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Structural Transformation and Gendered Transitions to Adulthood among Rural Youth: Cross-National Evidence from Low- and Middle-Income Countries

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ABSTRACT   *Using frameworks on gendered transitions to adulthood, we analyse nationally-representative, sex-disaggregated data from 36 countries to examine how structural transformation (share of GDP from non-agriculture) and rural transformation (agricultural value added per worker) are associated with land-ownership, labour force participation, and sector of employment for rural young women and men. Transformation has different implications for young men's and women's transition to adulthood. Higher levels of structural transformation are associated with a higher likelihood of landownership for young men, but not young women. Structural transformation is associated with lower employment of young rural men and women alike but is positively associated with on-farm employment of young women. Rural transformation is associated with a higher probability of employment for young rural men, but not women. Instead, rural transformation is negatively associated with young women's on-farm work and positively associated with not being in education, employment, or training. Whereas domestic responsibilities affect young women's livelihoods more than young men's, recognising the importance of both productive and reproductive roles in young women's and men's lives is needed to support the transition to adulthood at different levels of structural and rural transformation.*

1. Introduction

The economic and social contexts surrounding the transition to adulthood of rural youth are dramatically different from those of previous generations.[1] Key among these are structural transformation (ST) – the process of shifting from labour-intensive and low-productivity activities, such as agriculture, to more skill-intensive and productive activities, such as services and manufacturing – and rural transformation (RT) – the diversification of rural economies and the associated contextual changes in rural people's daily lives (e.g. livelihoods, communities, and social institutions). These processes affect young men and young women differently, because gender – the socially determined roles of young men and young women – shapes the transition to adulthood (Fox, Senbet, & Simbanegavi, 2016). This transition involves preparation for adult roles, through investments in schooling and health, and taking up adult roles such as work, citizenship or community engagement, marriage, and parenthood (Lloyd, 2005). During this period, many doors of opportunity open to boys as they become men; however, in many societies, they close for girls (Hallman, Kenworthy, Diers, Swan, & Devnarain, 2015).

Previous studies have demonstrated how men and women experience different outcomes at different levels of ST and RT, but we know less about how young women's and young men's experiences diverge under different ST and RT conditions. The joint processes of ST and RT are linked to land inheritance, education, labour force participation, and family formation (Blackden, Canagarajah, Klasen, & Lawson, 2007; Klasen & Lamanna, 2009; Knowles, Lorgelly, & Owen, 2002). Youth may not yet own physical assets but may expect to inherit or purchase them; inheritance patterns and access to markets affect young men and young women differently. Legal frameworks and social norms may limit women's land ownership or input into production-related decisions, and employment opportunities in some sectors may be gender-specific. For example, a case study from Morocco finds that women are concentrated in low-return sectors, likely because of gendered barriers to entry into other sectors (Marotta, Prettitore, & Verme, 2015). It may be difficult for young women to stay in school and the labour force if they form formal or informal unions or begin childbearing at an early age (Selwaness & Krafft, 2018). Thus, the socio-cultural context of family responsibilities also shapes opportunities. Moreover, the relationship between ST and the transition to adulthood may be mutually reinforcing; for example, low human capital may inhibit ST and early family formation may inhibit human capital accumulation (Basu & Guariglia, 2008).

In this paper we address how ST and RT are related to livelihood opportunities – landownership, labour force participation, and sector of employment – for young rural men and women. We first present frameworks on gendered transitions to adulthood that focus on how physical assets influence livelihood strategies, and how gender affects the resources, constraints, and opportunities that rural youth face. We then characterise the landownership and current livelihood activities of young rural women and men, pooling nationally representative datasets from 36 low- and middle-income countries. We report descriptive differences by ST-RT classification and results of multivariate regression analyses, focusing on how young women's and men's individual characteristics and position in their households and families is related to livelihood outcomes. We conclude that ST and RT have different implications for young women's and men's livelihoods as they become adults. Recognising both productive and reproductive responsibilities is important for youth programming to support this transition at different levels of ST and RT.

2. Conceptual framework

Our analysis uses the complementary transitions-to-adulthood framework and the Gender, Agriculture, and Assets Project (GAAP) conceptual framework.

2.1. Transitions-to-adulthood framework

This framework, developed by the National Research Council (US) Panel on Transitions to Adulthood in Developing Countries, focuses on young people's entry into adult roles in the inter-related areas of work, citizenship, and family (marriage and parenthood). The framework emphasises 'changes in the acquisition of various kinds of attributes or capabilities and in orientation toward the changing structure of opportunity,' (Lloyd, 2005, p. 35). It considers that contexts are changing at the global, national, and community levels as economies undergo ST, which is associated with changes in the types of jobs available to young people in agriculture, services, and manufacturing, and RT with accompanying shifts in rural livelihoods and social institutions. These transformations, in turn, shape how young people and their families plan for and enact their livelihoods.

Three aspects of the transitions to adulthood framework are noteworthy for our analysis: (1) it emphasises change – in the global and immediate environments, in young people themselves, and in the transition process; (2) it acknowledges that young people's entry into adult roles is shaped by the contexts in which their daily lives are embedded; and (3) it highlights the interlinkages between context and individual behaviour, allowing us to link changes in individual resources (e.g. land-ownership) and attributes (e.g. education, employment) during the transition to changes in the timing,

sequencing, duration, and nature of the transition to adult roles. The framework also recognises the gendered implications of the changes in global, national, and local environments and that young people themselves undergo various transitions at different ages depending on culture and context.

2.2. The Gender, Agriculture, and Assets Project (GAAP) framework

The GAAP conceptual framework, inspired by the Sustainable Livelihoods Framework (Bebbington, 1999), takes the gendered nature of use, ownership, and control of assets as a starting point (Meinzen-Dick et al., 2011), and links assets, livelihoods, and well-being outcomes (Figure 1). Households and individuals hold a range of tangible and intangible assets, which provide means for people to earn a living, give individuals the capability to act, and give meaning to people's lives (Bebbington, 1999). Men and women – young or old – hold different types of assets, whether individually or jointly. Human capital embodied in a person's schooling or learned experiences is an individual asset, whereas land or savings, among others, can be held jointly or individually. Others, such as social capital, are created by association with others.

The GAAP framework, applied to rural youth, demonstrates the strong link between assets and well-being and how gender relations influence young men's and women's constraints and opportunities. Each component of the framework is shaded, indicating that these assets and activities may be individual or joint. Joint assets and activities may involve spouses, a parent and child, siblings, two or more household members, or people inside and outside the household.

