Chapter 16

INCOME DIVERSIFICATION AND THE RURAL NONFARM ECONOMY

Susan Paudel, Mateusz Filipski, and Bart Minten

The rapid transformation of the rural sector between 2011 and 2021 has been well-documented in relation to farming and included profound changes in crops grown, farming practices, markets, and value chains. This transformation has been described in this volume, as well as in Belton and Filipski (2019), Filipski et al. (2020), Boughton et al. (2018), and World Bank (2017). However, this period also witnessed a diversification of activities away from agriculture (Boughton et al. 2020; Phyo et al. 2016; Pritchard, Rammohan, and Vicol 2018), with incomes shifting away from reliance on subsistence farming and agriculture in general. The contributions of wage work and rural nonfarm businesses are growing in importance as the rural sector moves beyond an agrarian model in which primary agricultural production is the dominant source of wealth (Belton et al. 2017). Though the general equilibrium analysis from Chapter 2 shows that agriculture remains a major driver of economic activity, a micro-level analysis finds that activities either downstream in the food value chain or outside of the food system entirely are now responsible for large shares of rural incomes.

This chapter sheds light on the nature and extent of these diversification processes, based primarily on nationally representative data from the 2017 Myanmar Living Conditions Survey (MLCS) (CSO 2019), as well as on the Myanmar Household Welfare Survey (MHWS) of 2021/22. We analyze patterns in income generation off the farm, including wage employment (agricultural and nonagricultural) and nonfarm businesses. Beyond documenting a propensity to participate in these off-farm income-generating activities, we provide a detailed snapshot of the relevant sectoral and demographic patterns, along with statistical and econometric analyses. A unique feature is our use of a national dataset, which complements regional efforts to document rural diversification in Myanmar, such as done by Phyo and colleagues (2016) for the Delta Zone.

We find evidence of extensive diversification: more than half of rural households engage in nonfarm activities, which contribute at least one-third

of total rural household incomes. Despite this large participation, the nonfarm sector is informal and has yet to reach its full job-creating potential. Diversification is broad-reaching and prevalent at all levels of income, though wealthier households participate more heavily in the nonfarm sector. Land constraints, household size, education levels, and gender all appear to be correlated with households' propensity to diversify.

Following Barrett, Reardon, and Webb (2001), we clarify some terms used throughout this chapter. "Farm" or "agricultural" work refers to any activity directly related to the production and sale of crops, livestock, or fish on a farm, whether the farm is owned or not, and includes agricultural wage work. As in MLCS, primary sector workers in forestry and fishery are included with agriculture—we refer to this as the agriculture sector, as farming is the overwhelmingly dominant category. All other work is considered "nonagricultural" or "nonfarm"—that is, nonfarm wage employment and nonfarm business activities. Nonfarm business activities may include the processing of agricultural goods or the transport or trading of agricultural goods other than those from one's own production. We also refer to the hybrid "off-farm work" category as any work away from one's own or rented farm, including any wage work or business activity, whether agricultural or not. Finally, all the categories defined above exclude passive income sources, such as rents or transfers, including remittances from relatives, as these do not require active work by current household members.

The chapter is organized as follows: we start with an overview of income diversification in the rural economy, and then give a detailed description of wage employment opportunities and the nonfarm business landscape. We next provide an econometric analysis of the correlates of income diversification. Before concluding, we analyze recent household data to shed light on the impact that the recent crises of COVID-19 in 2020 and the military coup in 2021 have had on these diversification processes.

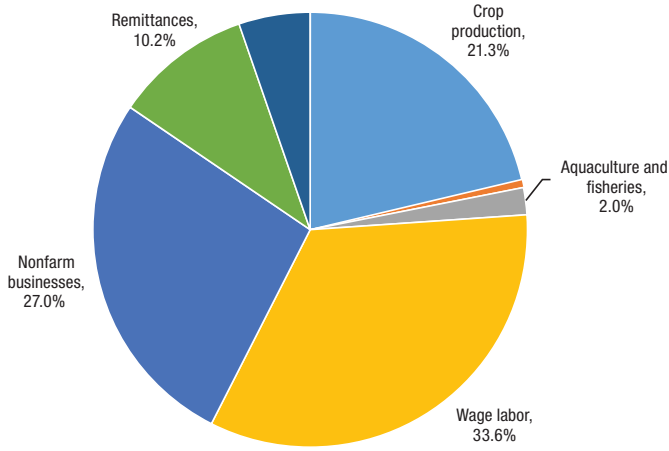
Diversification beyond agriculture

This section examines income sources by type of activity: on and off the farm, agricultural or not, for a wage or not. While agriculture remains important for the incomes of rural households, we show that it is far from dominant.

A reduced role for primary agriculture in rural incomes

While a large majority of rural households (70 percent) still engage in some form of agricultural production (crops, livestock, or fish), the importance of

FIGURE 16.1 Average distribution of income sources in Myanmar's rural sector



Source: Authors' analysis using MLCS 2017.

farming as an income-generating activity is far smaller. Figure 16.1 shows that merely 21 percent of rural incomes come from crop production, with livestock sales adding less than 1 percent and aquaculture only 2 percent (even when lumped with fisheries).[1] These shares refer to production on plots operated by the household (owned or potentially rented in). They include own consumption of farmed goods (valued at their market equivalent), so they account for subsistence farming. Overall, rural households generate only about 25 percent of their income on their farms.

The remaining income comes from wage labor (34 percent) and nonagricultural businesses (27 percent), with about 15 percent coming from passive sources (remittances and others). Broadly speaking, rural households draw about a quarter of their income from farming, a third from wage work, another quarter from running nonfarm businesses, and the remaining sixth mostly from transfers. This indicates a highly diversified rural economy. This finding echoes Chapter 2, which also demonstrates diverse contributions to GDP. The importance of remittances also echoes Chapter 15 on migration.

The largest source of rural income by far is wage labor at 34 percent. Wage labor is an off-farm activity, though not necessarily a nonfarm one. This

1 Note that the pie chart in Figure 16.1 shows shares of total incomes generated. Looking at average income shares produces a similar ranking of activities, with the difference being that the average income share from nonfarm businesses is lower (only 15 percent), and all other shares are higher by 1 to 3 percentage points.

distinction is particularly relevant in Myanmar, where landlessness among the rural population is high, as discussed in Chapter 6. For comparison, the rate of rural landlessness in Myanmar hovers around 50 percent (Boughton et al. 2018; Lambrecht et al. 2022; World Bank 2016) but is only 22 percent in Viet Nam (World Bank 2012), and below 28 percent in Cambodia (GRET 2021; Mellac and Castellanet 2015; Phann et al. 2015). A large class of landless agricultural laborers could explain why 33.6 percent of rural income derives from off-farm wage work, with 55.8 percent of households participating in it. However, further breaking down wage work into agricultural and nonagricultural jobs shows that the two contribute roughly equally to income—about 17 percent each (Table 16.1). While we do not know the number of workers involved or days worked, we can still conclude that nonagricultural jobs are now as big an income generator as farm jobs in Myanmar's rural sector.

Because earnings in the farm sector are low, the small contribution of agriculture to incomes is explained partly by sectoral earning disparities. Indeed, the shares of participation in agricultural activities (bottom panel of Table 16.1) are much higher than the shares of income from these activities (upper panel of Table 16.1), meaning that many workers engage in them but make little money. Similarly, participation in agricultural wage work tends to be higher, but it is less lucrative. More than a quarter of households (26.8 percent) have wage workers who work only on farms, compared with 19 percent with only nonfarm wage workers; only 9.4 percent do both. In total, 36.2 percent of households have at least some members engaging in some nonfarm wage work, bringing in 16.7 percent of income.

