12)				
Female urban	0.01				
	(0.16)				
Female wealth index	0.00	0.00	0.00	0.00	0.02**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Female time-saving asset index	0.00	0.00	0.00	0.00	-0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Age 18-24 (compared with 15-17)	0.83***	0.58***	0.70***	1.00***	1.00***

	(0.05)	(0.08)	(0.09)	(0.09)	(0.14)
Household size	0.00	0.01	-0.03	0.01	0.02
	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)
Share of females in household	-0.01	0.32	-0.18	0.22	-0.22
	(0.15)	(0.20)	(0.26)	(0.21)	(0.29)
Share of elderly in household	0.27	0.14	0.59	-0.28	0.42
	(0.30)	(0.35)	(0.36)	(0.36)	(0.78)
Share of workers among working-aged household members	2.20***	1.38***	1.62***	2.58***	2.45***
	(0.10)	(0.16)	(0.17)	(0.13)	(0.19)
Remittances received (yes=1)	0.05	0.01	0.21**	0.03	0.01
	(0.05)	(0.10)	(0.10)	(0.08)	(0.11)
Local labour demand	-0.85*	0.34	0.02	-1.07	-0.65
	(0.48)	(0.70)	(0.68)	(0.71)	(0.88)
EVI	-0.30	-0.27	-0.01	0.66**	-1.16***
	(0.22)	(0.42)	(0.46)	(0.33)	(0.43)
Cambodia	-0.11	0.10	0.21	0.62**	-0.57
	(0.17)	(0.26)	(0.29)	(0.32)	(0.41)
Ethiopia	0.26**	0.40**	0.44**	0.89***	-0.05
	(0.12)	(0.20)	(0.19)	(0.33)	(0.26)
Indonesia	-0.34**	0.00	-0.65***	-0.02	-0.28
	(0.14)	(0.28)	(0.23)	(0.26)	(0.31)
Malawi	-0.42***	-0.66***	-0.52***	0.10	-0.31
	(0.12)	(0.24)	(0.19)	(0.27)	(0.25)
Mexico	-0.23	0.04	-0.22	0.11	-0.24
	(0.16)	(0.32)	(0.27)	(0.24)	(0.40)
Nepal	0.01	0.24	-0.03	0.11	-0.08
	(0.12)	(0.23)	(0.18)	(0.21)	(0.26)
Nicaragua	-0.07	0.29	-0.30	0.06	-0.12
	(0.15)	(0.25)	(0.24)	(0.31)	(0.40)
Niger	0.00	0.11	0.04	0.47*	0.04
	(0.14)	(0.25)	(0.31)	(0.26)	(0.23)
Nigeria	-0.40***	-0.77***	-0.32*	-0.35	-0.59**
	(0.13)	(0.23)	(0.18)	(0.28)	(0.25)
Peru	-0.30**	0.08	-0.23	0.25	-0.51*
	(0.14)	(0.22)	(0.21)	(0.25)	(0.31)
Tanzania	0.14	0.07	0.41**	0.34	0.13
	(0.12)	(0.19)	(0.17)	(0.26)	(0.27)
Constant	-3.82***	-3.88***	-3.72***	-4.33***	-3.11***
	(0.49)	(0.62)	(0.67)	(0.71)	(0.99)
Equation [4]: other work activities (1=yes)					

