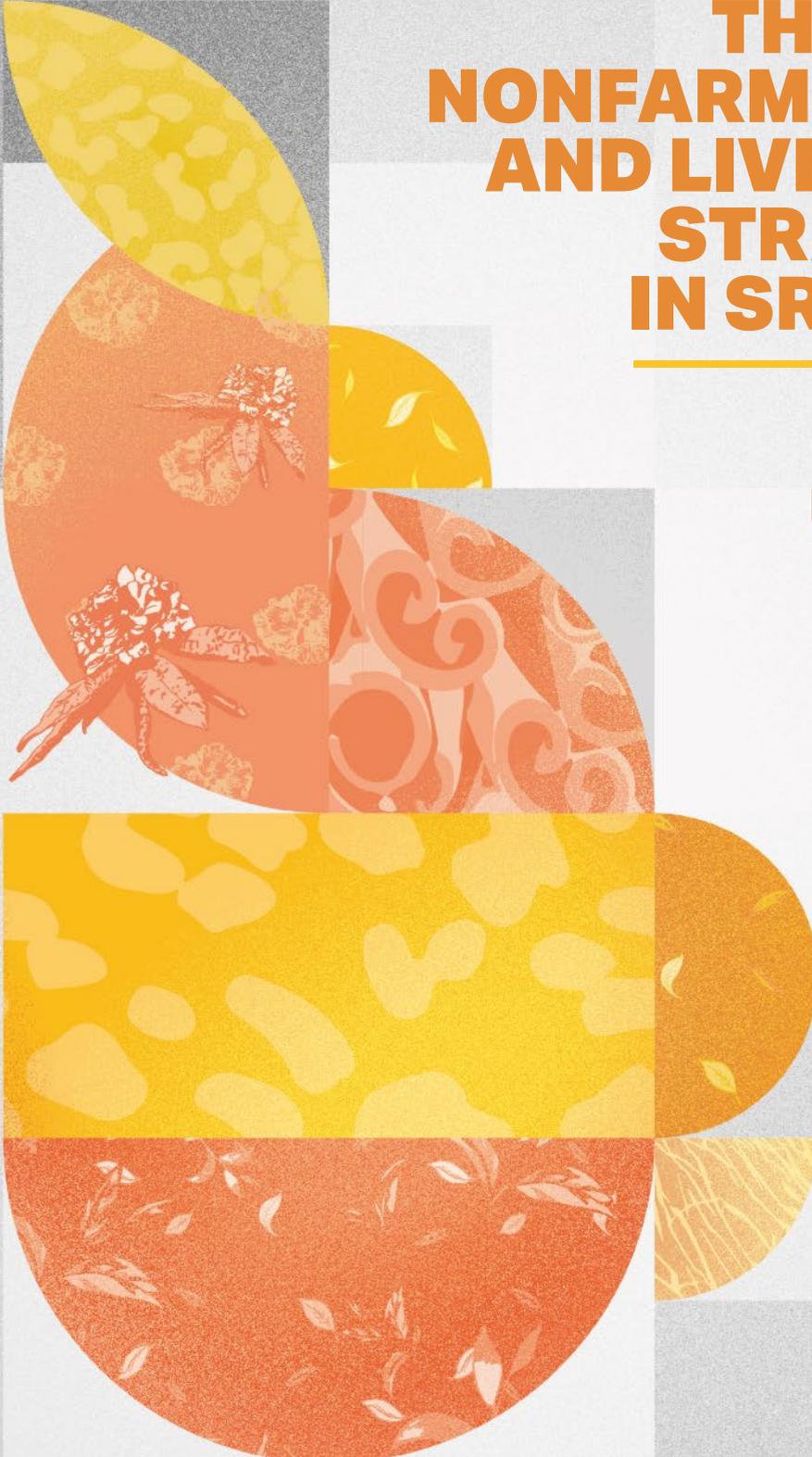


THE RURAL NONFARM SECTOR AND LIVELIHOOD STRATEGIES IN SRI LANKA

Background report
to Sri Lanka
Poverty Assessment



THE RURAL NONFARM SECTOR AND LIVELIHOOD STRATEGIES IN SRI LANKA

Background report
to Sri Lanka
Poverty Assessment

© 2021 International Bank for Reconstruction
and Development / The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy, completeness, or currency of the data included in this work and does not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of The World Bank, all of which are specifically reserved.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Cover design and typesetting: Wojciech Woloczniak,
Cambridge, United Kingdom

Interior design: Piotr Ruczyński, London, United Kingdom

Contents

Acknowledgements	6
Executive summary	7
1. Introduction	8
2. Overview of rural nonfarm livelihoods in Sri Lanka	12
Patterns of rural nonfarm activities	13
Household nonfarm diversification strategies	18
3. Rural nonfarm employment and incomes	20
Determinants of individual participation in rural nonfarm activities	21
Determinants of household income diversification	25
4. Conclusion	30
References	32

Figures

Figure 1	Employment share of agriculture, industry, and services	9
Figure 2	\$3.20 per day poverty headcount	9
Figure 3	Farm employment and nonfarm employment, by broad sector of activity and employment status	13
Figure 4	Public and private sector employment in farm and nonfarm sectors by gender	14
Figure 5	Skilled and unskilled employment in farm and nonfarm sectors by gender	14
Figure 6	Structure of rural farm and nonfarm employment: Self-employment vs. wage employment, private vs. public, and skilled vs. unskilled	16
Figure 7	Activity-based share of households in different farm/nonfarm portfolios by income quintile	18
Figure 8	Income-based share of specialized vs. diversified households by income quintile	19

Tables

Table 1	Share of farm and nonfarm rural workers by occupation and skill level	14
Table 2	Share of rural workers by detailed nonfarm sector	15
Table 3	Characteristics of individual rural workers by detailed activity type	16
Table 4	Multinomial logit estimations of participation in nonfarm activities: Relative risk ratio	22
Table 5	Per capita household income shares and levels by type of farm and nonfarm activity	25
Table 6	Tobit estimations of the intensity of participation: Rural households	28

Acknowledgements

This report was prepared as a background paper to “Sri Lanka Poverty Assessment. Accelerating Economic Transformation”. It was written by Yeon Soo Kim (Senior Economist, Poverty and Equity Global Practice), Emiko Fukase (Consultant) and Cristina Chiarella (Consultant). The work was carried out under the overall guidance of Faris H. Hadad-Zervos (Country Director for Sri Lanka, Nepal and Maldives), Zoubida Allaoua (Regional Director, South Asia), Chiyo Kanda (Country Manager, Sri Lanka and Maldives), Tae Hyun Lee (Lead Country Economist), and Andrew Dabalen (Practice Manager, Poverty and Equity). Comments from peer reviewers Ambar Narayan (Lead Economist) and Nistha Sinha (Senior Economist) are gratefully acknowledged. The team would like to thank the Government of Sri Lanka for its support and the Department of Census and Statistics (dcs) for sharing its data. Any remaining errors are the responsibility of the authors.

Executive summary

Sri Lanka's economy underwent steady structural transformation over the last two decades. During this time, economic activities increasingly shifted toward industry and services. Poverty fell significantly during this period, mainly led by nonfarm income growth. The nature of rural nonfarm activities is quite heterogeneous and nonfarm activities can entail low-return activities. Understanding the nature of the rural nonfarm economy is a first step towards assessing its potential to facilitate economic transformation and where policy interventions could be useful.

The main findings are two-fold. First, there has been a clear shift from farm to nonfarm activities over the last decade, and livelihoods sources vary significantly across the income distribution. For example, poor households are much more likely to be engaged in farm activities or wage employment in industries, whereas rich households have a higher likelihood of working in services. While both farm and nonfarm activities are vital to support rural livelihoods, it is the nonfarm sector that engages the majority of rural workers. Second, better education is strongly associated with higher participation and pay-off from nonfarm activities. Interestingly, education does not seem to influence the choice between engaging in farm and unskilled nonfarm employment, highlighting a possible skills barrier to moving to better-paying nonfarm jobs.

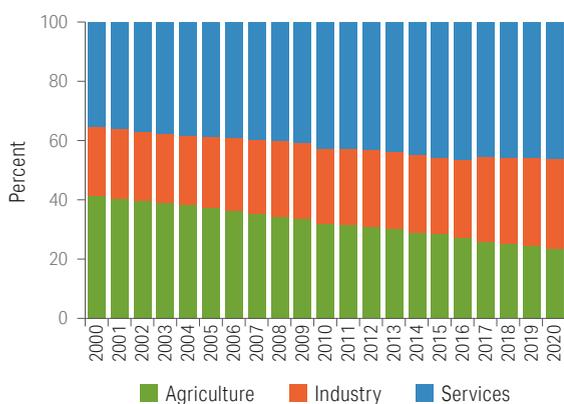
1.

Introduction

Sri Lanka's economy underwent steady structural transformation over the last two decades. The share of agriculture in gross domestic product was reduced by more than half between 2000 and 2019, from 19.9 percent to 8.0 percent. At the same time, the contribution of services increased significantly, from 52.8 percent to 62.6 percent over the same period. More employment opportunities were created in the nonfarm sector (figure 1).