2.2.1. Context and the role of ST and RT. Changing ecological, social, economic, and political conditions, including ST and RT, affect young men and women differently. The transitions-to-adulthood framework emphasises the role of these different contexts in shaping the accumulation of human capital and physical assets and the opportunities young people have to develop their livelihood strategies. For example, economies with relatively egalitarian gender norms and a high ST may have provided more education and training opportunities for young women and absorb more
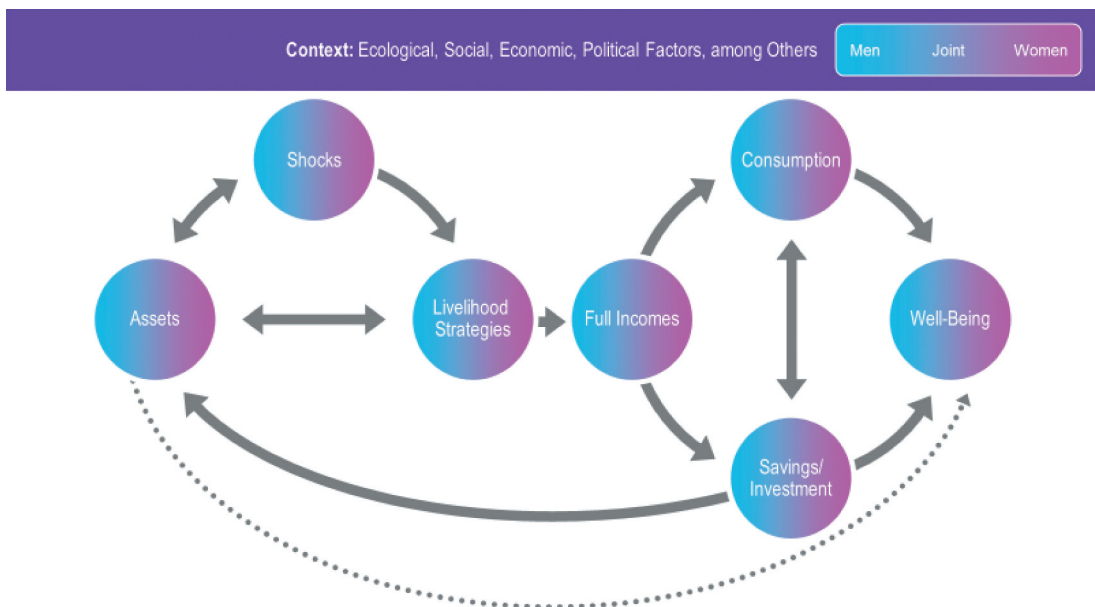

Figure 1. The Gender, Assets, and Agriculture Project conceptual framework.

Source: Meinzen-Dick et al. (2011)

young women into the wage sector compared to similar economies with restrictive gender norms. RT programmes targeting farmers may not fully reach or benefit women, because social norms and legal frameworks may limit women's landownership or decision-making power around production. At the more micro level, the household context – whether youth live with parents or in-laws or head their own household – may shape transitions to adulthood. Overall, ST and RT are part of the contexts in which rural youth study, work, marry, and live.

2.2.2. Assets.   Access to and control over assets are key determinants of individual agency. Within a household, some assets are owned or used by women, some by men, and some jointly (Doss, Deere, Oduro, & Swaminathan, 2014). Although most natural, physical, and financial assets are held by men in rural areas of low- and middle-income countries, young men frequently only acquire assets when they form a separate household or marry (Fafchamps & Quisumbing, 2007). Young women typically own fewer assets than their male peers, but in contexts where marriage confers property rights to both spouses, women who marry young may acquire joint assets earlier than men.

Land is the most important physical asset in rural areas. Only recently has landownership data been collected at the individual, rather than the household level. These data have been used to analyse landownership patterns by sex (Doss, Kovarik, Peterman, Quisumbing, & van den Bold, 2015; Kieran, Sproule, Quisumbing, & Doss, 2017) but rarely by age. In many cultures, marriage signals the beginning of a new family unit, and may include the transfer of land from parents to children. While youth may not yet own land, their expectations of inheritance will differ by gender. For example, while 40 per cent of Burundian young men expect to inherit land, only 17 per cent of young women expect to (Berckmoes & White, 2014).

Education is an important asset for rural youth and is necessary to take advantage of many opportunities. In many contexts, girls remain disadvantaged, although gender gaps in education are closing in most places (Behrman & Sengupta, 2005). We do not analyse education as an outcome as comprehensive studies on educational attainment exist (for example, Glewwe and Muralidharan (2016)). Rather, we control for education as a predeterminant of many of our livelihoods outcomes of interest.

2.2.3. Livelihood strategies.   Stocks of assets, in turn, affect livelihood strategies, which involve decisions about how to invest assets to generate returns (income, food, etc.). Livelihood strategies may differ for young men and young women and may be conditioned on the assets they hold and the opportunities available. These strategies include seeking employment, whether in agriculture or elsewhere, becoming entrepreneurs, or engaging solely in home-production. In Ethiopia, for example, young men expecting to inherit larger amounts of land have a higher likelihood of employment in agriculture and a lower likelihood of employment in the non-agricultural sector, but this pattern is not observed for young women (Kosec, Ghebru, Holtemeyer, Mueller, & Schmidt, 2018). Thus, rural young men may have more diverse livelihood opportunities available to them relative to young women, but the implications for employment differ by context. Some assets can be built or enhanced, as represented by the reverse arrow from Livelihood Strategies to Assets in Figure 1.

2.2.3.1.   Employment.   Both farm and non-farm work offer rural youth important opportunities. Regardless of sector or country, young men are much more likely to be employed than young women (Fares, Montenegro, & Orazem, 2006). Farming remains the largest source of employment among African youth but is declining in favour of off-farm opportunities (Yeboah & Jayne, 2018), which increase during ST (Reardon, Stamoulis, & Pingali, 2007). The shift into non-farm sectors may also have different contextual determinants. For example, among rural youth in Ethiopia and Nigeria, similar shares of young men and women are employed off-farm, but in Malawi, Tanzania, and Uganda, off-farm employment is more common among young men (Van den Broeck & Kilic, 2019). Unemployed young men tend to become discouraged and cease their job search without initiating additional activities, whereas unemployed young women typically engage in non-market activities,

such as uncompensated household work (Fares et al., 2006). Additionally, better-educated individuals may have the skills required in off-farm employment. Gendered social norms also shape preferences about on-farm and off-farm work. Workplace safety is often a more substantial concern for young women, and sexual assault is a common reason why they leave their jobs (Hajdu, Ansell, Robson, & van Blerk, 2013).

Self-employment or entrepreneurship, generally off-farm, is also an important youth livelihood strategy. Youth entrepreneurship creates employment, increases resilience, and spurs innovation (Chigunta, Schnurr, James-Wilson, & Torres, 2005; White & Kenyon, 2007). In Nigeria, young women prefer off-farm work, because they can control their cash earnings, unlike when they work on the family farm and other household members control the income (Bryceson, 2002). Although women are increasingly becoming entrepreneurs, men are still more likely to be involved in entrepreneurial activities than women (Vossenberg, 2013), and men's businesses are typically larger (Doss et al., 2014). These patterns vary across countries and may not account for age-related differences in entrepreneurship. Our data do not permit the analysis of self-employment by sex and age, but we note this as important.