Sector size of other employment	-0.13	-0.07	0.06	0.05	-0.21
	(0.09)	(0.14)	(0.13)	(0.16)	(0.49)
Female female peer network in no-work	1.50***	1.21***	1.69***	2.13***	0.15
	(0.38)	(0.45)	(0.41)	(0.52)	(0.84)
Female	-0.49*	-0.07	0.08	-0.33	-0.63
	(0.29)	(0.32)	(0.31)	(0.35)	(0.71)
Marital status (1=married)	0.61***	0.88***	1.42***	0.50***	0.25
	(0.15)	(0.24)	(0.24)	(0.17)	(0.28)
Child dependency ratio	-0.19	0.47***	-0.29**	0.26	-0.87***
	(0.13)	(0.18)	(0.14)	(0.20)	(0.31)
Household head (1=yes)	-0.15	-0.09	-0.55**	-0.13	0.21
	(0.19)	(0.28)	(0.24)	(0.20)	(0.39)
Secondary school completed (1=yes)	0.02	0.37***	-0.27*	0.01	0.03
	(0.12)	(0.13)	(0.14)	(0.11)	(0.23)
Location: semi-rural	-0.23***				
	(0.07)				
Location: peri-urban	-0.47***				
	(0.08)				
Location: urban	-0.48***				
	(0.10)				
Wealth index	-0.01***	-0.01***	0.00	-0.01***	-0.01**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Time-saving asset index	-0.01***	-0.01***	-0.01***	0.00	-0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female marital status	-0.40**	-0.82***	-1.28***	-0.29	0.30
	(0.17)	(0.23)	(0.32)	(0.20)	(0.35)
Female child dependency ratio	0.17	-0.14	0.56***	-0.14	0.02
	(0.15)	(0.21)	(0.21)	(0.21)	(0.37)
Female household head	-0.47**	-0.86**	-0.47	-0.14	-0.51
	(0.22)	(0.37)	(0.38)	(0.38)	(0.40)
Female secondary school completed	-0.19	-0.55***	0.27	-0.05	-0.33
	(0.14)	(0.18)	(0.19)	(0.17)	(0.25)
Location: semi-rural	0.15*				
	(0.08)				
Location: peri-urban	0.15				
	(0.09)				
Location: urban	0.14				
	(0.15)				
Female wealth index	0.00	0.01*	-0.01	0.00	0.01

	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Female time-saving asset index	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Age 18-24 (compared with 15-17)	0.14**	0.13*	0.17***	0.03	0.15
	(0.05)	(0.07)	(0.06)	(0.07)	(0.15)
Household size	0.04***	0.01	0.06***	0.05***	0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Share of females in household	0.34*	0.01	0.81***	0.36*	0.24
	(0.19)	(0.18)	(0.24)	(0.20)	(0.39)
Share of elderly in household	0.52**	0.82**	0.36	0.69**	0.43
	(0.25)	(0.39)	(0.32)	(0.28)	(0.55)
Share of workers among working-aged household members	3.50***	4.72***	4.34***	3.47***	2.75***
	(0.15)	(0.17)	(0.16)	(0.18)	(0.28)
Remittances received (yes=1)	-0.12**	-0.05	-0.38***	0.01	-0.18*
	(0.06)	(0.10)	(0.14)	(0.10)	(0.11)
Local labour demand	-1.88**	-1.21	-2.89***	-1.04	-1.18
	(0.84)	(0.82)	(0.78)	(0.84)	(1.18)
EVI	0.60**	0.15	-0.16	-0.53	1.00
	(0.26)	(0.42)	(0.36)	(0.37)	(0.62)
Cambodia	-0.30**	-0.65***	-0.41***	-0.35	-0.08
	(0.15)	(0.19)	(0.16)	(0.22)	(0.39)
Ethiopia	-0.12	-0.17	-0.33***	-0.53***	0.07
	(0.09)	(0.12)	(0.12)	(0.20)	(0.30)
Indonesia	0.08	-0.27	0.48**	0.06	0.04
	(0.14)	(0.22)	(0.21)	(0.25)	(0.35)
Malawi	0.32***	0.17	0.24**	0.02	0.31
	(0.08)	(0.12)	(0.12)	(0.16)	(0.24)
Mexico	-0.28*	-0.3	0.01	-0.26	-0.48
	(0.15)	(0.23)	(0.21)	(0.25)	(0.35)
Nepal	0.14	0.09	0.08	-0.02	-0.17
	(0.09)	(0.13)	(0.11)	(0.17)	(0.25)
Nicaragua	-0.04	-0.54***	0.19	0.22	-0.05
	(0.14)	(0.20)	(0.25)	(0.40)	(0.33)
Niger	-0.05	-0.22	-0.05	-0.21	-0.07
	(0.11)	(0.15)	(0.19)	(0.23)	(0.25)
Nigeria	0.25***	-0.15	0.03	0.31*	0.35
	(0.09)	(0.12)	(0.13)	(0.17)	(0.25)
Peru	0.18	-0.28*	0.15	-0.10	0.41
	(0.14)	(0.16)	(0.17)	(0.21)	(0.36)
Tanzania	0.06	-0.16	0.12	-0.14	-0.06

	(0.10)	(0.12)	(0.14)	(0.19)	(0.30)
Constant	-1.66***	-2.46***	-2.30***	-2.67***	-1.87**
	(0.52)	(0.47)	(0.58)	(0.58)	(0.75)
N	121,476	38,730	29,351	22,691	30,704
Subpopulation size	93,489,569	21,021,894	16,232,220	23,107,226	33,128,229

Note: standard errors in parentheses. Statistical significance: *<0.10; **<0.05; ***<0.01.