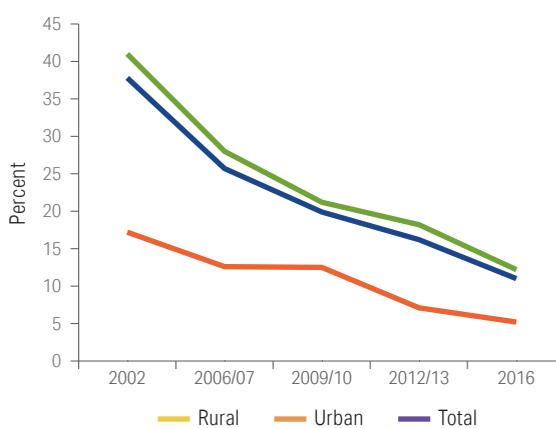
Poverty fell significantly during this period, mainly led by income growth. Between 2002 and 2016, the poverty rate at \$3.20 per person per day (in 2011 purchasing power parity terms) fell from 37.8 percent to 11 percent, driven by improvements in rural areas where the majority of the poor reside (figure 2). Previous analysis has shown that growth in labor incomes was the primary contributor to this progress and has highlighted the role of nonfarm incomes throughout the period; see Ceriani, Inchauste, and Olivieri (2015) and World Bank (2021). Because of its low productivity, the farm sector is limited in its potential to contribute greatly to growth, whereas opportunities in the nonfarm sector present an important pathway through which rural households can increase their incomes and further reduce poverty. For example, before the COVID-19 pandemic, growth in the services sector was underpinned by a rapidly emerging tourism industry. World Bank (2021) includes an extensive discussion of the drivers of poverty reduction in recent years.

FIGURE 1 Employment share of agriculture, industry, and services



Source: World Development Indicators Database.

FIGURE 2 \$3.20 per day poverty headcount



Source: World Bank staff calculation using HIES.

Farm to nonfarm diversification generally leads to welfare improvements, especially for those engaged in subsistence agriculture, and this was also the case in Sri Lanka. The rural household economic model predicts that diversification is a function of on-farm returns on labor time compared to off-farm opportunities,¹ subject to a given asset base such as land, infrastructure, and household labor

1. Income that is not generated from one's own land is referred to as "off-farm" income.

(Ellis 2000). The allocation of assets across various activities would aim to achieve an optimal balance between expected returns and risk exposure, conditional on the constraints that households face. Traditional drivers of income diversification have been characterized as a result of “push” and “pull” factors (Barrett, Reardon, and Webb 2001). Push factors that drive diversification include risk reduction, response to diminishing factor returns, response to adverse shocks (Kochar 1999; Harrower and Hoddinott 2005) or liquidity constraints, and high transaction costs. Pull factors include the strategic complementarities between activities and specialization according to comparative advantages (Ellis 2000). The rural nonfarm sector is widely associated with poverty reduction (Lanjouw and Lanjouw 2001), risk reduction (Ellis 2000; Haggblade, Hazell, and Reardon 2010), and higher income (Haggblade, Hazell, and Reardon 2010).

Yet as documented in previous studies, households may also face various barriers to nonfarm diversification. For example, households with less capital have fewer opportunities to diversify into nonfarm work or livestock activities (Abdulai and CroleRees 2001; Aloba Loison 2015). Constraints to diversification have included issues with imperfect markets such as labor shortages or fragmented land holdings (Barrett et al. 2001), as well as lack of access to roads, markets, credit, and assets such as education (Escobal 2001; Abdulai and CroleRees 2001).

Understanding the nature of the rural nonfarm economy is thus a first step toward assessing its potential to facilitate economic transformation, and identifying where policy interventions could be useful. We use detailed household-level information from the Household Income and Expenditure Survey (HIES) to examine the prevalence and characteristics of farm and nonfarm activities; then explore which individual and household characteristics are more likely to be associated with nonfarm diversification, in terms of both participation in the sector and earnings.²

The analysis has two main findings. First, there has been a clear shift from farm to nonfarm activities, with most of the increase occurring in skilled employment, and livelihoods sources vary significantly across the income distribution. This is indicative of the economic transformation that has been occurring gradually over the past decade. The nature of nonfarm activities is quite heterogeneous. While both farm and nonfarm activities are vital to support rural livelihoods, it is the nonfarm sector that engages the majority of rural workers. However, this distinction does not mean that a clear dichotomy exists between the two: some rural nonfarm activities are linked to the broader agricultural value chain through input supply, processing, transportation, and marketing. The food and beverage manufacturing

2. The information is from the Household Income and Expenditure Survey (HIES) conducted by the Department of Census and Statistics (DCS); annual surveys can be found on the DCS website at <http://www.statistics.gov.lk/page.asp?page=Income%20and%20Expenditure>.

sector is one such example. Second, better education is strongly associated with higher participation in and payoff from nonfarm activities. Interestingly, education does not seem to influence the choice between engaging in farm employment and unskilled nonfarm employment, highlighting a possible skills barrier to better-paying nonfarm jobs. This is consistent with previous studies that find that better education tends to lead to better remuneration.



2.

Overview of rural nonfarm livelihoods in Sri Lanka

Patterns of rural nonfarm activities

A large majority of the working population in rural Sri Lanka is engaged in nonfarm activities.³ We start with a detailed characterization of the different activities that are prevalent in rural Sri Lanka. These include farm and nonfarm activities (broadly in industry and services), each of which is disaggregated into self-employment and wage employment. We focus on an individual's primary employment for the most part.⁴ Employment growth in the past decade was led by services (net gain of nearly 430,000 jobs between 2006 and 2016). A large number of wage jobs were created in both services and industry. Most of the loss in employment in the farm sector came from wage jobs (net loss of 35,000 jobs) (figure 3).⁵ In 2016, there were more than 6.4 million rural workers, of whom around 3.3 million were in nonfarm wage employment and 1.3 million in nonfarm self-employment, with the remainder in farming. In total, about 71 percent of rural workers were engaged in nonfarm activities.

FIGURE 3 Farm employment (left) and nonfarm employment (right), by broad sector of activity and employment status



Source: World Bank staff calculation using HIES.

Note: Two graphs use different scales. Numbers are for rural areas only.

Both men and women made gains in attaining nonfarm skilled employment, with women being more likely to have found a job in the public sector. The public sector created nearly 20 percent of all new jobs between 2006 and 2016, and women took up about 80 percent of them (figure 4). Skilled jobs accounted for an overwhelming majority of employment growth over the same period (figure 5), resulting in a total of 3.7 million skilled and 0.9 million unskilled workers in nonfarm sectors in 2016. About a third of the jobs in the farm sector are unskilled occupations, with most of the rest in skilled agriculture, forestry, and fishery. Women in the nonfarm sector are more likely than men to be working in a skilled job, partly because of their overrepresentation in the public sector. Workers who have an elementary occupation are regarded as “unskilled,” while the rest are classified as “skilled.” In fact, the skills distribution of farm and

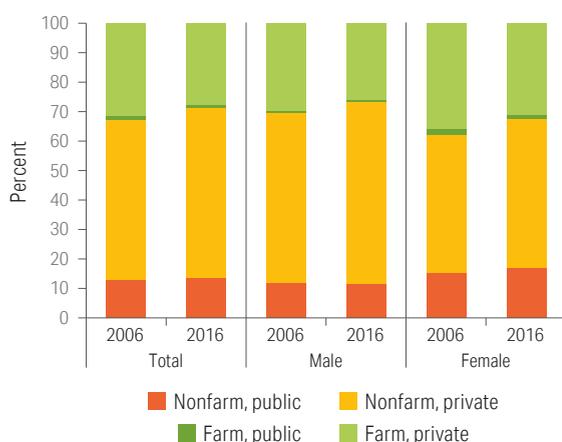
3. All analysis in this note considers rural households only.

4. Since some workers have multiple jobs, the primary job of each individual is identified as follows: those individuals who responded that their main sector of activity is “agriculture” (ISIC 1) are defined as having a farm job and the rest are classified as having nonfarm jobs. When workers had multiple sources of income within the same sector, their employment status (wage or self-employed) was determined based on the amount of income.

5. The historical trend starts in 2006 because there is a large number of missing values in the industry variable in HIES 2002.

nonfarm workers diverges significantly. More than a quarter of rural nonfarm workers are highly skilled, being managers and professionals, compared to less than 2 percent of farm workers. The latter are also much more likely to be in elementary occupations relative to nonfarm workers (table 1).

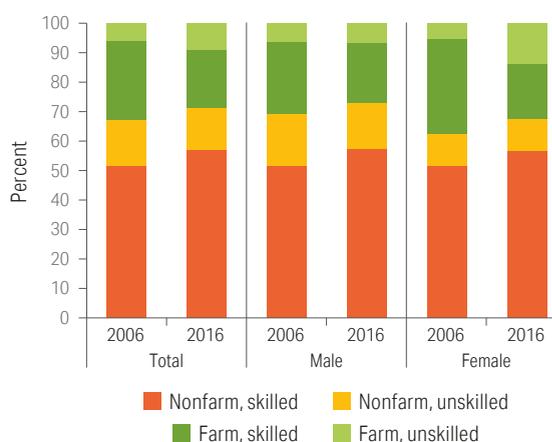
FIGURE 4 Public and private sector employment in farm and nonfarm sectors by gender



Source: World Bank staff calculation using HIES.

Note: Y-axis shows share of rural workers with non-missing information on sector of activity.

FIGURE 5 Skilled and unskilled employment in farm and nonfarm sectors by gender



Source: World Bank staff calculation using HIES.

Note: Y-axis shows share of rural workers with non-missing occupation information.