2.2.3.2. Not in Employment, Education, or Training (NEET). Although youth engage in a variety of livelihood strategies and domestic activities, many do not participate in employment, education, or training (NEET),[2] with substantial gender differences. A study of eight sub-Saharan African countries found that 23.6 per cent of rural young women, but only 11.8 per cent of rural young men, were NEET (Elder, de Haas, Principi, & Schewel, 2015). However, studies of NEET youth do not typically account for the contribution of domestic labour to full incomes, which misclassifies those doing unpaid care work. Considering unpaid housework may enhance our understanding of NEET dynamics, specifically around productive and reproductive roles of young women and men. For instance, across North Africa, most young women, but not young men, classified as NEET are full-time caregivers (Abbott & Teti, 2017). Globally, men who have children are more likely to be employed (formally or informally) while women who have children are less likely to be employed (Elder & Kring, 2016).

2.2.4. Full Incomes. Full income is the total value of goods and services produced by household members, whether consumed within the household, traded, or sold. It includes the value of time spent on domestic responsibilities and childcare, even if unpaid. Because young women often work as unpaid family workers, or do domestic chores and childcare, their contribution to the household is often undercounted – and they may be misclassified as NEET – unless a full income measure is used. While full income is difficult to measure at the individual level, it is conceptually important in understanding young women's and men's livelihood strategies. The invisibility of women's work could affect their bargaining power within their natal and marital households and their livelihood choices.

3. Data and descriptive characteristics

3.1. Data

We use nationally representative Demographic and Health Surveys (DHS) data from 36 low- and middle-income countries, collected between 2010 and 2016 (ICF International, 2018), to analyse factors associated with youth landownership, employment (both any and on-farm),[3] and whether youth are NEET.[4] DHS collect a range of demographic and health information from a randomly selected sample of households. In each household, an individual survey is typically administered to all women of reproductive age (15–49 years), and in a randomly selected subset of households, individual interviews are also administered to men of similar age. Our sample, limited to youth currently living in rural areas, includes approximately 149,000 women and 70,000 men.

We use the World Development Indicators (WDI) to construct indicators of ST and RT. ST is the non-agricultural value-added share of GDP, and RT is the agricultural value added per worker (both in constant 2010 US$). We classify each country as high- or low-ST and as high- or low-RT: high-low cut-offs are defined based on the global mean of the ST indicator and the median of the RT indicator (IFAD 2019). Table 1 lists all countries included in the analysis, by ST and RT typology and region. IFAD (2019). Rural Development Report 2019: Creating opportunitiesfor rural youth. Rome: International Fund for Agricultural Development.

3.2. Descriptive analysis

Table 2 provides weighted descriptive statistics[5] on our key outcomes, by ST-RT category and sex. Patterns of household residence are closely tied to marriage patterns. Across all categories, rural young women are more likely to be ever married or in union compared to rural young men, with the largest difference (52 percentage points [pp]) in the Low ST-High RT category. This gap indicates that rural young women enter marriage much earlier than young men; consequently, an age gap between spouses is common. The age gap is especially large for the Low ST-High RT category, which include Chad, Nigeria, and Pakistan, where girls often marry very early.

While educational attainment is low for both young men and women in rural areas, young men have more years of schooling than young women in all categories except High ST-High RT. Although gender gaps in educational outcomes in rural areas are closing, gender norms constrain young women, often causing them to leave school to undertake domestic and/or reproductive roles.

The DHS ask whether the respondent owns land, and whether they own it individually or jointly with someone else. In High ST-Low RT and Low ST-High RT, young men are more likely than young women to own any land. Rural young men are consistently more likely to own land solely compared to young women, which may reflect patrilineal inheritance or customary land tenure norms. The higher levels of ownership by young women in High ST-High RT and Low ST-Low RT countries is driven by their joint ownership of land.

Using self-reported current activities, we classify rural youth as either enrolled in school, employed, both in school and employed, or NEET. Many youth, especially young women, may be misreported as NEET because of household responsibilities, thus we further disaggregate NEET

Table 1. Countries included in analysis

High ST – High RT	High ST – Low RT	Low ST – High RT	Low ST – Low RT	
Colombia 2015*	Cameroon 2011[†]	Chad 2014–15[†]	Afghanistan 2015[§]	Mozambique 2011[†]
Ghana 2014[†]	Gambia, The 2013[†]	Cote d'Ivoire 2011–12[†]	Benin 2011–12[†]	Myanmar 2015–16[⊥]
Guatemala 2014–15*	India 2015–16[§]	Nigeria 2013[†]	Burkina Faso 2010[†]	Nepal 2016[§]
Honduras 2011–12*	Lesotho 2014[†]	Pakistan 2012–13[§]	Burundi 2010[†]	Niger 2012[†]
Indonesia 2012[⊥]	Senegal 2016[†]		Cambodia 2014[⊥]	Rwanda 2014–15[†]
Kyrgyz Republic 2012[‡]	Zambia 2013–14[†]		Ethiopia 2016[†]	Sierra Leone 2013[†]
Namibia 2013[†]			Guinea 2012[†]	Tanzania 2015–16[†]
			Kenya 2014[†]	Togo 2013–14[†]
			Malawi 2015–16[†]	Uganda 2016[†]
			Mali 2012–13[†]	

Note: Demographic and Health Surveys for 36 countries, 2010–2016, for rural youth 15–24 years.
[†]Africa: 25 countries.
[‡]Central Asia: 1 country.
*Latin America and the Caribbean: 3 countries.
[§]South Asia: 4 countries.
[⊥]Southeast Asia: 3 countries.

Table 2. Characteristics of rural youth (aged 15–24 years), by typology and sex. Means (standard deviations in parentheses).

	High ST – High RT		High ST – Low RT		Low ST – High RT		Low ST – Low RT	
	Female	Male	Female	Male	Female	Male	Female	Male
Means (standard deviations in parentheses)								
Ever married (including informal union)	0.44	0.27	0.45	0.15	0.70	0.18	0.52	0.17
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Years of schooling	8.58	7.84	8.26	8.96	4.00	6.42	4.87	5.34
	(0.06)	(0.07)	(0.02)	(0.04)	(0.13)	(0.17)	(0.05)	(0.07)
Current activities								
In school	0.25	0.15	0.23	0.26	0.13	0.23	0.16	0.15
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)
Employed	0.34	0.60	0.19	0.48	0.36	0.52	0.44	0.57
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
In school and employed	0.08	0.20	0.04	0.09	0.04	0.14	0.09	0.25
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)
NEET (total)	0.33	0.05	0.54	0.18	0.47	0.12	0.32	0.03
	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Married with children	0.17	0.00	0.23	0.00	0.25	0.00	0.17	0.00
	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Married without children	0.04	0.00	0.11	0.01	0.13	0.00	0.05	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Not married, with children	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Not married, without children	0.11	0.05	0.20	0.17	0.08	0.11	0.08	0.03
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Engaged in on-farm activity	0.34	0.58	0.66	0.51	0.31	0.56	0.62	0.74
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Land ownership								
None	0.86	0.88	0.75	0.61	0.91	0.80	0.74	0.80
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Sole and Joint ownership								
Any sole	0.05	0.08	0.13	0.24	0.04	0.13	0.09	0.13
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Joint only	0.09	0.04	0.11	0.15	0.05	0.07	0.17	0.07

Table 2. (*Continued*)