The rightmost four columns of Table 16.1 further break down these statistics by agroecological zones (AEZs). They reveal only mild disparities overall. The Delta and the Coastal Zone are less reliant on farming (even when including fishing and fish farming) than the Dry Zone or the Hills and Mountains. This likely reflects an array of factors, such as proximity to urban centers and higher rates of landlessness (Belton et al. 2021). The Hills and Mountains zone is the most agriculture-intensive region in both participation and income. However, even there, the total share of rural income from any agricultural work (farming plus farm wage work) is only 56 percent. At the turn of the millennium, primary agriculture was the dominant income generator for Myanmar's rural population (Dapice 2003). This is not the case anymore.

Rural wealth is becoming detached from land

We look for associations in our data between wealth and income diversification along two dimensions of wealth: total income and total landholdings.

TABLE 16.1 Importance of different activities in household income, by agroecological zone

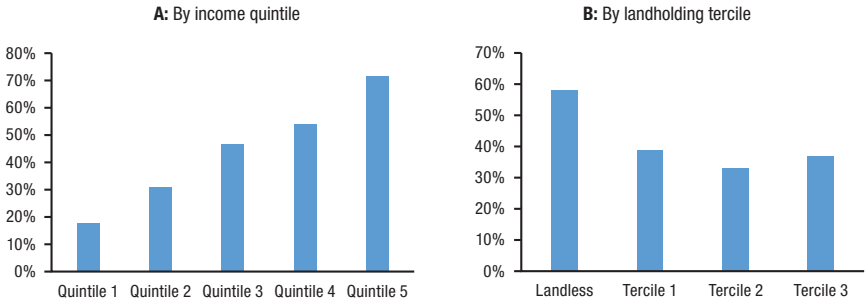
Activity	All	Delta	Coastal Zone	Dry Zone	Hills and Mountains
Share of household income from activity (%)					
Aquaculture/fisheries	2.9	2.6	8.1	0.5	0.3
Crop production	20.1	21.8	10.8	21.1	26.9
Livestock	0.7	0.2	0.2	0.9	1.4
Nonfarm businesses	27.5	24.6	31.7	29.5	24.0
Remittances	10.5	10.0	10.6	9.6	11.9
Wage labor, of which:	33.7	34.6	34.8	32.7	32.9
a. Agricultural	16.7	14.8	19.6	20.2	12.3
b. Nonagricultural	17.0	19.8	15.2	12.5	20.7
Others	4.6	6.2	3.7	5.8	2.5
All agricultural work (farm or wage)	45.9	39.4	44.0	44.3	56.4
Share of households engaged in activity (%)					
Aquaculture/fisheries	11.9	18.3	19.4	2.1	13.0
Crop production	52.5	43.1	45.4	55.8	69.3
Livestock	58.5	58.9	54.3	59.7	57.7
Nonfarm businesses	30.0	33.0	33.5	30.0	22.4
Remittances	19.8	20.0	24.8	18.9	19.0
Wage labor, of which:	55.8	58.7	52.9	58.5	46.3
a. Only agricultural	26.8	28.5	28.5	26.3	20.9
b. Only nonagricultural	19.5	20.8	15.4	21.9	17.6
c. Both	9.4	9.5	9.0	10.2	7.8
Others	20.7	22.7	9.8	29.3	6.2
Any agricultural work (farm or wage)	78.9	71.8	78.8	77.4	85.9

Source: Authors' calculations using MLCS 2017.

We define five income quintiles (1 being the poorest and 5 the wealthiest) and three landholding terciles (1 being the smallest at 33.3 percent of landholdings and 3 the largest).

There is a very strong relationship between income levels and participation in nonagricultural activities, meaning nonfarm businesses or nonfarm wage work. Participation shares grow from each income quintile to the next (Figure 16.2, panel A). Only 24 percent of the poorest quintile households derive income from nonagricultural sources; among the richest households, that share is 77 percent.

FIGURE 16.2 Participation by rural households in nonagricultural work, by income quintile and landholding tercile



Source: Authors' analysis using MLCS 2017.

This strong association likely reflects a bidirectional causal relationship. Wealthier households are likely to be better able to engage in nonagricultural activities, having the financial means and likely greater human capital and more expansive network connections. Conversely, engaging in nonagricultural activities likely generates higher incomes. While this does not preclude the existence of "distress diversification" (whereby the poorest households are forced into the nonfarm sector by lack of other options), this is clearly not the norm in our data.

The correlation between land ownership and nonagricultural work is much weaker. Landless households are, perhaps unsurprisingly, the most likely to engage in nonagricultural work, at 58 percent (Figure 16.2, panel B). However, among landed households, the shares are remarkably similar: roughly 35 percent of landed households derive some income from nonagricultural activity. Even households with the largest landholdings in tercile 3 are likely to have members engaging in nonfarm work.

Taken together, these results suggest that the sources of wealth in the rural sector may be shifting. Rural wealth may increasingly be determined by other forms of capital-supporting nonfarm activities rather than being based primarily on farmland, as it would be in a purely agrarian economy. This also echoes the important role of off-farm activities in GDP, as documented in Chapter 2. As Rigg (2006) observed more than a decade ago for several low-income countries, "[rural livelihoods] are becoming delinked from land." It also follows that diversification in the rural sector is likely linked to economic growth rather than distress. Martin and Lorenzen (2016) have reached similar conclusions for the neighboring Lao People's Democratic Republic.

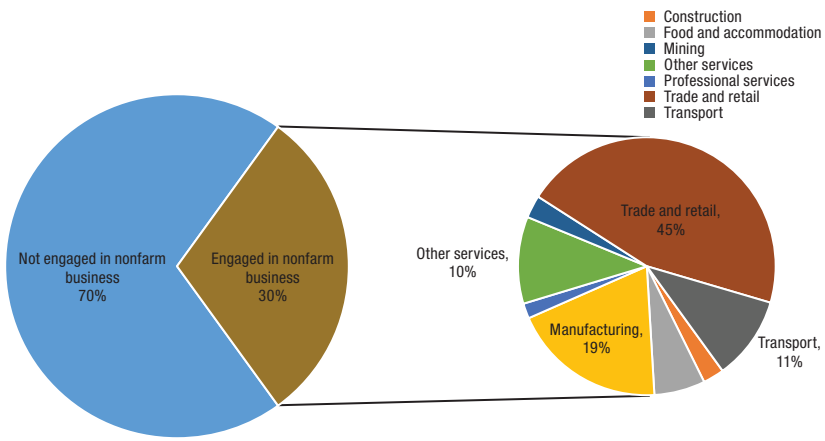
The rural nonfarm business landscape

Operating a nonfarm business is the second most common occupation after agriculture in the sample. Thirty percent of surveyed rural households engage in some form of nonfarm business (Figure 16.3). Additionally, a quarter of households with nonfarm businesses operate more than one. Regionally, participation in rural nonfarm enterprise is slightly higher (40 percent) than in Thailand (Chawanote 2012), slightly lower (22 percent) than in the Philippines (Anabo 2021), and relatively close (32 percent) to the level in Bangladesh (Sen, Dorosh, and Ahmed 2021).

A diversity of businesses operate in the rural sector, but trade and retail dominate (45 percent). This includes any wholesale or retail trade, from food to motor vehicles. The next largest category is manufacturing (19 percent), which includes a diverse range of activities. The most common are food processing and textiles, but also manufacturing refined petroleum, furniture, paper products, and rubber and plastic products, among others. Transport services account for 11 percent of rural businesses.

The remaining categories include mining, food and accommodation, construction, utilities (small-scale electricity, water collection services), and professional services, such as health, education, and finances, as well as the catch-all category of "other services." Businesses linked to the agriculture sector are spread across all these different subcategories: 11 percent of nonfarm businesses still reported being agriculture-related, for example, food processing. Among the remaining activities, some may still be linked to a part of

FIGURE 16.3 Rural households engaging in various types of nonfarm businesses



Source: Authors' analysis using MLCS 2017.

the agrifood system writ large, for example, restaurants, but are increasingly remote from farming itself. These results suggest a decreased role for farming in rural enterprise.