TABLE 1 Share of farm and nonfarm rural workers by occupation and skill level

	Total	Farm	Nonfarm
Managers	7.6%	0.9%	10.4%
Professionals	5.5%	0.0%	7.6%
Technicians and associate professionals	6.5%	0.7%	8.9%
<i>Subtotal (skill levels 3 and 4)</i>	19.6%	1.7%	26.9%
Clerical support workers	3.4%	0.2%	4.7%
Service and sales workers	8.5%	0.2%	11.9%
Skilled agricultural, forestry, and fishery	19.5%	65.4%	1.0%
Craft and related trades workers	17.2%	1.2%	23.7%
Plant and machine operators; assemblers	8.3%	0.3%	11.6%
<i>Subtotal (skill level 2)</i>	56.9%	67.2%	52.7%
Elementary occupations	23.5%	31.2%	20.4%
<i>Subtotal (skill level 1)</i>	23.5%	31.2%	20.4%
Total	100.0%	100.0%	100.0%

Source: World Bank staff calculation using HIES 2016.

Note: Skill levels are defined using International Labour Organization guidelines. A higher number indicates better skills.

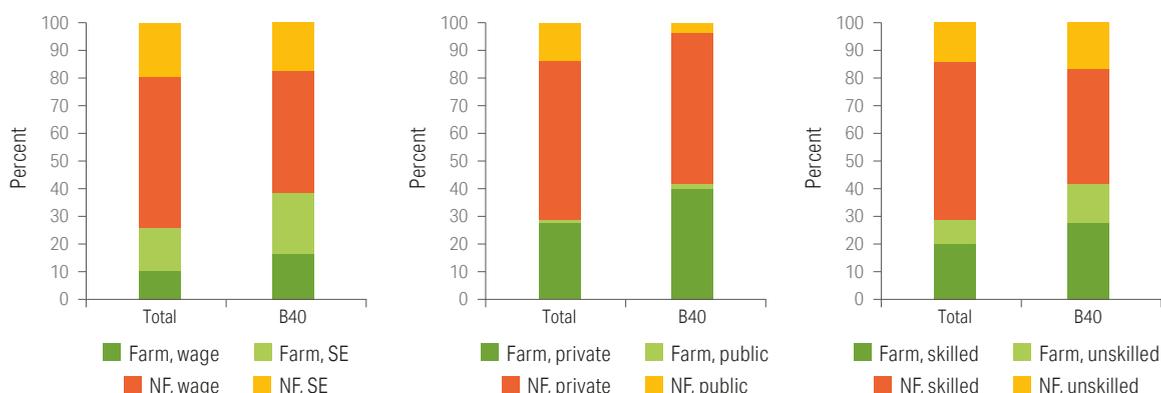
The nature of these nonfarm jobs is quite heterogenous, and there are notable gender differences in activities. A breakdown of the rural nonfarm workforce by detailed sector of activity is shown in table 2, along with the share of female workers in each sector. Wage employment and self-employment activities are not presented separately. Of the rural nonfarm working population, 17.5 percent is engaged in trade-related activities, followed by 11.4 percent in construction, 9.9 percent each in textiles/apparel and public administration, and 8 percent in transport activities. Overall, various services activities account for more than 60 percent of nonfarm activities. The sectoral distribution for rural women slightly differs, in that the largest share of working women is found in textiles/apparel (21.2 percent), followed by trade (17.4 percent); there is also a relatively high share in public administration (11.3 percent), education (12 percent), and health (3.7 percent). This distribution is again related to the higher share of women employed in the public sector (table 2). About 2.2 million out of 6.4 million rural workers belong to the bottom 40 percent of the income distribution (“bottom 40”). About 40 percent of farmers were in the bottom 40. Workers in the bottom 40 are also less likely to be working in the public sector and less likely to be skilled than workers in the top 60 percent (figure 6).

TABLE 2 Share of rural workers by detailed nonfarm sector

	Share of rural nonfarm employment, male and female	Share of rural nonfarm employment, female		Share of rural nonfarm employment, male and female	Share of rural nonfarm employment, female
Mining	1.0%	0.2%	Services		
Industry			Trade	17.5%	17.4%
Manufacture of food, beverages	6.0%	8.3%	Transport	8.0%	0.8%
Manufacture of tobacco	0.8%	2.1%	Warehousing and support	0.5%	0.1%
Manufacture of textiles, apparel	9.9%	21.2%	Postal and courier	0.1%	0.1%
Manufacture of wood, paper, printing	2.1%	0.8%	Accommodation	1.2%	0.7%
Manufacture of chemicals, pharmaceuticals, rubber	1.3%	1.4%	Food and beverage service	2.0%	2.2%
Manufacture of minerals, metals	2.6%	1.4%	Media and communication	0.3%	0.2%
Manufacture of electronics	0.2%	0.1%	Information services	0.2%	0.3%
Manufacture of machinery, vehicles	0.5%	0.5%	Finance and insurance	2.3%	2.9%
Manufacture of furniture	1.1%	0.3%	Real estate	0.1%	0.1%
Other manufacturing	0.8%	0.9%	Professional services	2.7%	1.8%
Repair and installation of machinery	0.5%	0.2%	Public administration and defense	9.9%	11.3%
Utilities	0.7%	0.3%	Education	5.7%	12.0%
Construction	11.4%	1.0%	Human health activities	1.9%	3.7%
			Personal services	2.7%	2.5%
			Other	5.9%	5.3%
			Total	100.0%	100.0%

Source: World Bank staff calculation using HIES 2016.

FIGURE 6 Structure of rural farm and nonfarm employment: Self-employment vs. wage employment (left), private vs. public (center), and skilled vs. unskilled (left)



Source: World Bank staff calculation using HIES 2016.

Note: Y-axis shows share of workers in each activity type. SE = self-employment; NF = nonfarm.

The profile of workers varies significantly for different farm and nonfarm activities. Table 3 shows summary statistics of rural workers by type of activity. The profiles of individual workers shown in these tables are based on their primary job. Public sector employment is the most remunerative source of income (averaging Rs 38,609 a month) followed by nonfarm self-employment (Rs 33,002). In contrast, those who had unskilled nonfarm work as their primary job earned on average only Rs 18,724 a month, reflecting the low returns from unskilled employment. Public sector workers have the highest education achievement; 23 percent hold a bachelor's degree or above. Among farmers, 24 percent had less than primary education, and the majority—60 percent—had only primary education. Farmers who have their own enterprise are on average better educated than wage workers, while the opposite pattern is observed among nonfarm workers. A large share of farmers have access to information technology (IT) equipment in their household.

TABLE 3 Characteristics of individual rural workers by detailed activity type

	Nonfarm (NF) activities								Farm (F) activities		
	Total	NF total	NF SE	NF wage	NF public	NF private	NFskilled	NF unskilled	F total	F SE	F SE
Total monthly income (Rs)	31,162	34,544	41,316	32,548	50,209	30,687	37,492	21,958	21,630	24,415	17,909
Income from main activity (Rs)	25,252	28,399	33,002	26,767	38,609	25,830	30,610	18,724	16,040	16,919	14,705
Gender (= 1 if female, = 0 if male)	0.35	0.33	0.29	0.32	0.44	0.3	0.35	0.27	0.39	0.26	0.4
Age	43.09	41.13	45.1	39.56	40.95	41.18	40.85	42.42	47.96	51.47	44.68

	Nonfarm (NF) activities								Farm (F) activities		
	Total	NF total	NF SE	NF wage	NF public	NF private	NF skilled	NF unskilled	F total	F SE	F SE
Education (share)											
No primary	0.12	0.08	0.08	0.08	0.02	0.09	0.05	0.18	0.24	0.2	0.34
Primary completed	0.54	0.52	0.57	0.49	0.22	0.59	0.48	0.66	0.6	0.6	0.59
O-level passed	0.15	0.17	0.2	0.16	0.18	0.17	0.19	0.1	0.11	0.13	0.05
A-level passed	0.14	0.17	0.13	0.19	0.36	0.13	0.2	0.05	0.05	0.07	0.02
Bachelor's and above	0.04	0.06	0.02	0.08	0.23	0.02	0.07	0	0	0	0
Child dependency ratio	0.21	0.21	0.23	0.21	0.23	0.21	0.21	0.21	0.2	0.18	0.23
Household size	4.21	4.27	4.26	4.26	4.27	4.26	4.28	4.2	4.07	3.9	4.23
Land area owned (share)											
Landless	0.79	0.84	0.84	0.85	0.74	0.87	0.83	0.88	0.65	0.54	0.89
Less than 2 acres	0.15	0.12	0.12	0.11	0.18	0.1	0.12	0.09	0.23	0.29	0.08
Between 2 and 5 acres	0.06	0.04	0.04	0.04	0.07	0.03	0.04	0.02	0.11	0.15	0.02
More than 5 acres	0	0	0	0	0.01	0	0	0	0.01	0.01	0
Access to IT	0.9	0.93	0.93	0.92	0.96	0.92	0.94	0.87	0.84	0.86	0.8
Access to finance	0.07	0.07	0.08	0.07	0.11	0.06	0.07	0.06	0.07	0.08	0.07
Public (= 1 if public, = 0 if private)	0.15	0.19	0	0.27	1	0	0.2	0.12	0.03	0	0.1
Productivity (Rs./acre)	17,055	16,813	16,468	16,964	16,541	16,878	16,634	17,572	17,656	16,715	19,406
Province											
Western	0.21	0.27	0.26	0.28	0.23	0.28	0.28	0.23	0.06	0.06	0.08
Central	0.14	0.13	0.14	0.12	0.12	0.13	0.12	0.15	0.17	0.13	0.22
Southern	0.14	0.12	0.12	0.12	0.13	0.12	0.12	0.13	0.17	0.17	0.18
Northern	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.06	0.05	0.05	0.05
Eastern	0.06	0.05	0.05	0.06	0.07	0.05	0.06	0.04	0.06	0.06	0.08
North Western	0.15	0.15	0.17	0.14	0.14	0.15	0.15	0.14	0.14	0.14	0.11
North Central	0.07	0.06	0.06	0.06	0.08	0.06	0.06	0.06	0.1	0.12	0.04
Uva	0.08	0.05	0.05	0.05	0.07	0.04	0.05	0.05	0.14	0.15	0.1
Sabaragamuwa	0.12	0.11	0.11	0.12	0.1	0.12	0.11	0.13	0.12	0.12	0.15
Observations weighted	6,428,820	4,582,768	1,135,220	3,200,860	876,258	3,706,510	3,648,682	903,731	1,846,051	910,970	600,463

Source: World Bank staff calculation using HIES 2016.