Source: authors' calculations.

Table A5: Marginal effects for OFWE participation, subsamples of each category of rural-urban gradient

	Rural	Semi-rural	Peri-urban	Urban
	B/se	B/se	B/se	B/se
Female	-0.05***	-0.04**	-0.09***	-0.01
	(0.01)	(0.02)	(0.02)	(0.03)
Marital status (married=1)	-0.00	-0.03	0.00	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)
Child dependency ratio	-0.06***	-0.03	-0.02	0.06
	(0.02)	(0.03)	(0.02)	(0.04)
Household headship	0.12***	0.18***	0.06*	0.11***
	(0.03)	(0.04)	(0.03)	(0.04)
Secondary education	0.03*	0.09***	0.06***	0.08***
	(0.02)	(0.02)	(0.02)	(0.03)
Female peer network	0.00**	0.00	0.00***	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Male peer network	0.00**	0.00	0.00	-0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Wealth index	0.24***	0.16	-0.07	0.37
	(0.09)	(0.15)	(0.16)	(0.26)
Time-saving assets	0.10	0.27**	0.45***	0.25
	(0.09)	(0.13)	(0.15)	(0.25)
Marital status male	0.04	-0.02	0.08**	0.07**
	(0.03)	(0.04)	(0.03)	(0.03)
Marital status female	-0.04***	-0.05***	-0.07***	-0.10***
	(0.01)	(0.02)	(0.01)	(0.02)
Marital status female vs male	-0.08***	-0.03	-0.15***	-0.17***
	(0.03)	(0.04)	(0.03)	(0.04)
Child dependency ratio male	-0.08**	0.01	-0.02	0.12*
	(0.03)	(0.04)	(0.04)	(0.06)
Child dependency ratio female	-0.05***	-0.07**	-0.02	-0.01
	(0.02)	(0.03)	(0.03)	(0.04)
Child dependency ratio female vs male	0.03	-0.08*	0.01	-0.13*
	(0.03)	(0.05)	(0.05)	(0.08)
Household headship male	0.11***	0.15***	0.04	0.06
	(0.04)	(0.05)	(0.04)	(0.04)
Household headship female	0.14***	0.22***	0.08*	0.18***

	(0.05)	(0.05)	(0.04)	(0.06)
Household headship female vs male	0.03	0.07	0.05	0.13**
	(0.06)	(0.07)	(0.06)	(0.06)
Secondary education male	0.01	0.09***	0.03	0.08**
	(0.02)	(0.03)	(0.02)	(0.04)
Secondary education female	0.05**	0.09***	0.09***	0.08**
	(0.03)	(0.02)	(0.02)	(0.04)
Secondary education female vs male	0.05	0.01	0.06**	-0.00
	(0.03)	(0.04)	(0.03)	(0.06)
Wealth index male	0.00**	0.00	0.00**	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Wealth index female	0.00	0.00	0.00*	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Wealth index female vs male	-0.00	0.00	-0.00	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)
Time-saving index male	0.00**	0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Time-saving index female	0.00	0.00	0.00	-0.00**
	(0.00)	(0.00)	(0.00)	(0.00)
Time-saving index female vs male	-0.00	0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Female peer network female	0.36***	0.13	0.22	0.11
	(0.11)	(0.16)	(0.17)	(0.37)
Male peer network male	0.22	0.44**	0.76***	0.16
	(0.13)	(0.20)	(0.19)	(0.30)
Observations	38,730	29,351	22,691	30,704
Population size	21,021,894	16,232,220	23,107,226	33,128,229

Note: standard errors in parentheses. Statistical significance: *<0.10; **<0.05; ***<0.01. Marginal effects control for all variables specified in the simultaneous equation model in Table A4.

Source: authors' calculations.