	High ST – High RT		High ST – Low RT		Low ST – High RT		Low ST – Low RT	
	Female	Male	Female	Male	Female	Male	Female	Male
Relationship to head of household	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Self	0.02	0.13	0.01	0.05	0.03	0.20	0.04	0.12
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)
Spouse	0.18	0.01	0.13	0.00	0.44	0.00	0.30	0.03
	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Daughter or son	0.58	0.65	0.53	0.79	0.27	0.64	0.45	0.71
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)
Daughter- or son-in-law	0.09	0.06	0.22	0.00	0.15	0.00	0.08	0.01
	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Other	0.13	0.16	0.12	0.15	0.12	0.16	0.13	0.13
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)

Notes: See Table 1 for data source.
Estimates are weighted means, with weights adjusted for each country's sample size relative to its population size. Standard errors are clustered at the primary sampling unit.
[†]Among those currently employed.
Any sole ownership refers to sole ownership only and sole and joint ownership.
Engaged in on-farm activity

youth according to whether they are married and have children. Rural young men are more commonly enrolled in school than young women, although young men are also more likely to combine employment with being in school. Across all categories, young women are more likely than young men to be NEET. Whereas the majority of NEET young women are likely engaged in reproductive activities (because they are married and/or raising children), only a small proportion of NEET young men are currently married or fathers, further highlighting stark gender differences in productive and reproductive responsibilities among rural youth. Among the currently employed, young men are more likely to work on-farm compared to young women, except in the High ST-Low RT category. This pattern may be driven by the dynamics of rural-to-urban labour migration, which often affords urban labour opportunities for young men and leaves less lucrative opportunities for young women.

4. Regression analysis

4.1. Regression model

To analyse the factors that are associated with our outcomes of interest, we estimate the following:

$$Y_{ik} = \alpha + X_i\beta + X_h\gamma + \delta\text{ST}_c + \mu\text{RT}_c + \varepsilon_i \tag{1}$$

where $\mathbf{Y}_{ik}$ is the outcome of interest. We first estimate multinomial probit regressions using the same specification for: (1) land ownership (any sole ownership, joint ownership only, with no ownership as the reference group), and (2) currently employed, working on farm (for those currently employed), and NEET. We control for individual-level characteristics, such as age group, educational attainment, marital status, parenthood and presence of a child, and relationship to household head.[6] Household-level characteristics include log of household size, and a wealth index factor score.[7] $\mathbf{X}_i$ is a vector of individual-level characteristics as described above; $\mathbf{X}_h$ is a vector of household-level characteristics; ST and RT as defined above, are continuous country-level variables; ε_i is the error term. For each outcome, we estimate Equation (1) separately for young women and young men and test whether the coefficients in the two equations are significantly different (Clogg, Petkova, & Haritou, 1995). All analyses account for complex survey design.

We recognise that ST and RT may affect individuals differently depending on their endowments of physical and human capital. We estimated equation (1) with interactions between ST and RT and years of schooling, landownership, and the wealth index factor score; the interaction terms were all jointly significant (available upon request). We do not examine regression results by region, because several of the regions have too few countries to produce meaningful results. Unpacking the differential associations of ST and RT with physical and human capital and comparing the nature of these dynamics across regions are worthy topics for future work.

4.2. Characteristics of the regression sample

Table 3 presents selected characteristics for the sample of rural youth aged 15–24 years, by sex. On average, the young women sampled are older than the young men. Rural young women and men are equally likely to have completed primary school, but young women are more likely to have completed at least some secondary education. Forty-eight per cent of young women reported being ever married or in union, compared to only 17 per cent of young men. Young women are more likely to be the spouse or child-in-law of the household head than young men, although a large proportion of both young women and men are offspring of the household head. Young men may be in a more advantageous situation in their current household, since in many societies, children-in-law have lower status than the child of the household head. More young women (32%) reported being a parent and living with at least one child compared to young men (9%).

Table 3. Selected characteristics of rural youth in regression sample, by sex

	Female	Male		
	Mean (SE)	Mean (SE)	T statistic[†]	p-value
Land ownership				
None	0.78	0.74	65.52	0.00
	(0.00)	(0.00)		
Any sole	0.09	0.16	291.52	0.00
	(0.00)	(0.00)		
Joint	0.13	0.10	83.20	0.00
	(0.00)	(0.00)		
Activities				
Currently employed	0.41	0.71	3372.20	0.00
	(0.00)	(0.00)		
On-farm employment activity (among those employed)	0.55	0.65	131.02	0.00
	(0.01)	(0.01)		
Not in education, employment, or training	0.29	0.09	3829.03	0.00
	(0.00)	(0.00)		
Individual characteristics				
Age (years)	19.35	19.05	139.09	0.00
	(0.01)	(0.02)		
Years of schooling	7.23	6.88	72.62	0.00
	(0.02)	(0.05)		
Ever married (including informal union)	0.48	0.17	7736.66	0.00
	(0.00)	(0.00)		
Relationship to head of household				
Self	0.02	0.10	536.50	0.00
	(0.00)	(0.00)		
Spouse	0.19	0.01	5704.67	0.00
	(0.00)	(0.00)		
Daughter/Son	0.50	0.73	2995.38	0.00
	(0.00)	(0.00)		
Daughter/Son in law	0.17	0.01	11145.59	0.00
	(0.00)	(0.00)		
Other	0.12	0.15	62.59	0.00
	(0.00)	(0.00)		
Respondent is a parent and child under 5 lives in HH	0.32	0.09	6722.54	0.00
	(0.00)	(0.00)		

Note: See Table 1 for data source.
[†]Test of difference in means between the male and female samples.
[‡]Among those currently employed.

4.3. Regression results

Tables 4 and 5 present selected coefficients from multinomial regression estimates of land ownership and employment, highlighting the role of different levels of ST and RT and of individual-level characteristics such as age, education, marital status, and relationship to household head. Regressions include controls for household structure, whether the individual is a parent, household size, and household wealth; complete results are presented in Appendix Tables A1 and A2.

4.3.1. Land. Land is a major livelihood asset in rural societies. ST is associated with the increased likelihood for young men to own land, whether solely or jointly, but is associated with young women being less likely to jointly own land. The lower likelihood of landownership in high RT contexts suggests that processes underlying higher agricultural productivity per worker, which may increase

Table 4. Selected marginal effects from multinomial probit regressions on rural youth land ownership outcomes, by sex