Regional patterns

Trade and retail businesses are the most widespread type of nonfarm business across all four AEZs (Table 16.2). Overall, the second most important business type is manufacturing, which is particularly dominant in the Dry Zone. Transport services also occupy a large share in the Delta, likely reflecting higher population densities and proximity to Yangon markets and infrastructure.

Conversely, some types of businesses are more likely to be concentrated in some areas. The Delta Zone, which is home to 42.2 percent of the rural population and close to the fast-growing Yangon metropolitan area, has a disproportionately high share of transport, construction, and food and accommodation businesses. The Dry Zone is home to about a third of the rural population but hosts more than half of manufacturing (56.8 percent) and mining (54 percent) enterprises in the country. Similarly, the Hills and Mountains zone hosts a large share of mining businesses, consistent with its significant mineral reserves, but a low share of manufacturing, utilities, and professional services, reflecting limited access to opportunities and infrastructure (Mohanty et al. 2018).

Characteristics of businesses

Most nonfarm businesses were established recently. Figure 16.4 reveals that most nonfarm businesses are relatively new. While some businesses have been operating for decades (above 60 years for the oldest), there are few of those in the sample. Of the businesses interviewed during the MLCS, 70 percent were less than 10 years old, and 60 percent were established after 2011, when economic reforms started. This suggests a rapid increase in the number of nonfarm businesses in the recent past.[2]

Almost 95 percent of businesses operate year-round. Because rural labor markets tend to tighten significantly at harvest time, this may imply that agriculture has released enough labor to staff nonfarm businesses throughout the year. More detailed data are needed to shed light on the underlying

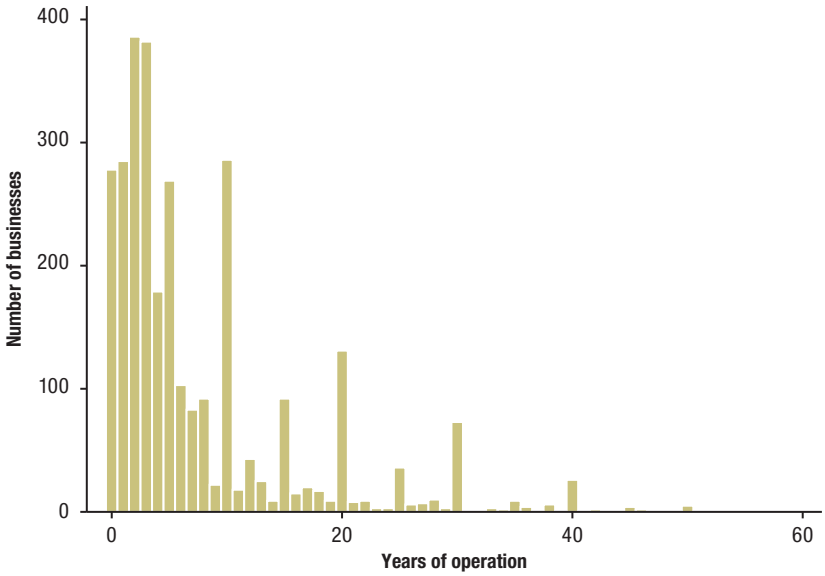
2 Because of a lack of historical data, we cannot rule out that these new businesses are simply replacing other failed businesses, in which case the total number of businesses would not be increasing. However, anecdotal evidence points overwhelmingly to a rapid growth in the number of rural nonfarm businesses.

TABLE 16.2 Distribution of businesses, by agroecological zone, percentage of all businesses

Nonfarm business	Total	Delta	Coastal Zone	Dry Zone	Hills and Mountains
Construction	2.6	3.0	3.3	1.3	4.3
Food and accommodation	6.4	7.6	5.8	4.5	7.9
Manufacturing	19.4	11.2	16.8	32.4	14.2
Mining	1.9	0.3	0.5	3.1	5.2
Professional services	2.8	2.4	3.5	3.5	2.1
Trade and retail	45.5	47.3	50.8	41.7	45.3
Transport	10.5	15.6	9.2	4.7	9.9
Utilities	0.2	0.1	0.4	0.2	0.1
Other services	10.8	12.5	9.7	8.8	11.1
Total	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations using MLCS 2017.

FIGURE 16.4 Distribution of businesses in rural Myanmar based on years of operation



Source: Authors' analysis using MLCS 2017.

causes, which could include population growth, labor-saving technologies, and deagrarianization.

Relatively informal enterprises dominate the business landscape. Of these, 52 percent are home operated, with another 26 percent mobile, including transport businesses but also some retail. Manufacturing businesses are overwhelmingly home based (86 percent), suggesting a dominance of informal operations with low capital investment. The vast majority (93 percent) of businesses interviewed in the MLCS were not registered in the municipal council or with the township/city development committee. Though this could partly reflect the complexity of registration procedures or lack of knowledge regarding legal obligations, it provides further evidence that most businesses are informal and likely small in scale.

A large proportion of enterprises (67 percent) are micro in scale, with only one worker involved (Figure 16.5), including the owner and any family or hired help. The share of enterprises involving more than 10 people is negligible, at only 1 percent. This figure is slightly higher for construction businesses, but even here, only 16 percent of businesses have more than 10 workers.

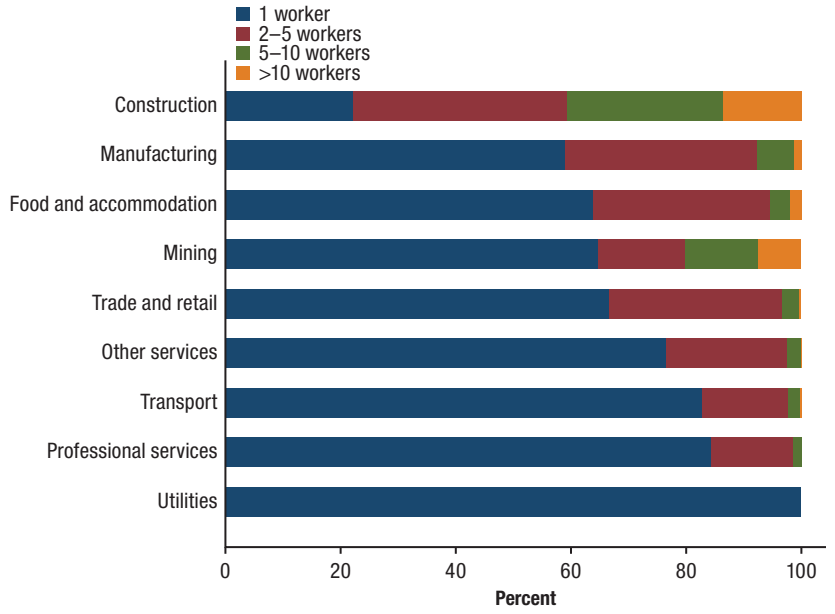
When there are several workers in the business, they are usually unpaid family members. About 88 percent of businesses rely purely on family labor. Among the remaining 12 percent, most hire very few workers. The dominance of self-employed, small-scale enterprises without paid employees is consistent with regional patterns and developing economies in general (Anabo 2021; Chawanote and Barrett 2012; Haggblade, Hazell, and Reardon 2007).

Construction and mining businesses generate slightly greater demand for hired labor, but the numbers remain low, with five and two people hired per business on average, respectively. This points to the small-scale and limited capital investment of these construction or mining operations. Thus, although nonfarm businesses are widespread and seem to be absorbing a growing share of the labor force, their ability to generate opportunities for hired employment remains limited.

Women represent 53 percent of nonfarm business owners (Table 16.3). Business owners tend to be relatively young (34 years old on average), and only 28 percent of them are the head of their household. Most are married (52 percent). Those characteristics are roughly in line with those of the general population.