Table A6: Testing the hypothesis that the coefficients are jointly zero

	Rural	Semi-rural	Peri-urban	Urban
All coefficients in no work activity equation [1]	121.25	105.02	57.41	35.17
	(0.00)	(0.00)	(0.00)	(0.00)
All coefficients in student equation [2]	38.81	31.44	23.11	12.08
	(0.00)	(0.00)	(0.00)	(0.00)
All coefficients in other employment equation [4]	80.85	61.40	38.82	11.20
	(0.00)	(0.00)	(0.00)	(0.00)
All coefficients in equations [1], [2], and [4]	52.62	50.71	37.88	32.80
	(0.00)	(0.00)	(0.00)	(0.00)
Coefficients of control variables in all equations	69.65	71.35	81.61	46.96
	(0.00)	(0.00)	(0.00)	(0.00)
Coefficients of control variables in off-farm wage equation [3]	17.14	19.56	59.02	27.77
	(0.00)	(0.00)	(0.00)	(0.00)
Coefficients of countries dummy in all equations	6.06	5.65	3.26	7.58
	(0.00)	(0.00)	(0.00)	(0.00)
Coefficients of countries dummy in off-farm wage equation [3]	8.21	8.86	3.39	3.62
	(0.00)	(0.00)	(0.00)	(0.00)

Note: values are F-statistics; p-values in parentheses.

Source: authors' calculations.

Table A7: Blinder-Oaxaca decomposition

	Rural	Semi-rural	Peri-urban	Urban
	B/se	B/se	B/se	B/se
Overall				
Male participation	0.125***	0.167***	0.247***	0.222***
	(0.012)	(0.012)	(0.015)	(0.021)
Female participation	0.073***	0.113***	0.169***	0.216***
	(0.007)	(0.011)	(0.014)	(0.021)
Gender gap	0.052***	0.054***	0.078***	0.007
	(0.012)	(0.014)	(0.018)	(0.025)
Explained part	0.006	0.013	-0.026	-0.015
	(0.010)	(0.017)	(0.020)	(0.024)
Unexplained part	0.046***	0.042***	0.103***	0.022
	(0.013)	(0.016)	(0.018)	(0.032)
Explained				
Marital status (married=1)	-0.078	0.016**	0.004*	0.006
	(1.570)	(0.006)	(0.003)	(0.008)
Child dependency ratio	-0.126	0.007*	0.003	-0.004
	(2.526)	(0.004)	(0.002)	(0.005)
Household headship	-0.053	0.008*	0.003*	0.000
	(1.060)	(0.004)	(0.002)	(0.004)
Secondary education	0.000	-0.008*	-0.002	-0.009
	(0.008)	(0.004)	(0.001)	(0.011)
Wealth index	-0.007	-0.002	-0.002	-0.006
	(0.134)	(0.002)	(0.002)	(0.009)
Time-saving assets	0.012	-0.003	-0.001	0.007
	(0.244)	(0.002)	(0.001)	(0.012)
Female peer network	0.018	-0.002	0.000	-0.011
	(0.351)	(0.002)	(0.001)	(0.015)
Male peer network	0.019	-0.006	-0.007	-0.013