	Any sole ownership			Joint ownership only		
	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients
ST: Share of non-agriculture in GDP (%)	0.18	1.18***	***	−0.40***	0.88***	***
	(0.11)	(0.18)		(0.12)	(0.17)	
RT: Agricultural value added per worker (millions, 2016 USD)	−0.01***	−0.01***	***	−0.02***	−0.01***	***
	(0.00)	(0.00)		(0.00)	(0.00)	
Age (15–17=reference group)						
18–21	0.01***	0.03***	***	0.02***	0.02***	**
	(0.00)	(0.00)		(0.00)	(0.00)	
22–24	0.01***	0.06***	***	0.02***	0.03***	***
	(0.00)	(0.00)		(0.00)	(0.00)	
Years of schooling	0.00***	0.00***		0.00***	0.00***	**
	(0.00)	(0.00)		(0.00)	(0.00)	
Ever married (including informal union)	0.04***	0.08***	**	0.08***	0.06***	*
	(0.00)	(0.01)		(0.00)	(0.00)	
Relationship to head of household (Daughter/ son=reference group)						
Self	0.07***	0.09***	***	0.05***	0.02***	***
	(0.00)	(0.01)		(0.01)	(0.01)	
Spouse	0.03***	0.00	***	0.09***	−0.03**	***
	(0.00)	(0.02)		(0.00)	(0.02)	
Daughter/Son in law	0.00	−0.03**	***	0.01***	−0.04***	***
	(0.00)	(0.01)		(0.00)	(0.01)	
Other	−0.01***	−0.01***		0.00	−0.01**	***
	(0.00)	(0.00)		(0.00)	(0.00)	
Observations	148,630	70,125		148,630	70,125	

Note: See Table 1 for data sources. Standard errors account for the multi-stage survey design. Regressions include controls for being a parent and having children under 5 within the household, log of household size, and a wealth index. The estimation sample excludes Cameroon, where landownership data was not collected.
*p < 0.1; **p < 0.05; ***p < 0.01.

land values, may make it more difficult for young people to acquire land. However, the magnitudes of these associations are small.

Life-cycle factors, such as age, years of schooling, ever being married or in union, and, for young women, being a parent with a child in the household, are positively associated with any sole landownership. Being the household head, compared to the daughter or son of the household head, is positively associated with land ownership, both solely and jointly. For young women, being married to the household head also is correlated with being more likely to own land; this is not true for young men. This may reflect the common phenomenon of land being acquired or bestowed to young rural men when they marry and start a household (Fafchamps & Quisumbing, 2007). Young women may also become joint landowners with their husband when they marry.

The overall patterns for joint landownership differ from those of sole landownership (Table 4). Joint landownership is negatively associated with higher levels of ST for rural young women, but is positively associated with higher ST for young men. Increased growth in the non-agricultural sector

Table 5. Selected marginal effects from probit regressions on rural youth employment outcomes, by sex

	Currently employed			Employed on farm (for those currently employed)			NEET		
	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients
ST: Share of non-agriculture in GDP (%)	−4.93***	−0.67***	***	0.65**	−1.25***	***	3.25***	1.85***	
	(0.19)	(0.23)		(0.32)	(0.31)		(0.15)	(0.17)	
RT: Agricultural value added per worker (millions, 2016 USD)	−0.00*	0.00***	***	−0.06***	−0.01***	***	0.01***	−0.00***	***
	(0.00)	(0.00)		(0.00)	(0.00)		(0.00)	(0.00)	
Age (15–17=reference group)									
18–21	0.12***	0.19***	***	−0.07***	−0.08***		0.16***	0.08***	***
	(0.00)	(0.00)		(0.01)	(0.01)		(0.00)	(0.00)	
22–24	0.17***	0.33***	***	−0.12***	−0.12***	***	0.17***	0.08***	***
	(0.00)	(0.00)		(0.01)	(0.01)		(0.00)	(0.00)	
Years of schooling	−0.01***	−0.04***	***	−0.01***	−0.02***	***	−0.02***	0.01***	***
	(0.00)	(0.00)		(0.00)	(0.00)		(0.00)	(0.00)	
Ever married (including informal union)	−0.04***	0.21***	***	0.02**	−0.04***	***	0.18***	−0.08***	***
	(0.01)	(0.01)		(0.01)	(0.01)		(0.00)	(0.01)	
Relationship to head of household (Daughter/son=reference group)									
Self	0.01	0.05***	***	−0.01	0.05***	***	−0.06***	−0.05***	
	(0.01)	(0.01)		(0.01)	(0.01)		(0.01)	(0.01)	
Spouse	0.01	−0.02		0.04***	−0.06**	***	−0.06***	−0.03**	
	(0.01)	(0.02)		(0.01)	(0.03)		(0.00)	(0.02)	
Daughter/Son in law	−0.15***	0.14***	***	0.07***	0.02	**	0.12***	−0.08***	***
	(0.01)	(0.03)		(0.01)	(0.02)		(0.00)	(0.02)	
Other	−0.02***	−0.01**		−0.03***	0.00	***	−0.01*	−0.01***	**
	(0.00)	(0.00)		(0.01)	(0.01)		(0.00)	(0.00)	
Observations	151,811	71,357		53,741	42,792		193,137	71,300	

*p < 0.1; **p < 0.05; ***p < 0.01.

Note: Coefficients shown are marginal effects from probit estimates. Standard errors account for the multi-stage survey design. See Table 1 for data sources. Estimation sample excludes Burkina Faso, Mozambique, and Uganda, which do not have data on on-farm employment.

may selectively benefit young men, enabling them to acquire more assets such as land. Whereas most associations between the other covariates and joint landownership are largely similar to patterns for any sole landownership, there are some noteworthy differences. For example, compared to being the daughter of the head of household, being the daughter-in-law is positively associated with joint landownership, reinforcing our claim that young women are likely to acquire land jointly upon marriage. For young men, being the spouse of the head of household compared to the son of the head of household, or being a parent but not living with a child under five, was negatively associated with joint land ownership.

4.3.2. Employment.   Current employment of young rural women and men is negatively associated with higher levels of ST, and more so for young women (Table 5). This may occur because young women engage in reproductive roles, rural youth lack skills to take up jobs in the rural off-farm sectors, and rural youth lack skill-appropriate opportunities. These patterns are consistent with rising rural-urban migration in most countries; ST may create new opportunities, but not necessarily in rural areas. Higher RT is positively associated with current employment for young men, but negatively associated with the same outcome for young women, but the magnitudes of these associations are very small, even if statistically significant. Young women tend to have less access to opportunities and technologies and many agricultural programmes or employment training programmes target (young) men. In addition, a reduced demand for agricultural labour due to increased use of labour-saving technology and gender norms around reproductive roles may contribute to the negative association between current employment status and RT among rural young women.

Being older is positively associated with employment for all youth, indicating a shift from schooling to employment during this period, with stronger associations for young men than young women. Both young men and women with more years of schooling are less likely to be currently employed, possibly because of the desire to continue schooling and fewer available opportunities for educated youth in rural areas.

Unlike their male counterparts, ever-married young women are less likely to be currently employed, reflecting the stronger gendered division of labour in productive and reproductive responsibilities once married. Compared to daughters of the household head, daughters-in-law are less likely to be currently working. Young women may be stepping into domestic roles and may have little agency due to their social location in the household or face gender-based discrimination in the workplace. Young men who are household heads or sons-in-law are more likely to be working compared to sons of the household head, consistent with the increased productive responsibilities implied by household headship and marriage. Indeed, compared to those who are not parents and without young children in the household, young men and women who are parents and/or live with a child under five are more likely to be currently employed, reflecting increased demands to earn income as they take on adult family responsibilities.

Young women and men from wealthier households are less likely to be currently employed, possibly because of more opportunities to continue schooling, less demand to contribute to household incomes if they coreside with parents, or fewer labour market opportunities for those with higher educational attainment. These effects are significantly stronger for young men than young women.