Although the shares of men and women owning nonfarm enterprises are roughly equal, there is a high degree of gender differentiation in some specific businesses. Female ownership is lowest in mining (40 percent). In contrast,

FIGURE 16.5 Average number of workers (hired or family) in nonfarm businesses, by type



Source: Authors' analysis using MLCS 2017.

TABLE 16.3 Demographics of nonfarm business owners

Business type	Age (years) (mean)	Head of household (%)	Female (%)	Married (%)
Construction	30.0	29.2	50.7	46.2
Food and accommodation	35.6	27.1	57.6	49.6
Manufacturing	34.1	24.9	53.6	51.0
Mining	29.1	21.5	40.1	61.2
Professional services	36.6	21.5	52.1	62.8
Trade and retail	33.5	28.9	54.5	50.4
Transport	29.5	29.4	48.0	56.8
Utilities	40.8	33.5	50.6	58.3
Other services	35.2	30.5	51.6	52.9
All business owners	33.5	27.9	53.1	51.9
Population	31.3	23.3	52.7	48.0

Source: Authors' calculations using MLCS 2017.

food and accommodation businesses have higher shares of female owners (58 percent).

Business activities and wealth

More than half (56 percent) of business-owning households are landless (Table 16.4). Even accounting for the high rates of landlessness, the contribution of landless households to nonfarm businesses is disproportionately high. How to interpret this is not clear: it may be that land constraints push households to engage in nonfarm enterprises as an income-generating strategy. It may also be that low profits in farming lead people to abandon agriculture and sell their land or that a lack of wage work opportunities fuels self-employment. More research is needed to interpret the origins of this correlation fully.

Construction and transport businesses earn the most. Panel A of Figure 16.6 shows that average earnings are highest for construction businesses, followed by transport. This likely reflects capital intensity: construction businesses tend to require tools or machinery; transport service providers usually purchase or rent a single vehicle for their business. Manufacturing and utility businesses lie at the other extreme of median incomes, even though they are typically thought of as capital intensive, again suggesting that these are very small-scale operations.

Differences in earnings could simply reflect the scale of businesses, but these results are nearly perfectly reproduced using earnings per worker. Panel B of Figure 16.6 shows again that construction and transport businesses have the highest productivity in terms of earnings per worker, followed by food and accommodation. Manufacturing, professional services, and utilities are still at the bottom of the ranking.

The role of wage employment

This section takes a more in-depth look at wage employment, using data at the household member level from 5,398 household members who reported working for a wage (in cash or kind) during the previous 12 months. Note that about a third of these respondents reported working several jobs and provided information on their two primary wage activities.

Sectoral patterns

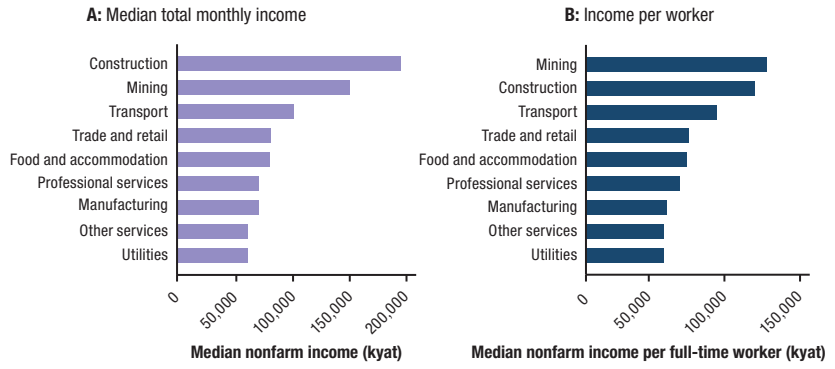
The household data analyzed in the previous section show that the share of households with at least one member engaging in nonagricultural wage work is large and, in fact, larger than the share of households with at least one

TABLE 16.4 Nonfarm businesses by landholding group, percentage owned by members of landholding group

Business type	Landless	Tercile 1 (smallest)	Tercile 2	Tercile 3 (largest)	Total
Construction	77.1	8.6	10.4	3.9	100.0
Food and accommodation	68.6	9.8	10.8	10.8	100.0
Manufacturing	48.0	15.2	19.8	17.1	100.0
Mining	51.7	6.8	20.8	20.7	100.0
Professional services	62.7	16.3	12.7	8.3	100.0
Trade and retail	56.3	12.7	14.5	16.5	100.0
Transport	67.6	8.3	11.4	12.7	100.0
Utilities	74.9	0.0	0.0	25.1	100.0
Other services	49.3	13.9	16.1	20.7	100.0
Total businesses	56.1	12.7	15.4	15.9	100.0
Population (%)	45.3	15.6	20.9	18.2	100.0

Source: Authors' calculations using MLCS 2017.

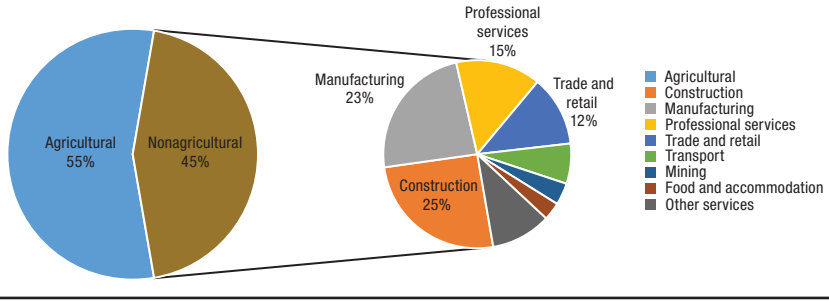
FIGURE 16.6 Median total monthly income and income per worker in nonfarm businesses, by type



Source: Authors' analysis using MLCS 2017.

agricultural worker. At the household member level, however, the picture is slightly different: of all the jobs reported in the data, 55 percent are agricultural, compared with 45 percent nonagricultural (Figure 16.7). This is likely because many members of the same household tend to work on farms. Thus, while the share of households relying on agricultural wage work has declined below that for nonagricultural wage work, farming is still the larger employer in terms of job numbers.

FIGURE 16.7 Sectoral division of wage occupations



Source: Authors' analysis using MLCS 2017.

Among nonagricultural wage occupations, the manufacturing and construction industries are the largest employers, with 23 and 25 percent each. Professional services provide 15 percent of nonagricultural paid jobs, and retail 12 percent. A number of categories split the remaining quarter of occupations. Overall, this points to a highly diversified set of nonfarm jobs for rural workers.

Table 16.5 shows the distribution of wage industries by AEZ. Some patterns emerge in the distribution of wage industries compared with population (given in the last row). The Hills and Mountains zone, which is home to 19 percent of the total population, has a significantly higher share of mining industries (38.2 percent), a lower share of agriculture (12.2 percent), and a much lower share of manufacturing (5.4 percent). This likely reflects the large mineral reserves in the area and poor agricultural land characteristics. Compared with the population distribution, the Delta has relatively higher shares of wage industries, particularly transport.

The wage employment sector is predominantly low skilled, with a majority of workers (64 percent) being categorized as such (Table 16.6). The remaining 36 percent includes skilled workers in the primary sector, craftspeople, and other workers who can be categorized as skilled and, thus, likely command a higher wage.

Wage work is almost invariably informal. An almost insignificant share (5 percent) of wage employees reported having a written contract. About 10 percent of wage-employed individuals have a pension plan from their employer, and a similar share is paid annual leave. About 85 percent of wage workers are employed by private individuals, and another 7 percent work for private organizations. The remaining 7 percent work as government employees.