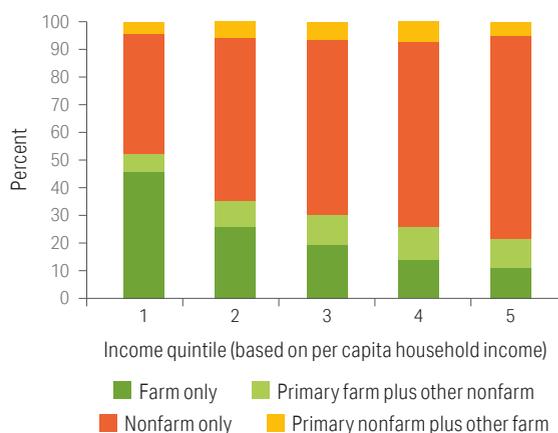
Note: Table shows individual characteristics based on the worker's primary job. Total monthly income includes income from main activity and other activities. The sum of nonfarm wage workers and nonfarm self-employed workers is smaller than the total number of nonfarm workers because of missing information, particularly income. SE = self-employment.

Household nonfarm diversification strategies

Households that specialize in nonfarm activities are less likely to be poor than those in farm activities. This finding is based on analysis that abstracts from detailed activities to consider how diversified economic activities are at the household level. The analysis considers a household as the unit of analysis, as decisions pertaining to economic activities are typically taken jointly and affect the household's combined well-being. The extent of within-household diversification is assessed by considering whether a household's portfolio comprises solely farm- or nonfarm-related activities or a mix of both. The breakdown is presented in figure 7, which shows the share of households engaged in (i) only farm activities; (ii) only nonfarm activities; and (iii) primarily farm (nonfarm) activities and at least one secondary nonfarm (farm) activity. Again, households specializing in farming are significantly more likely to be in the bottom income quintile, whereas most households in all other quintiles are more likely to specialize in nonfarm activities. A relatively small share of households has a mixed portfolio with a primary farm (nonfarm) activity plus at least one nonfarm (farm) activity. Primary activity in this case is based on the household head's occupation.

An income-based concept of specialization can provide a better overview of the relative importance of different labor and nonlabor income sources. Income sources can include income from on-/off-farm employment, nonfarm employment, and nonlabor income (e.g., remittances, social assistance, or windfall). To illustrate how specialized or diversified households are across the distribution, we define a few concepts. A household is considered specialized if 75 percent or more of the household's income is from just one type of activity, e.g., farm self-employment. Incomes from farm wage work and farm self-employment are considered separately for this exercise, as diversification from off-farm opportunities (leading to farm wage income) can also be a strategy to complement household income. Specifically, we define the following categories: specialized in farm self-employment; specialized in farm wage work; specialized in nonfarm self-employment; specialized in nonfarm wage work; specialized in windfall or transfers, when more than 75 percent of household income is from windfall or transfers, respectively; and diversified in farm/nonfarm sector when farm/nonfarm income accounts for more than 75 percent of income but draws from a mix of wage and self-employment activities. Finally, household income is regarded as diversified where no single source of income exceeds 75 percent; this category includes households that combine farm and nonfarm earnings.

FIGURE 7 Activity-based share of households in different farm/nonfarm portfolios by income quintile



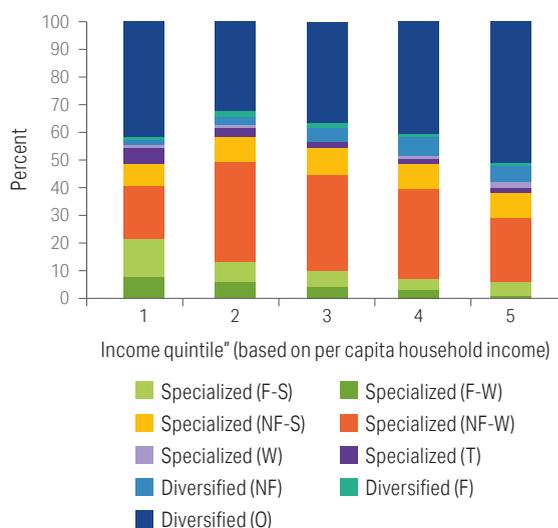
Source: Staff calculation using HIES 2016.

Poorer households tend to specialize more in farm activities, though opportunities for off-farm wage labor appear rather limited; and the level of diversification is higher for the poorest and richest households. Figure 8 shows the outcome of household diversification behavior across the income distribution. The distribution of specialized and diversified households, as defined above, is shown by per capita household income quintile. Like figure 7, figure 8 shows that households in the bottom quintiles are much more reliant on farm incomes. However, it also shows a much higher share of households as diversified than figure 7, which is due to the more detailed breakdown of activities. That is, the level of diversification is generally greater in figure 8 because households that have income from farm wage labor and those that have income from farm self-employment would both be considered under “farm only” in figure 7; but if the respective contribution to income does not exceed 75 percent and there are other sources of income such as transfers, they would be considered “diversified” in figure 8. Income from farm wage labor is concentrated among poorer households, as implied by the relatively low shares it occupies in household income. This could be because there is little demand for farm wage laborers or because on-farm activities absorb most of household labor.

Diversification may entail low-return activities.

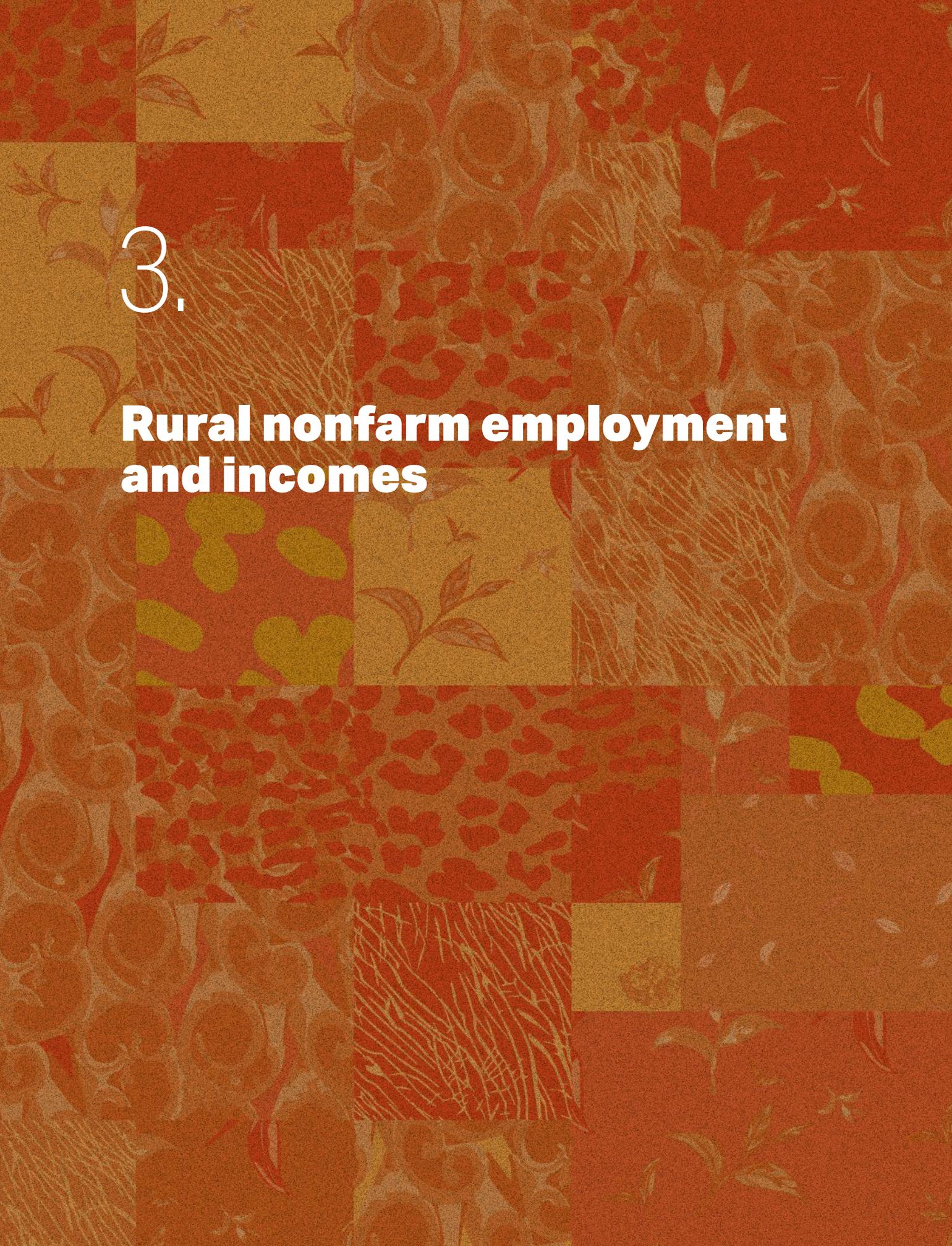
The concept of and preference for diversification needs to be nuanced, as not all diversification leads to higher incomes. Different types of diversification strategies have different returns and can lead to different levels and shares of nonfarm income. It appears from figure 8 that poorer households diversify into relatively low-return activities: they are more likely to diversify within farming (“Diversified (F)”) or draw incomes from multiple labor and non-labor sources (“Diversified (O)”) but continue to be in the lowest quintile. This may be due to differences in endowment—whether land, human capital, livestock, or labor—or differences in returns to similar activities, which could be explained by varying access to markets, for example. The poor are also likely constrained because of the risk accompanying high-return activities that may require specialization. Among poorer households, subsistence farming (especially of paddy) may also result in a more diversified portfolio that is the result of necessity rather than choice.