4.3.3. On-farm employment.   Higher levels of ST are positively associated with on-farm employment for young rural women, but negatively associated for young men. Higher RT is negatively associated with on-farm employment of young rural women and men alike (Table 5). Higher participation of young women in on-farm employment as the economy modernises, indicated by ST, may occur because they replace young men who migrate to urban areas. Moreover, the negative associations with RT may also indicate that there is an increased preference to work off-farm, possibly because of conflicts with reproductive and childcare activities for women or non-agricultural sector opportunities for young men.

Currently employed rural young men who are ever married or in union are less likely to work on-farm compared to those who had never been married, while the opposite is true for young women. Young men who are household heads and young women who are spouses or daughters-in-law of the head are more likely to work on-farm; young men and women who are parents, particularly those living with younger children, are more likely to work on-farm than their counterparts without these responsibilities. Finally, older youth, those with more schooling, or those from wealthier households are less likely to work on-farm, choosing instead to continue studying or to work in the off-farm sector.

4.3.4. NEET.   Higher levels of ST are associated with more rural youth being NEET, with stronger effects for young women than men, revealing either a shift to reproductive roles for young women or a lack of capacity to absorb youth into employment or training opportunities despite economic growth in the non-agricultural sector (Table 5). Higher levels of RT are positively associated with young women being NEET, but negatively associated for young men, consistent with higher employment rates for young men as agricultural productivity per worker increases.

Older youth in rural areas are more likely to be NEET; these effects are particularly pronounced among young women, indicating either a transition to different responsibilities or a lack of employment opportunities after completing or dropping out of school for both sexes. However, better educated young women are less likely to be NEET and better-educated young men more so, possibly because employment opportunities for young men with more education are scarce in rural areas. Marital and parental responsibilities have different implications for young women and men. Married women are more likely to be NEET, particularly those who are daughters-in-law and who have young children. In contrast, being married and living with a young child reduces the likelihood that men are NEET, and young men who are not sons of the household head are less likely to be NEET. Finally, individuals from wealthier households are more likely to be NEET.

5. Discussion and conclusions

Our two conceptual frameworks show how different types of assets held by young women and men affect their livelihood strategies, which influences their transition to adulthood and future well-being. Because of differences in the levels of ST and RT and in gender roles across countries, young women's and men's transitions to adulthood may be quite different. Our analysis of nationally representative datasets from 36 low- and middle-income countries indeed confirms this conclusion. These findings provide nuance to previous studies that have demonstrated that women and men do not derive equal benefits from ST and RT by highlighting these differences for rural young women and men.

Higher degrees of ST and RT have different implications for landownership for young women and men. Higher ST is associated with a higher likelihood of young men owning land solely or jointly, but a lower likelihood for women owning land jointly. Increases in the importance of manufacturing and services in the economy may create opportunities for young men – but not young women – to acquire assets, such as land. In contrast, higher levels of RT are associated with lower likelihoods of landownership for both young women and men, possibly because increasing agricultural productivity per worker may also increase the value of land, making it harder for younger people to acquire land.

The effects of ST on livelihood strategies differ substantially by gender. ST – a higher share of manufacturing and services in GDP – is associated with lower employment and higher rates of being NEET of young rural men and women alike. This finding suggests that at higher levels of ST both young women and men in rural areas are left out of economic and training activities that enhance their livelihoods. The findings contrast with some expectations that ST will increase demand for youth labour (Losch, 2016) but are consistent with expectations that opportunities may be in the informal sector (Fox et al., 2016). We also find that higher ST is also associated

with lower probabilities that young men who are employed are working on-farm, but higher probabilities for young women, suggesting that young women may take on men's roles in agriculture as the latter shift to non-farm activities or migrate to urban areas. This is consistent with the processes often referred to as the 'feminisation of agriculture.' Increasing agricultural productivity per worker (a characteristic of RT) is negatively associated with young women's employment, but positively associated with being NEET. In contrast, for young rural men, higher RT is associated with a higher probability of working, a lower probability of working on-farm, and a lower probability of being NEET. Whereas RT appears to be associated with better employment opportunities for young rural men, current patterns of RT may unintentionally bypass young women. These findings are consistent with previous studies that find ST is associated with women being concentrated in sectors with low returns and experiencing gender-based barriers to entering more lucrative sectors (Marotta et al., 2015).

Our analysis confirms that transitions to adulthood may be very different processes for young rural men and women. The patterns of land ownership reflect that young women often marry older men and report joint land ownership when they do so. Being ever-married (including informal unions) has different and opposite associations with young women's and men's employment. While ever-married young men are more likely to be working (and less likely to be NEET), the opposite is the case for ever-married young women, who are more likely not to be employed and more likely to be reported as NEET. When they marry, young men are more likely to work to bring in income while young women face increasing domestic responsibilities, owing to their reproductive roles.

In developing programmes for rural youth, it is imperative to be mindful of gender. Countries with higher ST and RT have worse outcomes for young rural women (compared to their male peers) in several dimensions. Policies need to counteract these impacts and ensure that young women benefit from these transformation processes. Concerns about marriage and parenthood are usually addressed to young women in youth-oriented programming and tend to be ignored by programmes focusing on young men. Yet, these transitions to adulthood affect both young men and young women, albeit in quite different ways. Household and reproductive responsibilities also affect young men, who may feel pressure to find employment, but little evidence exists on the relationship between marriage and men's employment, especially in the long term. Recognising the importance of both productive and reproductive roles in the lives of both young women and men would be an important first step to developing youth programming that supports the transition to adulthood at different levels of ST and RT.

Notes

1. We consider areas rural according to the definition of each country's national statistics office. Youth is the period between childhood and adulthood. We use the United Nations' definition of 15–24 years old, although some countries use a higher upper bound. We use the terms young men and young women to refer to these youth.
2. Includes youth who may be searching for these opportunities and those engaged in unpaid housework.
3. Respondents are employed if they have worked, apart from housework, in the past 12 months.
4. We do not have sex-disaggregated asset data for a sufficient number of countries to analyse nonland asset ownership.
5. Weights account for the multi-stage survey design. Weights for estimates that are pooled across multiple countries are adjusted to account for each country's sample size relative to its population size. Thus, estimates can be interpreted as the prevalence across all countries in that category.
6. See Appendix Tables for a complete list of categorical variables used in the regressions. Marital status may be correlated with other family structure variables and relationship to the household head. Multicollinearity diagnostics show that the variance inflation factors (VIF) are less than 4.5, indicating that multicollinearity is not a serious concern. VIFs are higher for young women compared to young men, suggesting that marital status, position in the household, and household structure tend to be more strongly correlated for young women than men.
7. The asset index was constructed using principal components analysis of each full national sample (rural and urban areas). For each country, the index is normed with a mean of 0 and a standard deviation of 1. When comparing across countries, the same value indicates a similar level relative wealth.