TABLE 16.5 Industry of wage work, percentage distribution by agroecological zone

Industry	Delta	Coastal Zone	Dry Zone	Hills and Mountains	Total
Agriculture and fishing	42.9	9.1	35.8	12.2	100.0
Construction	38.4	7.0	41.3	13.3	100.0
Food and accommodation	36.8	10.9	24.7	27.6	100.0
Manufacturing	49.1	6.1	39.4	5.4	100.0
Mining	12.4	6.8	42.6	38.2	100.0
Professional services	37.1	8.6	32.1	22.2	100.0
Trade and retail	35.7	8.1	44.0	12.1	100.0
Transport	56.6	2.0	31.0	10.5	100.0
Other services	50.3	3.3	37.7	8.8	100.0
Total	42.5	8.9	36.8	12.7	100.0
Population (%)	36.0	9.6	35.3	19.0	100.0

Source: Authors' calculations using MLCS 2017.

TABLE 16.6 Wage work by occupational category

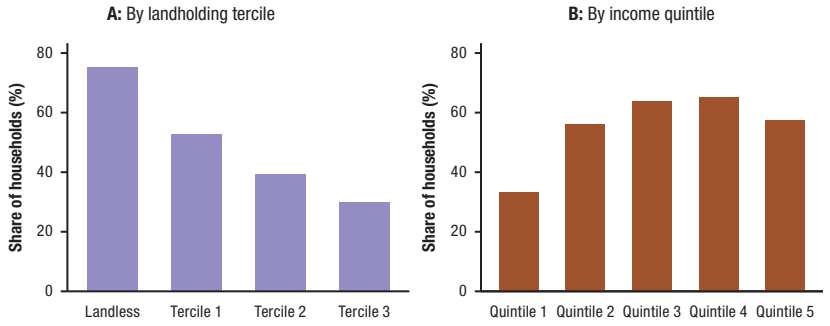
Main occupation	Number	Share (%)
Crafts and skilled trades	523	9.7
Low-skilled occupation	3,454	64.0
Managers	41	0.8
Plant operators and assemblers	136	2.5
Professionals	263	4.9
Services and sales workers	160	3.0
Skilled agriculture, forestry, and fishery workers	626	11.6
Others	195	3.6
Total	5,398	100.0

Source: Authors' calculations using MLCS 2017.

Wage work and wealth

Wage employment decreases gradually with wealth. Figure 16.8 shows the negative correlation between wage employment and landholding (panel A). Seventy-two percent of landless households are involved in wage employment. This share decreases in each successive landholding tercile to only 31 percent in tercile 3. We also find a somewhat less dramatic positive correlation between wage employment and household income (panel B). Wage labor is generally thought of as low-productivity work. Better-off households tend

FIGURE 16.8 Household participation in wage employment, by income quintile and landholding tercile



Source: Authors' analysis using MLCS 2017.

Note: Income quintile 1 consists of the poorest households. Landholding tercile 1 is made up of households with the smallest landholdings.

to engage in trade and industry, where they can earn higher incomes (Gordon and Craig 2001). However, here we find that the wealthier are more likely to engage in wage work. This suggests that the earnings potential from wage work can remain attractive in this rural economy. This result is likely driven by the large share of nonagricultural wage work within wage employment, which positively affects the participation of wealthier households.

Characteristics associated with diversification

Which household characteristics are most predictive of business activities? Which worker characteristics are associated with wage work? This section uses statistics and regression analysis to shed light on who powers the engines of this diversification.

We present the results of the analysis in two parts. First, we use regressions to explore the factors associated with participation in nonfarm business activities or nonfarm wage work. Second, we compute indices of income diversification at the household level and explore their correlates. Table 16.7 describes the variables used in the regression analysis.

Correlates of participation in nonfarm activities

Table 16.8 presents an analysis of the significant associates of household participation in nonfarm business and nonagricultural wage activities (marginals of logistic regression). Each value represents the increase (or, if negative, the

TABLE 16.7 Variables used in the regression analysis

Variable	Mean	Standard deviation
Dependent variable		
Nonfarm business participation	0.30	0.46
Nonagricultural wage participation	0.24	0.43
Nonfarm income share	0.35	0.44
Simpson's Diversity Index	0.17	0.21
Livelihood strategies		
Farm only	0.21	0.40
Farm and off-farm	0.54	0.49
Off-farm only	0.25	0.44
Explanatory variable		
Age of head of household (years)	50.60	14.73
Female head of household (1 = female)	0.20	0.40
Married head of household (1 = married)	0.75	0.43
Completed primary education, head of household (1 = yes)	0.29	0.46
Adult equivalents in household	4.13	1.84
Has migrant (1 = yes)	0.20	0.40
Area of farmland owned (hectares)	1.47	3.69
Household agricultural assets index	0.43	1.28
Agroecological zone (AEZ) (1 = yes)		
Delta	0.37	0.48
Coastal Zone	0.09	0.28
Dry Zone	0.34	0.47
Hills and Mountains	0.19	0.38

Source: Authors' calculations using MLCS 2017.

decrease) in the probability of participating in those activities associated with a 1-unit increase in the different variables.

Several factors appear significantly associated with nonfarm businesses (first column), some of which likely reflect life-cycle dynamics. A household with an older head is more likely to participate in nonfarm businesses (by 0.1 percent for each year of age), as are married households and those with more adults. Most strikingly, the educational level of the household head has a strongly significant association with the propensity to engage in nonfarm business activities: someone who completed primary school (or more) is 11.5 percent more likely to have a business than someone who did not. Land area is negatively associated with nonfarm business activities, reflecting

TABLE 16.8 Correlates of participation in nonfarm business activities

	Engagement in nonfarm business		Nonagricultural wage employment	
Correlate	Marginal effect	Standard error	Marginal effect	Standard error
Age of head of household (years)	0.001*	(0.000)	–0.001***	(0.000)
Female head of household (1 = female)	0.015	(0.020)	0.019	(0.018)
Married head of household (1 = married)	0.060**	(0.020)	–0.021	(0.018)
Completed primary education, head of household (1 = yes)	0.115***	(0.010)	0.118***	(0.009)
Adult equivalents in household	0.015***	(0.003)	0.030***	(0.002)
Has migrant (1 = yes)	–0.041**	(0.012)	–0.049***	(0.012)
Agricultural land area (hectares)	–0.008***	(0.002)	–0.020***	(0.003)
Household agricultural assets index	–0.006	(0.005)	–0.029***	(0.006)
Coastal AEZ (relative to Delta)	0.014	(0.017)	–0.091***	(0.015)
Dry Zone AEZ (relative to Delta)	–0.050***	(0.014)	–0.030*	(0.013)
Hills and Mountains AEZ (relative to Delta)	–0.125***	(0.013)	–0.084***	(0.012)
Observations	8,388		8,388	

Source: Authors' calculations using MLCS 2017.
Note: Marginals are from logistic regressions. AEZ = agroecological zone. * $p < .1$; ** $p < .05$; *** $p < .01$.

the propensity of the landless to start businesses, as well as smaller landholders needing to complement their farming income. We can expect these businesses to require low investment and have low barriers to entry for capital-constrained households, as revealed by Lanjouw, Quizon, and Sparrow (2001) in Tanzania.

The presence of migrants in the household is associated with decreased engagement in nonfarm businesses (even when controlling for household size). This may seem puzzling, as the literature often considers remittances as an important source of liquidity for investing in business activities. Our contrary finding could have a variety of explanations: nonfarm businesses may be considered too risky or not profitable enough, remittances may be too low to support investment, or high enough that the household gives up seeking business opportunities (dependency). Regardless, this finding echoes Chapter 15, which showed that remittances are primarily used for day-to-day purchases, not investment.

Participation in nonagricultural wage employment (second column of Table 16.8) follows very similar association patterns as for nonfarm business. Again, demographics and agricultural wealth matter significantly, as does the education of the household head. The importance of education in opening

up higher-return nonfarm activities, and in particular high-paying nonagricultural jobs, has been well documented in the literature (Babatunde and Qaim 2010; Barrett, Reardon, and Webb 2001; Deininger and Olinto 2001; Reardon et al. 2000). Again, we find that having migrants is negatively associated with nonfarm wage participation.