FIGURE 8 Income-based share of specialized vs. diversified households by income quintile



Source: World Bank staff calculation using HIES 2016.

Note: F-S = farm self-employment; F-W = farm wage work; NF-S = nonfarm self-employment; NF-W = nonfarm wage work; Specialized (W) = more than 75 percent of household income is from windfall; Specialized (T) = more than 75 percent of household income is from transfers; Diversified (F) = farm income accounts for more than 75 percent of income but draws from wage and self-employment activities; Diversified (NF) = nonfarm income accounts for more than 75 percent of income but draws from wage and self-employment activities; Diversified (O) = all other cases where no single source of income exceeds 75 percent.



3.

Rural nonfarm employment and incomes

Determinants of individual participation in rural nonfarm activities

As nonfarm jobs generally lead to higher incomes and lower poverty, it is important to understand the characteristics associated with participating in nonfarm sectors. We first examine what individual and household characteristics are associated with an individual's participation in nonfarm activities. We resort to multivariate regression analysis that can better establish the statistical relationship between nonfarm participation and incomes and various population characteristics, holding other factors equal. It is important to understand the common constraints to taking up nonfarm jobs, such as access to assets (e.g., land, human capital) or technology, since that can help identify the right policies and investments to address those constraints. As nonfarm jobs are highly heterogeneous, it also matters which types of nonfarm jobs are expanding.

Workers are assumed to face three choices in the labor market. Multinomial logit models are used to identify determinants of participation in different types of nonfarm jobs with farm jobs as the reference category.⁶ These can be employed when there are multiple outcomes without a particular order. The three choices available to a worker are farm work and two different types of nonfarm jobs. The models are motivated by a random utility model for the i^{th} individual that is faced with J choices. Let utility of the j^{th} choice be defined as

$$U_{ij} = x_i' \beta_j + \varepsilon_{ij},$$

where x_i is a vector of a set of individual, household, and location characteristics. The probability of person i choosing choice j (P_{ij}) is a nonlinear function, $P_{ij} = P(x_i)$, in which the dependent variable is a logistic function of the explanatory variables.⁷ The dependent variable takes discrete values one through three according to the person's choice ($J = 3$). For the purpose of identification, the coefficient for the outcome of an individual holding a farm job is normalized, and nonfarm job outcomes are estimated. The following individual characteristics are included in the regression: gender, age, age squared, ethnicity, education, and access to finance. The latter is proxied using information from the survey on whether the

6. Some previous studies used a probit model (e.g., Berdegué et al. 2001; Corral and Reardon 2001; Ferreira and Lanjouw 2001).

7. If the individual makes choice j , it is assumed that U_{ij} is the maximum among the J utilities. Thus, the model is driven by the probability that choice j is made, which is $P_{ij} \equiv P(U_{ij} > U_{ik} \text{ for all other } k \neq j)$.

If the error terms are assumed to be independent and identically distributed with the Gumbel distribution, this gives rise to the multinomial logit model. The probability of an individual being in a selected outcome can be expressed as

$$P_{ij} = \frac{\exp(x_i' \beta_j)}{\sum_{k=1}^5 \exp(x_i' \beta_k)} \quad j=1, \dots, 5.$$

The coefficient for the outcome having farm work as primary job (category 1) is set to zero ($\beta_1 = 0$).

individual took a loan. Household characteristics consist of household size, access to IT,⁸ child dependency ratio,⁹ and land ownership. Average yield per acre at the district level is introduced as a proxy for agricultural productivity. In households where the latter is high—perhaps because of agroecologies with high potential—workers may be less likely to participate in nonfarm activities. Province dummies are also added to account for region-specific characteristics that could impact an individual’s choice but are not captured otherwise. These could capture differences resulting from underlying differences in agroecologies, to the extent that they are time-invariant.

Multinomial regression analysis is conducted to help understand the decision to participate in different types of nonfarm employment. The results from the multinomial regression analysis are presented in table 4. The combined group of wage- and self-employed farm workers make up the reference category for all regressions. In regression (1), the reference outcome is compared against nonfarm wage workers (“NF wage”) and nonfarm self-employment (“NF self”). Farmers are compared against nonfarm private sector workers (“NF private”) and public sector workers (“NF public”) in regression (2); and nonfarm unskilled (“NF unskilled”) and nonfarm skilled (“NF skilled”) workers are compared in regression (3). Skilled and unskilled employment are differentiated given the heterogeneity in nonfarm employment and wide variations in incomes. The coefficients are reported in terms of the impact of the variable on the relative risk ratio—that is, the ratio of the probability of each outcome (nonfarm activity) relative to the probability of the base category (in this case, farm activity). This implies that an estimated relative risk ratio of greater (less) than 1 indicates that the explanatory variable increases (reduces) the probability of the individual being engaged in nonfarm employment relative to a farm employment.

TABLE 4 Multinomial logit estimations of participation in nonfarm activities: Relative risk ratio

Dependent variable	(1)		(2)		(3)	
	NF wage	NF self	NF private	NF public	NF unskilled	NF skilled
Female	0.793*** (0.03)	0.848*** (0.04)	0.629*** (0.02)	0.723*** (0.04)	0.553*** (0.03)	0.684*** (0.02)
Age	0.951*** (0.01)	1.003 (0.01)	0.951*** (0.01)	1.233*** (0.02)	0.957*** (0.01)	0.979*** (0.01)
Age squared	1.00000 (0.00)	1.00000 (0.00)	1.000** (0.00)	0.997*** (0.00)	1.00000 (0.00)	1.00000 (0.00)
Education						
Primary completed	1.669*** (0.09)	2.257*** (0.15)	1.691*** (0.08)	3.403*** (0.47)	0.995 (0.06)	2.474*** (0.13)

8. Access to IT indicates whether any household member had expenditure on a mobile phone, e-mail/internet, or computer.

9. Child dependency ratio is defined as the number of children under 10 years of age divided by the number of family members ages 10 or above.

Dependent variable	(1)		(2)		(3)	
	NF wage	NF self	NF private	NF public	NF unskilled	NF skilled
O-level passed	3.066*** (0.22)	4.654*** (0.40)	2.610*** (0.16)	15.47*** (2.25)	0.864* (0.08)	5.269*** (0.35)
A-level passed	7.250*** (0.63)	6.131*** (0.63)	3.994*** (0.32)	64.94*** (9.72)	1.005 (0.11)	12.24*** (1.00)
Bachelor's and above	47.50*** (10.90)	10.65*** (2.83)	7.930*** (1.71)	583.5*** (142.00)	0.492 (0.24)	69.89*** (14.90)
Ethnicity						
Sri Lanka Tamil	0.490*** (0.04)	0.488*** (0.05)	0.569*** (0.04)	0.307*** (0.05)	0.634*** (0.07)	0.507*** (0.04)
Indian Tamil	0.370*** (0.03)	0.227*** (0.03)	0.432*** (0.03)	0.331*** (0.06)	0.590*** (0.06)	0.337*** (0.03)
Sri Lanka Moor	1.13 (0.11)	2.104*** (0.22)	1.760*** (0.16)	0.731** (0.10)	1.176 (0.14)	1.795*** (0.17)
Other	0.574 (0.22)	0.94 (0.38)	0.883 (0.30)	0.113** (0.11)	0.201** (0.16)	0.948 (0.34)
Child dependency ratio	0.608*** (0.04)	1.007 (0.07)	0.784*** (0.04)	0.707*** (0.06)	0.785*** (0.06)	0.770*** (0.04)
Household size	1.039*** (0.01)	1.057*** (0.02)	1.024** (0.01)	1.034* (0.02)	1.004 (0.01)	1.036*** (0.01)
Land ownership						
Less than 2 acres	0.379*** (0.02)	0.362*** (0.02)	0.330*** (0.02)	0.518*** (0.04)	0.311*** (0.02)	0.366*** (0.02)
2 – 5 acres	0.209*** (0.02)	0.261*** (0.03)	0.189*** (0.01)	0.338*** (0.03)	0.149*** (0.02)	0.233*** (0.02)
More than 5 acres	0.189*** (0.05)	0.147*** (0.06)	0.172*** (0.04)	0.270*** (0.10)	0.213*** (0.08)	0.188*** (0.04)
Access to IT equipment	1.261*** (0.08)	1.672*** (0.13)	1.348*** (0.07)	1.824*** (0.19)	1.034 (0.07)	1.615*** (0.09)
Access to finance	1.007 (0.07)	1.094 (0.09)	1.013 (0.06)	1.636*** (0.14)	0.944 (0.08)	1.169** (0.07)
District productivity	1.000*** (0.00)	1.000*** (0.00)	1.000*** (0.00)	1.000*** (0.00)	1.000*** (0.00)	1.000*** (0.00)
Observations	23,532	23,532	25,868	25,868	25,754	25,754

Source: World Bank staff estimation using HIES 2016.