	(0.377)	(0.004)	(0.004)	(0.021)
Age 18-24 (compared with 15-17)	0.040	-0.005	-0.005	0.014
	(0.794)	(0.004)	(0.003)	(0.023)
Household size	-0.018	-0.001	0.001	0.001
	(0.356)	(0.002)	(0.001)	(0.003)
Share of females in household	0.188	-0.004	-0.026*	-0.020
	(3.709)	(0.014)	(0.014)	(0.021)
Share of elderly in household	-0.001	0.002	-0.001	0.001
	(0.027)	(0.002)	(0.001)	(0.002)
Share of workers among working-aged household members	-0.109	0.014**	0.012**	0.026
	(2.183)	(0.006)	(0.006)	(0.042)
Remittances received (yes=1)	0.001	-0.002	-0.000	-0.000
	(0.013)	(0.002)	(0.000)	(0.003)
Sector size of off-farm employment	0.004	-0.000	0.000	-0.000
	(0.078)	(0.001)	(0.000)	(0.002)
Local labour demand	0.003	0.000	0.000	0.001
	(0.050)	(0.000)	(0.001)	(0.003)
EVI	-0.002	0.000	-0.000	0.003
	(0.047)	(0.000)	(0.000)	(0.005)
Cambodia	0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Ethiopia	0.006	-0.002	-0.002	0.000
	(0.123)	(0.003)	(0.002)	(0.001)
Indonesia	0.000	0.007	0.000	0.013
	(0.009)	(0.005)	(0.002)	(0.019)
Malawi	-0.000	0.000*	-0.000	0.000
	(0.009)	(0.000)	(0.000)	(0.000)
Mexico	-0.000	-0.000	-0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.002)
Nepal	0.001	0.000	-0.000	0.000
	(0.022)	(0.000)	(0.000)	(0.000)
Nicaragua	0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Niger	0.000	-0.000	-0.000	0.000
	(0.006)	(0.000)	(0.000)	(0.000)
Nigeria	0.105	-0.005	-0.004	-0.026
	(2.093)	(0.003)	(0.003)	(0.033)
Peru	-0.000	-0.000	-0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Tanzania	0.003	-0.001	-0.000	-0.000
	(0.060)	(0.001)	(0.000)	(0.001)
Unexplained				
Marital status (married=1)	0.003	0.005	0.027***	0.009
	(0.005)	(0.005)	(0.007)	(0.007)
Child dependency ratio	0.002	0.012*	-0.004	0.011
	(0.006)	(0.007)	(0.007)	(0.012)
Household headship	-0.006**	-0.007*	-0.008	-0.011
	(0.002)	(0.004)	(0.008)	(0.010)
Secondary education	-0.019**	-0.007	-0.044**	-0.005
	(0.008)	(0.008)	(0.019)	(0.017)
Wealth index	-0.001	-0.017	0.018	-0.130
	(0.017)	(0.024)	(0.056)	(0.120)

Time-saving assets	0.002	-0.002	-0.015	0.039
	(0.010)	(0.012)	(0.025)	(0.049)
Female peer network	-0.021*	0.011	-0.020	0.073
	(0.012)	(0.016)	(0.039)	(0.074)
Male peer network	-0.011	0.019	0.005	-0.165
	(0.016)	(0.024)	(0.046)	(0.130)
Age 18-24 (compared with 15-17)	0.078	-0.006	-0.065	0.074
	(0.050)	(0.045)	(0.063)	(0.099)
Household size	-0.043**	-0.016	-0.002	0.002
	(0.018)	(0.019)	(0.022)	(0.025)
Share of females in household	-0.027	-0.029	0.018	0.063
	(0.019)	(0.025)	(0.035)	(0.064)
Share of elderly in household	0.000	0.002	-0.004	-0.004
	(0.003)	(0.003)	(0.004)	(0.006)
Share of workers among working-aged household members	-0.073***	-0.063***	-0.041**	-0.031
	(0.020)	(0.020)	(0.018)	(0.030)
Remittances received (yes=1)	-0.008	-0.005	-0.010	-0.005
	(0.005)	(0.005)	(0.010)	(0.007)
Sector size of off-farm employment	0.000	0.005	-0.056	0.098
	(0.014)	(0.017)	(0.057)	(0.083)
Local labour demand	-0.091	0.016	-0.225*	-0.076
	(0.076)	(0.082)	(0.124)	(0.137)
EVI	-0.030	0.040*	0.021	-0.005
	(0.023)	(0.024)	(0.032)	(0.015)
Cambodia	0.000	-0.000*	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Ethiopia	-0.011	-0.008	-0.009	0.002
	(0.008)	(0.009)	(0.006)	(0.003)
Indonesia	0.016	-0.011	-0.027	0.037
	(0.011)	(0.013)	(0.034)	(0.034)
Malawi	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mexico	0.001	-0.001	0.001	0.007
	(0.001)	(0.001)	(0.001)	(0.006)
Nepal	0.001	0.001	0.000	0.000
	(0.000)	(0.001)	(0.001)	(0.000)
Nicaragua	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Niger	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Nigeria	-0.009	-0.001	-0.014	-0.017
	(0.010)	(0.006)	(0.014)	(0.032)
Peru	0.000	-0.000	0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.001)
Tanzania	0.000	-0.000	-0.001	0.001
	(0.005)	(0.002)	(0.001)	(0.001)
Constant	0.291***	0.104	0.562***	0.051
	(0.106)	(0.119)	(0.184)	(0.212)

Note: standard errors in parentheses. Statistical significance: *<0.10; **<0.05; ***<0.01.

Source: authors' calculations.