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References

Abbott, P., & Teti, A. (2017). *A generation in waiting for jobs and justice: Young people not in education employment or training in North Africa* (Arab Transformations Working Paper No. 19). Aberdeen: University of Aberdeen.
Basu, P., & Guariglia, A. (2008). Does low education delay structural transformation? *Southern Economic Journal, 75*(1), 104–127.
Bebbington, A. (1999). Capitals and capabilities: A framework for analyzing peasant viability, rural livelihoods and poverty. *World Development, 27*(12), 2021–2044.
Behrman, J., & Sengupta, P. (2005). Changing contexts in which youth are transitioning to adulthood in developing countries: Converging toward developed economies. In C. B. Lloyd, J. R. Behrman, N. P. Stromquist, & B. Cohen (Eds.), *The changing transitions to adulthood in developing countries: Selected studies* (pp. 13–55). Washington, DC: The National Academies Press.
Berckmoes, L., & White, B. (2014). Youth, farming and precarity in rural Burundi. *European Journal of Development Research, 26*(2), 190–203.
Blackden, M., Canagarajah, S., Klasen, S., & Lawson, D. (2007). *Gender and growth in Sub-Saharan Africa: Issues and evidence* (WIDER Research Paper, No. 2006/37). London: Palgrave Macmillan.
Bryceson, D. F. (2002). The scramble in Africa: Reorienting rural livelihoods. *World Development, 30*(5), 725–739.
Chigunta, F., Schnurr, J., James-Wilson, D., & Torres, V. (2005). *Being "real" about youth entrepreneurship in eastern and southern Africa: Implications for adults, institutions and sector structure* (SEED Working Paper No. 72). Geneva: International Labour Office.
Clogg, C. C., Petkova, E., & Haritou, A. (1995). Statistical methods for comparing regression coefficients between models. *American Journal of Sociology, 100*(5), 1261–1293.
Doss, C. R., Deere, C. D., Oduro, A. D., & Swaminathan, H. (2014). The gender asset and wealth gaps. *Development, 57*(3–4), 400–409.
Doss, C. R., Kovarik, C., Peterman, A., Quisumbing, A. R., & van den Bold, M. (2015). Gender inequalities in ownership and control of land in Africa: Myth and reality. *Agricultural Economics, 46*(3), 403–434.
Elder, S., de Haas, H., Principi, M., & Schewel, K. (2015). *Youth and rural development: Evidence from 25 school-to-work transition surveys* (Work4Youth Publication Series No. 29). Geneva: International Labour Office.
Elder, S., & Kring, S. (2016). *Young and female - a double strike? Gender analysis of school-to-work transition surveys in 32 developing countries* (Work4Youth Publication Series No. 32). Geneva: International Labour Office.
Fafchamps, M., & Quisumbing, A. R. (2007). Household formation and marriage markets in rural areas. In T. P. Schultz & J. Strauss (Eds.), *Handbook of development economics* (Vol. 4, pp. 3187–3247). Amsterdam, Netherlands: Elsevier.

Fares, J., Montenegro, C. E., & Orazem, P. F. (2006). *How are youth faring in the labor market? Evidence from around the word* (World Bank Policy Research Working Paper No. 4071). Washington, DC: World Bank.

Fox, L., Senbet, L. W., & Simbanegavi, W. (2016). Youth employment in Sub-Saharan Africa: Challenges, constraints and opportunities. *Journal of African Economies*, 25(1), i3–i15.

Glewwe, P., & Muralidharan, K. (2016). Improving education outcomes in developing countries: Evidence, knowledge gaps, and policy implications. In E. A. Hanushek, S. Machin, & L. Woessmann (Eds.), *Handbook of the economics of education* (Vol. 5, pp. 653–743). Amsterdam, Netherlands: Elsevier.

Hajdu, F., Ansell, N., Robson, E., & van Blerk, L. (2013). Rural young people's opportunities for employment and entrepreneurship in globalised southern Africa: The limitations of targeting policies. *International Development Planning Review*, 35(2), 155–174.

Hallman, K. K., Kenworthy, N. J., Diers, J., Swan, N., & Devnarain, B. (2015). The shrinking world of girls at puberty: Violence and gender-divergent access to the public sphere among adolescents in South Africa. *Global Public Health*, 10 (3), 279–295.

ICF International. (2018). *Demographic and health surveys: 1993-2016* [Datasets].

IFAD (2019). Rural Development Report 2019: Creating opportunities for rural youth. Rome: International Fund for Agricultural Development.

Kieran, C., Sproule, K., Quisumbing, A. R., & Doss, C. R. (2017). Gender gaps in landownership across and within households in four Asian countries. *Land Economics*, 93(2), 342–370.

Klasen, S., & Lamanna, F. (2009). The impact of gender inequality in education and employment on economic growth: New evidence for a panel of countries. *Feminist Economics*, 15(3), 91–132.

Knowles, S., Lorgelly, P. K., & Owen, P. D. (2002). Are educational gender gaps a brake on economic development? Some cross-country empirical evidence. *Oxford Economic Papers*, 54(1), 118–149.

Kosec, K., Ghebru, H., Holtemeyer, B., Mueller, V., & Schmidt, E. (2018). The effect of land access on youth employment and migration decisions: Evidence from rural Ethiopia. *American Journal of Agricultural Economics*, 100(3), 931–954.

Lloyd, C. B. (Ed.). (2005). *Growing up global: The changing transitions to adulthood in developing countries*. Washington, DC: National Academies Press.

Losch, B. (2016). *Structural transformation to boost youth labour demand in Sub-Saharan Africa: The role of agriculture, rural areas and territorial development* (Employment Working Paper No. 204). Geneva: International Labour Office.

Marotta, D., Prettitore, P., & Verme, P. (2015). *Gender inequality, structural transformation and growth: The case of Morocco* (MFM Working Paper No. 8). Washington, DC: World Bank.

Meinzen-Dick, R., Johnson, N., Quisumbing, A. R., Njuki, J., Behrman, J., Rubin, D., … Waithanji, E. (2011). *Gender, assets, and agricultural development programs: A conceptual framework* (CAPRi Working Paper No. 99). Washington, DC: International Food Policy Research Institute.

Reardon, T., Stamoulis, K., & Pingali, P. (2007). Rural nonfarm employment in developing countries in an era of globalization. *Agricultural Economics*, 37(1), 173–183.

Selwaness, I., & Krafft, C. (2018). *The dynamics of family formation and women's work: What facilitates and hinders female employment in the Middle East and North Africa?* (Economic Research Forum Working Paper Series No. 1192). Cairo, Egypt: The Economic Research Forum.

Van den Broeck, G., & Kilic, T. (2019). Dynamics of off-farm employment in Sub-Saharan Africa: A gender perspective. *World Development*, 119, 81–99.

Vossenberg, S. (2013). *Women entrepreneurship promotion in developing countries: What explains the gender gap in entrepreneurship and how to close it?* (Maastricht School of Management Working Paper Series No. 8). Maastricht, The Netherlands: Maastricht School of Management.

White, S., & Kenyon, P. (2007). *Enterprise-based youth employment policies, strategies and programmes: Initiatives for the development of enterprise action and strategies* (Working Paper No. 1). Geneva: Internatnional Labour Organization.

Yeboah, F. K., & Jayne, T. S. (2018). Africa's evolving employment trends. *The Journal of Development Studies*, 54(5), 803–832.