Note: The coefficients are reported in terms of the impacts of the variables on the relative risk ratios; that is, the ratios of the probability of each outcome relative to the probability of the base category. Thus, an estimated coefficient more (less) than one indicates that the explanatory variable increases (reduces) the probability of the individual selecting each nonfarm activity category relative to have farm job as his/her primary job. Province dummies are included. NF = nonfarm. Omitted categories are no primary (education), Sinhala (ethnicity), and landless (land ownership).

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.

The probability of working in the farm sector decreases monotonically for workers with higher educational attainment. Education is an overall important determinant of nonfarm involvement. The/ relative risk ratios for the education dummies in regressions (1) and (2) are greater than 1 and statistically significant at the 1 percent level. For example, the relative risk ratios of 1.67 for primary, 3.07 for O-level,

and 7.25 for A-level education in regression (1) increase with educational attainment, implying that the probability of participating in nonfarm wage work rises with higher levels of education. In other words, workers with better education prefer to be in nonfarm employment, irrespective of employment status (wage or self-employment in regression (1)) or public/private sector employment (regression (2)). The magnitude of the relative risk ratio increases monotonically for higher levels of education, particularly for public sector jobs, highlighting the importance of education for participating in nonfarm work and generating higher incomes. A similar relationship is observed between farm and skilled nonfarm employment, with better-educated workers preferring the latter.

Interestingly, education does not seem to influence the choice between engaging in farm employment and unskilled nonfarm employment. The relative risk ratios for the education dummies for unskilled nonfarm workers in regression (3) are smaller than 1 or statistically insignificant. This suggests that education does not make a difference in the probability of engaging in either farm or unskilled nonfarm activities, likely reflecting the skills barrier to high-paying nonfarm employment. This result echoes previous findings in the literature: for instance, Barrett et al. (2001) discuss education as one of the most important determinants of nonfarm earnings, especially in more remunerative wage employment; Ferreira and Lanjouw (2001) differentiate nonfarm work into high-return activities and “last-resort” options in Brazil and find that primary education levels are still positively associated with low-return nonfarm employment. However, this relationship disappears at higher levels of education and even becomes negative for the highest education category in Brazil. Not all nonfarm activities are likely to be better alternatives to farming, implying that the most discernible impact on poverty would come about when rural nonfarm opportunities offer sufficiently high remuneration levels. Owning land appears to favor farm activities.

Female workers are less likely to participate in nonfarm activities, while access to land and higher agricultural productivity are also associated with lower nonfarm participation. The relative risk ratio for the gender dummy is smaller than 1 for all regressions in table 4, implying that women are less likely to be engaged in nonfarm jobs. The likelihood of participating in nonfarm over farm activities tends to decrease with age. For public sector employment, the likelihood of participation appears to peak at around age 39. Larger household size increases the likelihood of participation in nonfarm activities, possibly because larger labor supply in the presence of land constraints may lead rural households to diversify. In fact, the size of average land holdings is small, with less than 5 percent of farm households owning more than 2 acres of land (table 3). All else equal, greater access to land is associated with a smaller probability of nonfarm employment. As expected, individuals who reside in districts with lower agricultural productivity are more likely to participate in nonfarm activities. Lower agricultural productivity resulting from low agroecological potential could also push some household members into nonfarm work. Access to IT equipment is also associated with higher nonfarm participation.

Determinants of household income diversification

Income shares are a common measure of household livelihood diversification strategies (Barrett, Reardon, and Webb 2001). We examine the vector of income shares associated with different income sources to capture household-level diversification. The livelihoods of rural households generally involve multiple income-generating activities by household members (Barrett, Reardon, and Webb 2001; Kilic et al. 2009).

TABLE 5 Per capita household income shares and levels by type of farm and nonfarm activity

a. Income shares

Quintile	Farm self	Farm wage	NF self industry	NF self services	NF wage industry	NF wage services	Transfers	Windfall income	Total farm	Total nonfarm
Q1 (poorest)	0.20	0.10	0.03	0.07	0.11	0.11	0.33	0.05	0.30	0.32
Q2	0.12	0.10	0.04	0.09	0.22	0.21	0.18	0.05	0.22	0.56
Q3	0.12	0.07	0.04	0.11	0.21	0.23	0.17	0.05	0.19	0.59
Q4	0.11	0.05	0.05	0.11	0.18	0.27	0.17	0.06	0.16	0.61
Q5 (richest)	0.11	0.02	0.04	0.12	0.09	0.3	0.18	0.13	0.13	0.55
Total	0.13	0.07	0.04	0.1	0.16	0.22	0.21	0.07	0.2	0.52

b. Income levels (Rs)

Quintile	Farm self	Farm wage	NF self industry	NF self services	NF wage industry	NF wage services	Transfers	Windfall income	Total farm	Total nonfarm	Total income
Q1 (poorest)	2,098	1,540	424	1,121	2,105	1,855	2,437	603	3,626	5,472	12,184
Q2	2,870	2,541	1,047	2,485	6,006	5,970	3,823	1,197	5,410	15,506	25,938
Q3	3,709	2,406	1,610	4,046	7,723	8,999	5,366	1,760	6,113	22,378	35,618
Q4	5,108	2,318	2,530	5,721	9,086	14,777	7,292	3,495	7,425	32,104	50,326
Q5 (richest)	12,275	1,392	5,481	17,195	7,602	30,799	16,453	19,633	13,667	61,071	110,830
Total	5,252	2,019	2,232	6,173	6,444	12,548	7,120	5,439	7,268	27,368	47,227

Source: World Bank staff calculation using HIES 2016. Values are in 2016 prices.

Note: Quintiles are calculated based on per capita household income and for rural areas only. NF = nonfarm.

Poor households rely more on transfers, while richer households obtain their incomes from nonfarm and nonlabor sources. There are distinct patterns in the distribution of income sources by household income quintile. Table 5 presents a distributional profile of income levels and shares by type of farm and nonfarm activities in rural areas. Households in the bottom quintile have a relatively high reliance on transfers, which also reflects their low participation in the labor market. Compared to households in higher quintiles, their incomes also rely more on farm activities, and the absolute levels of incomes are also lower. On the other hand, households in the top income quintiles draw much more income from nonfarm employment, and their nonlabor income (windfall, transfers) is also significantly higher. Transfers

in the top quintile are likely to come from pensions, whereas those in the bottom quintile are from various social assistance programs. While the poorest-quintile households tend to rely more on transfers, deriving 33 percent of income from this source, they receive the lowest level of transfers.

Poorer households depend more on the farm sector than nonpoor households, but opportunities for diversification within the farm sector appear limited. Rural households as a whole draw the majority of their income from other (primarily nonfarm) sources. Income levels vary widely depending on the type of farm and nonfarm employment. Rural households derived an average monthly income of Rs 47,227 in 2016. While the average household monthly income from nonfarm activities (Rs 27,368) was significantly higher than it was from farm activities (Rs 7,268), there was wide variation in income levels depending on the type of nonfarm job.¹⁰ The average total incomes are about 11 times greater in the wealthiest quintile (Rs 110,830) than in the poorest quintile (Rs 12,184). While nearly three-fourths of total household incomes came from labor income (20 percent and 52 percent from farm and nonfarm activities respectively), the rest came from transfers (21 percent) and windfall income (7 percent) (table 5). While the income from all types of nonfarm jobs is higher than the income from farm jobs, the total income of the unskilled nonfarm job holders is lower than that of farm self-employed workers, since unskilled nonfarm job holders have less income from other sources.

Notably, income from nonfarm self-employment (enterprises) is not necessarily higher than that from wage employment, which is likely due to the prevalence of firms that are small in size and have low productivity levels. Average income from self-employment was only Rs 2,232 in industry and Rs 6,713 in services.¹¹ Most firms in Sri Lanka are informal and have fewer than 10 employees. Within manufacturing, labor-intensive subsectors experienced a decline in productivity in recent years (World Bank, 2020a).

Higher income shares from farm activities are strongly associated with lower household income. The share of farm income declines from 30 percent in the bottom quintile to 13 percent in the top quintile. This pattern is especially discernible for farm wage income: its share decreases from 10 percent for the bottom quintile to 2 percent for the top quintile. Within the nonfarm sector, the income share from wage employment in services increases substantially with income, rising from 11 percent for the bottom quintile to 30 percent for the top quintile. The pattern is less clear for those engaged in industry. For instance, the income share derived from wage employment in industry is higher for middle quintiles, possibly because a large share of manufacturing jobs is concentrated in sectors that have low sectoral returns, such as textiles and food and beverages, which are also sectors where a large number of women work (World Bank 2020a).

10. Farm and nonfarm self-employment incomes are constructed by subtracting input costs from the value of outputs. The top 1 percent of income earners are trimmed from the sample. Negative incomes are replaced with zero.

11. Note that these figures may appear low, which is because they include households with zero incomes.

The determinants of the intensity of participation need to be better understood. To this end, the shares of income from different activities are constructed at the household level. Censored regression models, also called tobit models, are suitable to estimate the determinants of rural household diversification strategies, as the dependent variable (i.e., the share of each income source) is bounded between 0 and 1. While descriptive statistics in previous sections are informative, multivariate analysis can shed further light on the determinants of rural household livelihood patterns. Independent variables include gender (equal to 1 if female and 0 if male), age, age squared, education, and ethnicity of household head. Household-level characteristics similar to the set of variables included in the participation regressions are also accounted for, including child dependency ratio, household size, and land ownership. Again, we differentiate between wage and self-employment as well as by skill level in order to distinguish the different returns to different types of activities. Regressions conducted using a sample of the bottom 40 percent yield qualitatively similar results and are not presented here.