Livelihood strategies and diversification

We classify households into three "livelihood strategy" categories according to whether their income comprises farm sources only, off-farm sources only, or a mix of the two. Table 16.9 presents characteristics associated with each strategy as marginals drawn from a multinomial logit regression.

Some household head characteristics correlate strongly with certain strategies. Older heads are more likely to draw income purely from off-farm activities. Women-headed households are also more likely to participate in off-farm activities only and less likely to rely on farm income only. The regression controls for land area owned, so this is likely not reflecting access to land, but rather other gendered patterns, perhaps related to land quality or productivity, time constraints, or social capital—we cannot know without further research. Education is again strongly associated with an off-farm early strategy. This reflects the high returns to education in terms of work opportunities and perhaps also the lower social status associated with farmwork.

Unsurprisingly, we also find that households with more working-age members are more likely to engage in a mix of farm and off-farm activities, and households with more land and agricultural assets are more likely to engage in farming (whether alone or in a mix of activities). Regionally, households in the Delta (the reference region) are least likely to engage in farming alone and most likely to engage in a mix, highlighting the opportunities that come with proximity to Yangon.

We further explore these questions by looking at the associates of two measures of income diversification. The first is the nonagricultural income share, which is simply the share of total household income generated from nonagricultural activities (business or wage work); the second is the Simpson's Diversity Index. Figure 16.9 plots regression coefficients akin to those presented in Table 16.8 but uses tobit regressions to account for the fact that these explained variables are bounded.

The results are mostly in line with previous regressions. Education is highly correlated with the share of income from nonagricultural activities. Household agricultural assets and land ownership are both negatively associated with the nonagricultural income share. More adults in the household

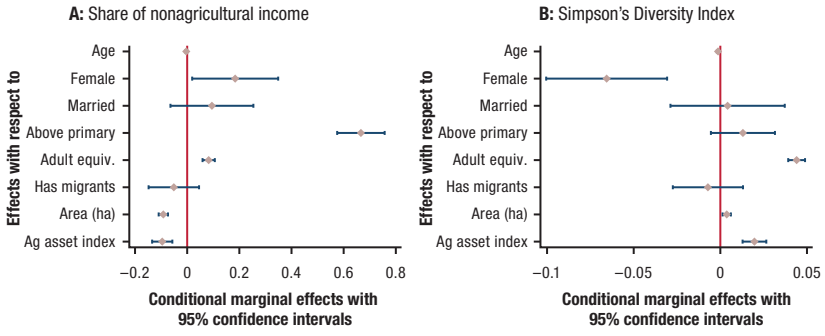
TABLE 16.9 Associates of livelihood strategies

	Farm only		Farm + off-farm		Off-farm only	
Associate	Marginal effect	Standard error	Marginal effect	Standard error	Marginal effect	Standard error
Age of head of household (years)	−0.000	(0.000)	−0.001***	(0.000)	0.001***	(0.000)
Female head of household (1 = female)	−0.043**	(0.017)	−0.008	(0.020)	0.050***	(0.015)
Married head of household (1 = married)	−0.018	(0.016)	0.025	(0.019)	−0.007	(0.015)
Completed primary education, head of household (1 = yes)	−0.066***	(0.009)	−0.003	(0.011)	0.069***	(0.009)
Adult equivalents in household	−0.010***	(0.002)	0.029***	(0.003)	−0.019***	(0.002)
Has migrant (1 = yes)	−2.581	(79.541)	1.994	(60.812)	0.586	(18.729)
Agricultural land area (hectares)	0.048***	(0.002)	0.149***	(0.005)	−0.196***	(0.007)
Household agricultural assets index	0.088***	(0.008)	0.244***	(0.024)	−0.332***	(0.031)
Coastal Zone (relative to Delta)	0.035**	(0.015)	−0.037**	(0.019)	0.002	(0.015)
Dry Zone (relative to Delta)	0.024**	(0.009)	−0.063***	(0.012)	0.039***	(0.010)
Hills and Mountains (relative to Delta)	0.201***	(0.013)	−0.150***	(0.014)	−0.051***	(0.012)
Observations	8,388		8,388		8,388	

Source: Authors' calculations using MLCS 2017.

Note: Marginals from logistic regressions. * $p < .1$; ** $p < .05$; *** $p < .01$.

FIGURE 16.9 Correlates of the nonagricultural share of income (tobit regressions)



Source: Authors' analysis using MLCS 2017.

Note: "Age," "Female," "Married," and "Above primary" refer to the household head. "Area (ha)" refers to the household's arable land area. ha = hectares. Ag = agricultural.

correlates with higher shares of nonagricultural income, but having migrants is again negatively correlated, echoing the results from Table 16.8.

Turning to the Simpson's Diversity Index, two results stand out. Households headed by women are correlated with lower income diversification (controlling for other factors), which may suggest opportunity constraints. Agricultural assets are associated with higher diversification, which is likely capturing a wealth effect.

The rural nonfarm sector since 2021

Since the survey used to generate the above results was conducted in 2017, the crises of COVID-19 in 2020 and the 2021 military coup have substantially altered the activities of Myanmar's rural landscape. To shed light on these changes, we analyze three rounds of the MHWS, conducted roughly around January/February 2022 (Round 1), April/May 2022 (Round 2), and July/August 2022 (Round 3). The phone surveys are not from the same sample as the MLCS used in the rest of the chapter, nor did they ask the exact same questions. Nevertheless, they provide the most comparable existing estimates in terms of scope and nature and help clarify how the situation has evolved since the MLCS.

With pandemic-related lockdowns and political instability, a first concern is that labor markets may have thinned, reducing work opportunities and disrupting business operations. We see evidence of this in the MHWS when looking at challenges reported by nonfarm business operators (Table 16.10). Most businesses report having recently experienced some challenges. In Round 1, only 27 percent reported no difficulties, while 27 percent complained of high input prices. Access to businesses became an issue, with 15 percent complaining that their customers could not reach them and another 18.5 percent lamenting the low number of customers. Both of these shares decreased in Rounds 2 and 3, suggesting the situation has improved somewhat—but issues remain.

We further see evidence of a slowdown for wage laborers, with nearly half reporting some difficulties (Table 16.11). The most common issue reported is reduction of working hours, followed by reduction in wages, which reflects the labor surplus.

These challenges are likely harming household incomes. Indeed, a substantial share of rural households in the MHWS reported a considerable drop in income (Table 16.11). The data presented refer to the change for each income source between July/August 2021 and July/August 2022, when the third

TABLE 16.10 Difficulties encountered by nonfarm rural businesses in the triple crisis in 2022

Difficulty (%)	Round 1	Round 2	Round 3
No difficulty	27.1	41.3	40.7
Customers cannot reach business	14.8	6.9	8.8
Disruption to banking or loans	4.1	5.1	1.5
Fewer customers	18.5	12.2	9.6
High prices of supply, fuel, transport, or electricity	27.0	25.4	24.5
Labor shortages	1.7	0.7	1.1
Supply disruptions	6.5	7.8	7.5
Other COVID-related disruptions	0.1	0.1	0.2
Other	0.3	0.6	6.1
Total	100.0	100.0	100.0

Source: Authors' calculations using MHWS 2022.