Appendix

Table A1. Multinomial probit results for rural youth land ownership outcomes, by sex, marginal effects reported

	Any sole ownership			Joint ownership only		
	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients
ST: Share of non-agriculture in GDP (%)	0.18	1.18***	***	−0.40***	0.88***	***
	(0.11)	(0.18)		(0.12)	(0.17)	
RT: Agricultural value added per worker (millions, 2016 USD)	−0.01***	−0.01***	***	−0.02***	−0.01***	***
	(0.00)	(0.00)		(0.00)	(0.00)	
Age (15–17=reference group)						
18–21	0.01***	0.03***	***	0.02***	0.02***	**
	(0.00)	(0.00)		(0.00)	(0.00)	
22–24	0.01***	0.06***	***	0.02***	0.03***	***
	(0.00)	(0.00)		(0.00)	(0.00)	
Years of schooling	0.00***	0.00***		0.00***	0.00***	**
	(0.00)	(0.00)		(0.00)	(0.00)	
Ever married or in-union	0.04***	0.08***	**	0.08***	0.06***	*
	(0.00)	(0.01)		(0.00)	(0.00)	
Relationship to head of household (Daughter/son=reference group)						
Self	0.07***	0.09***	***	0.05***	0.02***	***
	(0.00)	(0.01)		(0.01)	(0.01)	
Spouse	0.03***	0.00	***	0.09***	−0.03**	***
	(0.00)	(0.02)		(0.00)	(0.02)	
Daughter/Son in law	0.00	−0.03**	***	0.01***	−0.04***	***
	(0.00)	(0.01)		(0.00)	(0.01)	
Other	−0.01***	−0.01***		0.00	−0.01**	***
	(0.00)	(0.00)		(0.00)	(0.00)	
Parenthood status (Respondent is not a parent; no children <5 in HH=reference group)						
Respondent is not a parent; child <5 in HH	−0.01***	−0.03***	***	−0.01***	−0.02***	***
	(0.00)	(0.00)		(0.00)	(0.00)	
Respondent is a parent; no children <5 in HH	−0.00	−0.01	*	−0.01	−0.06***	***
	(0.01)	(0.01)		(0.01)	(0.01)	
Respondent is a parent; child <5 in HH	0.01**	0.00		0.00	−0.00	
	(0.00)	(0.01)		(0.00)	(0.01)	
Log of household size	−0.01***	−0.02***	*	0.00	0.01***	**

(*continued*)

Table A1. (*Continued*)

	Any sole ownership			Joint ownership only		
	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients
Wealth index	(0.00) −0.00 (0.00)	(0.00) 0.00 (0.00)		(0.00) −0.00* (0.00)	(0.00) −0.00** (0.00)	
Observations	148,630	70,125		148,630	70,125	

Note: Standard errors account for the multi-stage survey design.
Data are pooled from 36 Demographic and Health Surveys between 2010 and 2016, for youth aged 15–24 years.
Cameroon is excluded from the land ownership analyses, because land ownership data was not collected.
*p < 0.1; **p < 0.05; ***p < 0.01.

Table A2. Probit results for rural youth employment outcomes, by sex, marginal effects reported

	Currently employed			NEET			On-farm employment activity among those currently employed		
	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients
ST: Share of non-agriculture in GDP (%)	-4.93***	-0.67***	***	3.25***	1.85***		0.65**	-1.25***	***
	(0.19)	(0.23)		(0.15)	(0.17)		(0.32)	(0.31)	
RT: Agricultural value added per worker (millions, 2016 USD)	-0.00*	0.00***	***	0.01***	-0.00***	***	-0.06***	-0.01***	***
	(0.00)	(0.00)		(0.00)	(0.00)		(0.00)	(0.00)	
Age category (age 15–17=reference group)									
18–21	0.12***	0.19***	***	0.16***	0.08***	***	-0.07***	-0.08***	***
	(0.00)	(0.00)		(0.00)	(0.00)		(0.01)	(0.01)	
22–24	0.17***	0.33***	***	0.17***	0.08***	***	-0.12***	-0.12***	***
	(0.00)	(0.00)		(0.00)	(0.00)		(0.01)	(0.01)	
Years of schooling	-0.01***	-0.04***	***	-0.02***	0.01***	***	-0.01***	-0.02***	***
	(0.00)	(0.00)		(0.00)	(0.00)		(0.00)	(0.00)	
Ever married or in-union	-0.04***	0.21***	***	0.18***	-0.08***	***	0.02**	-0.04***	***
	(0.01)	(0.01)		(0.00)	(0.00)		(0.01)	(0.01)	
Relationship to head of household (Daughter/son=reference group)									
Self	0.01	0.05***	***	-0.06***	-0.05***	***	-0.01	0.05***	***
	(0.01)	(0.01)		(0.01)	(0.01)		(0.01)	(0.01)	
Spouse	0.01	-0.02		-0.06***	-0.03**		0.04***	-0.06**	***
	(0.01)	(0.02)		(0.00)	(0.02)		(0.01)	(0.03)	
Daughter/Son in law	-0.15***	0.14***	***	0.12***	-0.08***	***	0.07***	0.02	**
	(0.01)	(0.03)		(0.00)	(0.02)		(0.01)	(0.02)	
Other	-0.02***	-0.01**		-0.01*	-0.01***	**	-0.03***	0.00	***
	(0.00)	(0.00)		(0.00)	(0.00)		(0.01)	(0.01)	
Parenthood status (Respondent is not a parent; no children <5 in HH=reference group)									
Respondent is not a parent; child <5 in HH	0.03***	0.03***	***	0.04***	-0.01*	***	0.00	0.03***	**
	(0.00)	(0.00)		(0.00)	(0.00)		(0.01)	(0.01)	
Respondent is a parent; no children <5 in HH	0.04***	0.07***	*	0.01	-0.04***	***	-0.01	0.04**	*

(continued)

Table A2. (*Continued*)

	Currently employed			NEET			On-farm employment activity among those currently employed		
	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients	Female	Male	Test of difference in coefficients
Respondent is a parent; child <5 in HH	0.03***	0.05***	*	0.02***	−0.04***	***	0.04***	0.03***	
	(0.01)	(0.02)		(0.01)	(0.01)		(0.01)	(0.02)	
Log of household size	−0.02***	−0.01**		−0.02***	0.00	***	−0.02***	0.02***	***
	(0.00)	(0.01)		(0.00)	(0.01)		(0.01)	(0.01)	
Wealth index	−0.01***	−0.03***	***	0.00***	0.01***	***	−0.04***	−0.03***	*
	(0.00)	(0.00)		(0.00)	(0.00)		(0.01)	(0.01)	
Observations	151,811	71,357		193,137	71,300		53,741	42,792	

Note: Standard errors account for the multi-stage survey design.
Data are pooled from 36 Demographic and Health Surveys between 2010 and 2016, for youth aged 15–24 years.
Burkina Faso, Mozambique, and Uganda did not ask about on-farm employment and were excluded from these analyses.
*p < 0.1; **p < 0.05; ***p < 0.01.