For rural households, education plays an important role in increasing the share of income from remunerative nonfarm activities. Table 6 presents estimates from censored regressions. The results largely mirror the findings from the previous section on determinants of individual participation. Households with a better-educated household head generally receive larger shares of income from nonfarm activities, especially activities that require higher levels of skills. The opposite pattern emerges for the share of income from unskilled nonfarm employment (table 6, regressions (4) and (5)). Lower levels of education are also associated with a larger share of income from farm activities (table 6, regressions (6)–(8)). In sum, controlling for other characteristics, greater educational attainment appears to drive the household's livelihood choice toward more remunerative opportunities, while lower education results in greater reliance on farm and elementary nonfarm activities.

TABLE 6 Tobit estimations of the intensity of participation: Rural households

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	NF total	NF wages	NF self-employment	NF skilled	NF unskilled	Farm total	Farm wages	Farm self-employment
Female	-0.174 *** (0.01)	-0.110 *** (0.01)	-0.251 *** (0.02)	-0.223 *** (0.02)	-0.104 *** (0.04)	-0.185 *** (0.01)	-0.178 *** (0.03)	-0.151 *** (0.01)
Age of household head	0.00533 ** (0.00)	0.00167 (0.00)	0.0179 *** (0.00)	0.0103 ** (0.00)	0.0227 *** (0.01)	0.0222 *** (0.00)	0.0222 *** (0.01)	0.0203 *** (0.00)
Age squared	-9.76e-05 *** (0.00)	-7.05e-05 *** (0.00)	-0.000174 *** (0.00)	-0.000139 *** (0.00)	-0.000299 *** (0.00)	-0.000210 *** (0.00)	-0.000290 *** (0.00)	-0.000168 *** (0.00)
Education of household head								
Primary completed	0.0706 *** (0.01)	0.0333 ** (0.02)	0.155 *** (0.03)	0.204 *** (0.03)	-0.243 *** (0.05)	-0.156 *** (0.01)	-0.404 *** (0.03)	-0.0414 *** (0.01)
O-level passed	0.102 *** (0.02)	0.0335 (0.02)	0.230 *** (0.03)	0.357 *** (0.04)	-0.813 *** (0.11)	-0.281 *** (0.02)	-0.860 *** (0.05)	-0.0985 *** (0.02)
A-level passed	0.155 *** (0.02)	0.156 *** (0.02)	0.150 *** (0.04)	0.482 *** (0.04)	-1.134 *** (0.15)	-0.350 *** (0.02)	-1.122 *** (0.08)	-0.145 *** (0.02)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	NF total	NF wages	NF self-employment	NF skilled	NF unskilled	Farm total	Farm wages	Farm self-employment
Bachelor's and above	0.227 *** (0.02)	0.373 *** (0.03)	-0.162 ** (0.07)	0.620 *** (0.06)	-1.567 *** (0.24)	-0.465 *** (0.04)	-1.340 *** (0.19)	-0.250 *** (0.04)
Ethnicity of household head								
Sri Lanka Tamil	-0.123 *** (0.02)	-0.130 *** (0.03)	-0.119 ** (0.05)	-0.223 *** (0.05)	-0.00136 (0.07)	0.124 *** (0.03)	0.653 *** (0.05)	-0.228 *** (0.03)
Indian Tamil	-0.192 *** (0.03)	-0.124 *** (0.03)	-0.368 *** (0.06)	-0.419 *** (0.07)	0.0365 (0.07)	0.262 *** (0.03)	0.974 *** (0.04)	-0.241 *** (0.03)
Sri Lanka Moor	-0.0102 (0.02)	-0.166 *** (0.03)	0.226 *** (0.04)	-0.026 (0.03)	-0.219 *** (0.07)	-0.221 *** (0.03)	0.109 ** (0.06)	-0.341 *** (0.03)
Other	0.00291 (0.08)	-0.148 (0.11)	0.298 * (0.16)	0.137 (0.11)	-0.876 ** (0.44)	-0.113 (0.10)	0.313 (0.20)	-0.218 ** (0.10)
Child dependency ratio	-0.187 *** (0.01)	-0.250 *** (0.02)	-0.0607 ** (0.03)	-0.307 *** (0.04)	-0.236 *** (0.06)	-0.0284 * (0.02)	-0.0965 ** (0.04)	-0.0204 (0.02)
Household size	0.0867 *** (0.00)	0.0941 *** (0.00)	0.0764 *** (0.01)	0.142 *** (0.02)	0.0894 *** (0.02)	0.00192 (0.00)	0.0337 *** (0.01)	-0.00288 (0.00)
Land ownership								
< 2 acres	-0.195 *** (0.01)	-0.175 *** (0.02)	-0.173 *** (0.03)	-0.119 *** (0.03)	-0.323 *** (0.05)	0.379 *** (0.01)	-0.0617 (0.04)	0.408 *** (0.01)
2–5 acres	-0.337 *** (0.02)	-0.355 *** (0.03)	-0.179 *** (0.04)	-0.245 *** (0.05)	-0.611 *** (0.10)	0.513 *** (0.02)	-0.198 *** (0.06)	0.561 *** (0.02)
> 5 acres	-0.283 *** (0.07)	-0.204 ** (0.08)	-0.325 ** (0.16)	-0.0103 (0.24)	-0.417 (0.26)	0.600 *** (0.06)	-0.895 ** (0.37)	0.673 *** (0.05)
Access to IT equipment	0.193 *** (0.02)	0.181 *** (0.02)	0.234 *** (0.03)	0.418 *** (0.06)	-0.064 (0.04)	-0.0767 *** (0.02)	-0.158 *** (0.04)	-0.00965 (0.02)
District agricultural productivity	-3.66e-06 *** (0.00)	-3.00e-06 *** (0.00)	-4.84e-06 *** (0.00)	-7.84e-06 *** (0.00)	2.58E-06 (0.00)	5.13e-06 *** (0.00)	1.03e-05 *** (0.00)	3.19e-06 *** (0.00)
Province								
Central	-0.226 *** (0.01)	-0.221 *** (0.02)	-0.105 *** (0.03)	-0.301 *** (0.04)	-0.0736 (0.05)	0.358 *** (0.02)	0.278 *** (0.05)	0.353 *** (0.02)
Southern	-0.247 *** (0.01)	-0.226 *** (0.02)	-0.144 *** (0.03)	-0.294 *** (0.04)	-0.176 *** (0.05)	0.463 *** (0.02)	0.595 *** (0.05)	0.363 *** (0.02)
Northern	-0.176 *** (0.03)	-0.0988 *** (0.03)	-0.220 *** (0.06)	-0.250 *** (0.05)	0.0926 (0.09)	0.135 *** (0.03)	-0.131 * (0.07)	0.358 *** (0.03)
Eastern	-0.249 *** (0.02)	-0.163 *** (0.03)	-0.314 *** (0.05)	-0.230 *** (0.05)	-0.463 *** (0.10)	0.311 *** (0.03)	0.308 *** (0.07)	0.333 *** (0.03)
North Western	-0.177 *** (0.02)	-0.193 *** (0.02)	-0.0163 (0.03)	-0.180 *** (0.03)	-0.0467 (0.06)	0.365 *** (0.02)	0.424 *** (0.06)	0.316 *** (0.02)
North Central	-0.285 *** (0.02)	-0.252 *** (0.03)	-0.187 *** (0.04)	-0.353 *** (0.04)	-0.0437 (0.07)	0.348 *** (0.02)	0.372 *** (0.07)	0.328 *** (0.02)
Uva	-0.348 *** (0.02)	-0.337 *** (0.03)	-0.247 *** (0.04)	-0.436 *** (0.06)	-0.313 *** (0.08)	0.486 *** (0.02)	0.303 *** (0.06)	0.480 *** (0.02)
Sabaragamuwa	-0.182 *** (0.02)	-0.145 *** (0.02)	-0.155 *** (0.04)	-0.257 *** (0.03)	0.0138 (0.06)	0.435 *** (0.02)	0.492 *** (0.05)	0.359 *** (0.02)
Mean of dependent variable	0.76	0.72	0.58	0.76	0.65	0.47	0.61	0.37
No. of uncensored observations	12,133	9,563	4,118	7,497	2,119	8,077	2,230	6,666