TABLE 16.11 Difficulties encountered by rural wage workers in the triple crisis in 2022

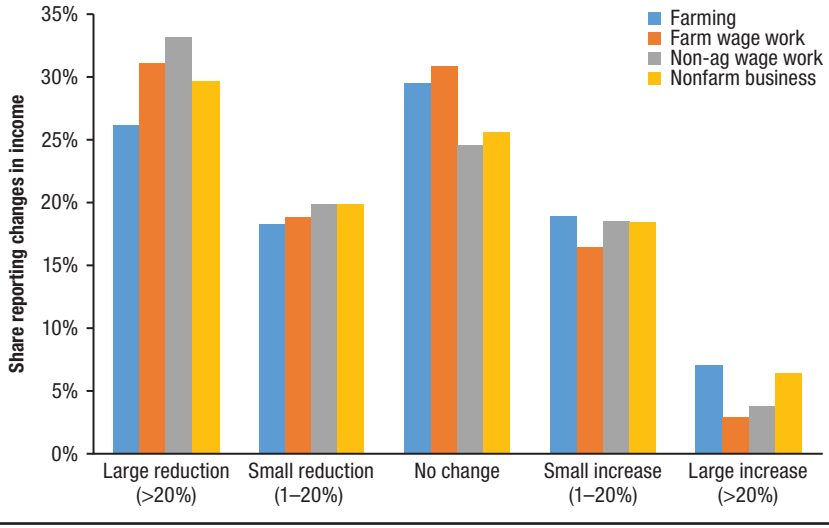
Difficulty (%)	Round 2	Round 3
No difficulty	55.2	54.0
Health issues (self or household member)	3.3	4.0
Low or reduced wages	8.8	6.9
Not able to reach work location	1.2	1.6
Not safe at work location	2.2	2.6
Not safe to travel to work location	6.5	6.6
Reduced working hours or less work	22.5	21.6
Other	0.4	2.7
Total	100.0	100.0

Source: Authors' calculations using MHWS 2022.
Note: Data for Round 1 are not available.

round of the survey was conducted. An important caveat is that the baseline here is mid-2021, when households may already have been affected by COVID-19 and the political crisis—so we cannot say for sure how this compares with pre-crisis levels and that this reflects nominal income changes.

Nearly a third of households reported decreases of income of more than 20 percent across all activity types (Figure 16.10). Meanwhile, only about 5 percent of households reported increases of more than 20 percent. This demonstrates the overall economic difficulties in 2022: many more households had a bad year as opposed to a good one. However, a majority of

FIGURE 16.10 Change in income compared with the previous year (July/August 2022 vs. July/August 2021)



Source: Authors' analysis using MHWS 2022.

households did not report significant changes, with about 30 percent reporting no change and roughly equal shares reporting small reductions or small increases, balancing out on average.

The reported trends above do not capture changes in real terms very well—inflation was substantial in 2022. To get at real changes, we look at the wages of agricultural laborers in particular, taking advantage of data in the MHWS on wage levels for men and women for different periods of the agricultural year and for previous years. As reliable price inflation numbers are lacking in rural Myanmar, we estimate real wages in three ways—by adjusting the wages received using a food price inflation index, by converting wages to kilograms of rice, and by converting them to US dollars using market exchange rates.

We use the three measures to derive estimates of real wages (Figure 16.11), as follows:

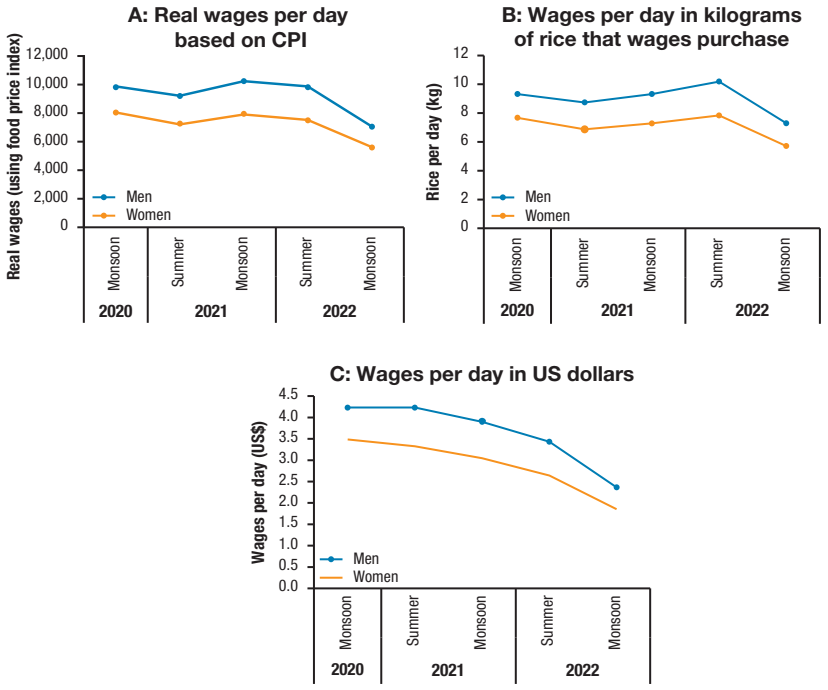
- First, when we consider the costs of a standard food basket and calculate the purchasing power of agricultural laborers' wages, we find that these "real" wages had declined in August 2022 by 27 percent for men and 30 percent for women compared with two years earlier. Compared with one year earlier, the decline was 29 percent.

- Second, when wages are expressed in kilograms of rice that agricultural workers can buy, wages of men and women had declined by 22 percent over the previous year, from 9.3 kg to 7.3 kg for men and from 7.3 kg to 5.7 kg for women.
- Third, when agricultural wages are expressed in US dollars, during the monsoon of 2020, the mean wage paid was US$4.20 per day for men and US$3.50 per day for women. In the same period in 2022, these wages had fallen to almost half that level, by 44 percent for men to US$2.40 per day and by 47 percent for women to US$1.80 per day. In 2022 alone, a decline of 39 percent was seen.

These trends illustrate the significant real declines in 2022 in wages—and, therefore, incomes—for farm wage workers.

Finally, Figure 16.10 does not suggest major differences between the farm and nonfarm sectors: all four sectors have suffered very similar income shocks.

FIGURE 16.11 Real agricultural wages, 2020–2022, by gender of worker



Source: Authors' analysis using MHWS 2022.
Note: CPI = Consumer Price Index.

TABLE 16.12 Household participation in farm and nonfarm activities, by data source

	MLCS		MHWS (2022)	
Activity (% of households)	(2017)	Round 1	Round 2	Round 3
Farming	70.0	67.2	73.9	71.5
Agricultural wage work	36.2	34.7	29.4	35.6
Nonagricultural wage work	28.8	34.5	40.3	37.2
Nonfarm business	30.0	37.2	38.2	36.1

Source: Authors' calculations using MHWS 2022.

This suggests that the triple crisis has not disproportionately affected either the farm or nonfarm sector.

This is confirmed in Table 16.12, which shows participation shares in farm and nonfarm activities in our four surveys. The share of farming households is very similar in all surveys, as is the share of households engaging in agricultural wage activities. Participation in nonagricultural wage and nonfarm business activities is slightly lower in the MLCS than in the MHWS. This may reflect slightly different activity definitions between surveys, sampling differences, or the true increase in nonagricultural activities over time. Either way, the trend toward rural income diversification does not seem to have been interrupted.

Discussion and conclusion

Far from being dominated by subsistence agriculture, Myanmar's rural sector hosts a range of diversified economic activities. Most households engage in some form of off-farm work, and less than half of all incomes come directly from agriculture.

At the time of data collection, more than 55 percent of households had members engaged in wage work. While about half of these were farmworkers, the rest were employed in construction, manufacturing, trade, and other nonagricultural activities. Similarly, about a third of households had members engaged in a variety of nonfarm businesses, ranging from trade to construction to manufacturing. These data further demonstrate the diversity of activities beyond subsistence farming that support rural livelihoods.

Diversification is not unusual in developing rural areas (Barrett, Reardon, and Webb 2001), particularly where farming cycles release workers in the off-season (Losch, Fréguin-Gresh, and White 2012). Nor is it necessarily a sign of growth, as households may be driven to engage in odd jobs and

informal businesses by resource constraints, that is, "distress diversification" (Martin and Lorenzen 2016). Our data show a clear correlation between diversification and wealth, suggesting that diversification is not predominantly of the distress type. Chapter 2 shows the growing importance of downstream food-system activities in processing, services, marketing, and trade, which further suggests that some of the diversification we see could be linked to growth opportunities. At the same time, diversification may also be viewed as a necessity to hedge against risks in an economic environment characterized by high uncertainty.