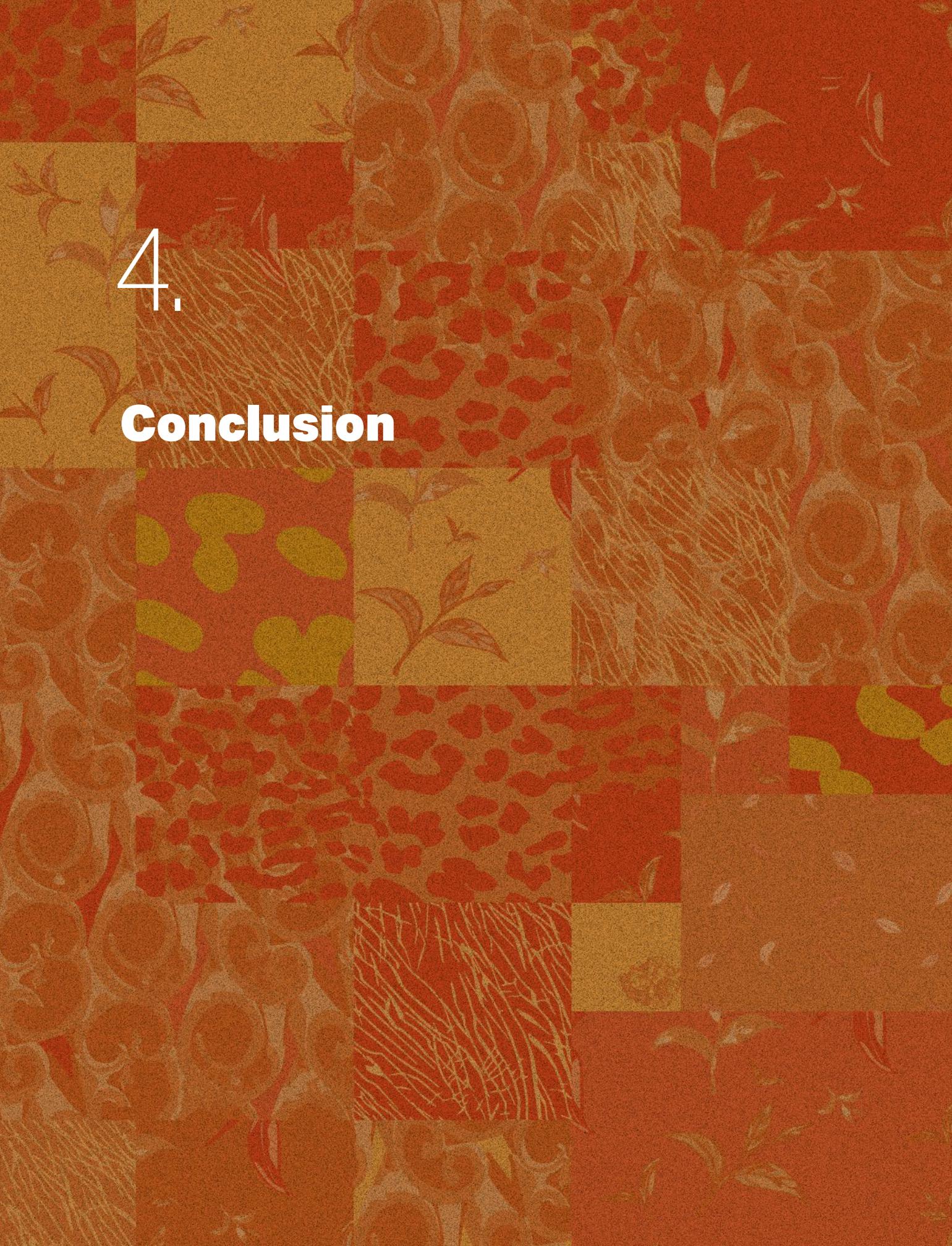
Source: World Bank staff estimation using HIES 2016.

Note: Dependent variables are the shares of income from each activity. The coefficients reflect marginal effects.

The omitted categories are no primary (education), Sinhala (ethnicity), landless (land ownership), and Western province (province dummies).

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent.

The share of income derived from nonfarm activities increases with household size and decreases with local agricultural productivity and land assets. As expected, the share of income coming from farm self-employment activities increases with the size of the land assets. Ownership of productive capital such as land increases the relative attractiveness of farming over comparable unskilled nonfarm employment. The share of a household's own labor that is absorbed by farm activities is likely also higher if a greater amount of land is available for cultivation, leaving less surplus labor available for nonfarm work. Female-headed households draw less labor income from labor activities than their male counterparts, all else equal. This could be because some female-headed households rely more on nonlabor income such as remittances and public transfers. Agricultural productivity is positively associated with the shares from both farm wages and farm self-employment.



4.

Conclusion

The analysis in this paper presents a picture of the nature and extent of the rural nonfarm sector in Sri Lanka. First, as of 2016, the vast majority (71 percent) of workers in rural areas were engaged in nonfarm activities. This is part of a structural trend that has been occurring over a long period. Still, there is a prevailing perception that rural areas are predominantly associated with primary sector activities, and the rural services sector is not much discussed. As a result, nonfarm employment and income are sometimes overlooked in rural development strategies. Specifically, there are more than 6.4 million rural workers, of whom around 3.3 million are in nonfarm wage employment and 1.3 million in nonfarm self-employment, with the remainder in farming. The range of activities is quite heterogeneous, with trade and construction the leading sectors of employment, followed by textiles, transport, and food and beverage. The distribution of female workers differed somewhat, with over 20 percent working in the textile industry.

Second, diversification can entail low-return activities, as nonfarm activities are quite heterogeneous in their nature and remuneration. The level of diversification is higher for the poorest and richest households, and somewhat lower in the middle-income groups. At the lower end of the income distribution, households are much more likely to rely on transfer income (which in the case of Sri Lanka's social assistance leads only to small additional amounts), or they may diversify into less remunerative activities. They tend to be concentrated in farm activities involving their own enterprises, and have limited opportunities to increase their earnings through off-farm wage employment. This could be because there is little demand for farm wage laborers due to small scale, or because on-farm activities absorb most of household labor. Nonfarm income shares rise with overall income levels, implying that nonfarm activities present an important pathway out of poverty. However, not all nonfarm activities are created equal, as they receive varying levels of remuneration; thus not all nonfarm jobs present a better alternative to farming. The distinction between farm and nonfarm activities does not mean that a clear dichotomy exists between the two: for example, some rural nonfarm activities are linked to the broader agricultural value chain in terms of input supply, processing, transportation, and marketing. The food and beverage manufacturing sector is one such example.

Third, the strong association between education and better-remunerated nonfarm employment opportunities is worth noting. Results show that better education is associated with higher participation in and incomes from nonfarm activities, excepting unskilled nonfarm employment. This is consistent with previous studies, which find that better education is correlated with more remunerative wage employment, for example.

We conclude by noting that the role of other constraints to boosting rural nonfarm incomes will need to be better understood. For example, access to credit or basic services such as reliable water supply may be an important constraint to higher-value diversification. Land markets or credit markets may be thin in some areas or may not be working smoothly. Moreover, factors related to transport infrastructure and subsequent market access are also likely to play a role. Future work may be needed in this area.

References

- Abdulai, A., and A. CroleRees. 2001. "Determinants of Income Diversification amongst Rural Households in Southern Mali." *Food Policy* 26 (4): 437–52.
- Alobo Loison, S. 2015. "Rural Livelihood Diversification in Sub-Saharan Africa: A Literature Review." *Journal of Development Studies* 51 (9): 1125–38.
- Barrett, C., T. Reardon, and P. Webb. 2001. "Nonfarm Income Diversification and Household Livelihood Strategies in Rural Africa: Concepts, Dynamics, and Policy Implications." *Food Policy* 26: 315–31.
- Barrett, C. B., M. Bezuneh, D.C. Clay, and T. Reardon. 2001. "Heterogeneous Constraints, Incentives, and Income Diversification Strategies in Rural Africa." Working paper, Cornell University, Department of Applied Engineering and Management.
- Berdegú, J. A., E. Ramírez, T. Reardon, and G. Escobar. 2001. "Rural Nonfarm Employment and Incomes in Chile." *World Development* 29 (3): 411–25.
- Ceriani, Lidia, Gabriela Inchauste, and Sergio Olivieri. 2015. "Understanding Poverty Reduction in Sri Lanka: Evidence from 2002 to 2012/13." Policy Research Working Paper 7446, World Bank, Washington, DC.
- Corral, L., and T. Reardon. 2001. "Rural Nonfarm Incomes in Nicaragua." *World Development* 29 (3): 427–42.
- Ellis, F. 2000. "The Determinants of Rural Livelihood Diversification in Developing Countries." *Journal of Agricultural Economics* 51 (2): 289–302.
- Escobal, J. 2001. "The Determinants of Nonfarm Income Diversification in Rural Peru." *World Development* 29 (3): 497–508.
- Ferreira, F. H., and P. Lanjouw. 2001. "Rural Nonfarm Activities and Poverty in the Brazilian Northeast." *World Development* 29 (3): 509–28.
- Haggblade, Steven, Peter Hazell, and Thomas Reardon, 2010. "The Rural Non-Farm Economy: Prospects for Growth and Poverty Reduction." *World Development* 38 (10): 1429–41.
- Harrower, S., and J. Hoddinott. 2005. "Consumption Smoothing and Vulnerability in the Zone Lacustre, Mali." *Journal of African Economies* 14 (4): 489–519.
- Kilic, T., C. Carletto, J. Miluka, and S. Savastano. 2009. "Rural Nonfarm Income and Its Impact on Agriculture: Evidence from Albania." *Agricultural Economics* 40 (2): 139–60.
- Kochar, A. 1999. "Smoothing Consumption by Smoothing Income: Hours-of-Work Responses to Idiosyncratic Agricultural Shocks in Rural India." *Review of Economics and Statistics* 81 (1): 50–61.
- Lanjouw, J. O., and P. Lanjouw. 2001. "The Rural Non-farm Sector: Issues and Evidence from Developing Countries." *Agricultural Economics* 26 (1): 1–23.
- World Bank 2021. "Sri Lanka Poverty Update." World Bank, Washington, DC.
- World Bank 2020a. "Sri Lanka Jobs Diagnostic." World Bank, Washington, DC.
- World Bank. 2020b. "Tourism's Role for Poverty Reduction." Unpublished draft. World Bank, Washington, DC.