Since 2020, the rural sector has, along with the rest of the country, faced significant challenges related to COVID-19 and political instability. An encouraging sign is that incomes seem to have more or less stabilized for part of the population (at least in nominal terms), and the diversity of rural economic activities has been maintained. Nevertheless, our data also show that a sizeable portion (about a third) of respondents have faced significant hardships and nominal income losses of more than 20 percent. Casual agricultural wage laborers—among the poorest in the country—seem to have been hit particularly hard, as shown by strong declines in purchasing power since the start of the triple crisis.

References

Anabo, F.D. 2021. "Determinants of Non-Farm Enterprise Participation among Agricultural Households in the Philippines." *Philippines Management Review* 28: 57–80.

Babatunde, R.O., and M. Qaim. 2010. "Impact of Off-Farm Income on Food Security and Nutrition in Nigeria." *Food Policy* 35 (4): 303–311.

Barrett, C.B., T. Reardon, and P. Webb. 2001. "Nonfarm Income Diversification and Household Livelihood Strategies in Rural Africa: Concepts, Dynamics, and Policy Implications." *Food Policy* 26 (4): 315–331.

Belton, B., A. Cho, M.J. Filipski, J. Goeb, I. Lambrecht, D. Mather, and M.T. Win. 2021. "Opportunities and Constraints for Production and Income Growth in Rural Myanmar: Inter-Regional Variations in the Composition of Agriculture, Livelihoods, and the Rural Economy." Myanmar Strategy Support Program Working Paper 7. International Food Policy Research Institute (IFPRI), Washington, DC.

Belton, B., and M.J. Filipski. 2019. "Rural Transformation in Central Myanmar: By How Much, and For Whom?" *Journal of Rural Studies* 67: 166–176.

Belton, B., M. Filipski, C. Hu, A.T. Oo, and A. Htun. 2017. *Rural Transformation in Central Myanmar: Results from the Rural Economy and Agriculture Dry Zone Survey*. Food Security Policy Research Paper 64. East Lansing: Michigan State University.

Boughton, D., I. Okamoto, S.S. Mark, H.T. Oo, T. Myint, and A.M. Thawnghmung. 2020. "Agriculture and the Rural Economy: The Struggle to Transform Rural Livelihoods." In *Myanmar: Politics, Economy, and Society,* eds. A. Simpson and N. Farrelly, Chapter 10. Oxfordshire, UK: Routledge.

Boughton, D., N. Aung, B. Belton, M.J. Filipski, and D. Mather. 2018. *Myanmar's Rural Economy: A Case Study in Delayed Transformation*. Feed the Future Innovation Lab for Food Security Policy Research Paper 104. East Lansing: Michigan State University.

Chawanote, C. 2012. "Rural Household Non-Farm Businesses: Startup, Expansion, Contraction, or Exit?" Poster presented at 2012 Agricultural and Applied Economics Association Annual Meeting, Seattle, August 12–14.

Chawanote, C., and C.B. Barrett. 2012. "Non-Farm Occupational and Earnings Dynamics in Rural Thailand." PhD dissertation, Charles H. Dyson School of Applied Economics and Management, Cornell University, Ithaca, NY.

CSO (Central Statistical Organization). 2019. "Myanmar Living Conditions Survey (2017)." Accessed 2021. www.csostat.gov.mm/FileUpload/cso/LatestInformation/MLCS_Technical_Report.pdf

Dapice, D. 2003. "Current Economic Conditions in Myanmar and Options for Sustainable Growth." Global Development and Environment Institute Working Paper 03-04. Tufts University, Medford, MA.

Deininger, K., and P. Olinto. 2001. "Rural Nonfarm Employment and Income Diversification in Colombia." *World Development* 29 (3): 455–465.

Filipski, M.J., H.L. Lee, A. Hein, and U. Nischan. 2020. "Emigration and Rising Wages in Myanmar: Evidence from Mon State." *Journal of Development Studies* 56 (5): 946–963.

Gordon, A., and C. Craig. 2001. *Rural Non-Farm Activities and Poverty Alleviation in Sub-Saharan Africa*. Natural Resources Institute Policy Series 14. Chatham Maritime, Kent, UK: Natural Resources Institute.

GRET. 2021. *Landlessness*. Myanmar Land and Livelihoods Policy Brief 2. Yangon, Myanmar.

Haggblade, S., P.B.R. Hazell, and T. Reardon. 2007. *Transforming the Rural Nonfarm Economy: Opportunities and Threats in the Developing World*. Baltimore: Johns Hopkins University Press.

Lambrecht, I., B. Belton, P. Fang, B. Minten, and P.T. Naing. 2022. *Agricultural Land and Crop Production in Myanmar*. Myanmar Strategy Support Program Working Paper 24. IFPRI, Washington, DC.

Losch, B., S. Fréguin-Gresh, and E. White. 2012. *Structural Transformation and Rural Change Revisited: Challenges for Late Developing Countries in a Globalizing World*. Washington, DC: World Bank.

Martin, S.M., and K. Lorenzen. 2016. "Livelihood Diversification in Rural Laos." *World Development* 83: 231–243.

Mellac, M., and C. Castellanet. 2015. *Convergence under Pressure: Different Routes to Private Ownership Through Land Reforms in Four Mekong Countries (Myanmar, Cambodia, Laos, Vietnam).* Paris: Land Tenure and Development Technical Committee, Agence Française de Développement, Ministry of Foreign Affairs and International Development.

Mohanty, S.K., G. Rasul, B. Mahapatra, D. Choudhury, S. Tuladhar, and E. Valdemar Holmgren. 2018. "Multidimensional Poverty in Mountainous Regions: Shan and Chin in Myanmar." *Social Indicators Research* 138 (1): 23–44.

Phann, D., S. Phay, K. Tong, and D. Pon. 2015. "Landlessness and Child Labour in Cambodia." *Cambodia Development Review* 19: 1–5.

Phyo, A.S., C.M. Grünbühel, L. Williams, and S.S. Htway. 2016. "Changing Dynamics in Rural Myanmar: Non-Farm Development, Agricultural Labor Shortages, and Farm Mechanization." Paper presented at the ACIAR Project Mid-Term Research Conference, Australian Centre for International Agricultural Research (ACIAR), Yezin Agricultural University, Canberra, Australia, May 31–June 1.

Pritchard, B., A. Rammohan, and M. Vicol. 2018. "The Importance of Non-Farm Livelihoods for Household Food Security and Dietary Diversity in Rural Myanmar." *Journal of Rural Studies* 67: 89–100.

Reardon, T., J.E. Taylor, K. Stamoulis, P. Lanjouw, and A. Balisacan. 2000. "Effects of Non-Farm Employment on Rural Income Inequality in Developing Countries: An Investment Perspective." *Journal of Agricultural Economics* 51 (2): 266–288.

Rigg, J. 2006. "Land, Farming, Livelihoods, and Poverty: Rethinking the Links in the Rural South." *World Development* 34 (1): 180–202.

Sen, B., P. Dorosh, and M. Ahmed. 2021. "Moving Out of Agriculture in Bangladesh: The Role of Farm, Non-Farm and Mixed Households." *World Development* 144: 105479.

World Bank. 2012. *Well Begun, Not Yet Done: Vietnam's Remarkable Progress on Poverty Reduction and the Emerging Challenges—2012 Vietnam Poverty Assessment.* Hanoi, Viet Nam.

World Bank. 2016. *Livelihoods and Social Change in Rural Myanmar: Qualitative Social and Economic Monitoring Round Five Report: Main Report.* Washington, DC: World Bank.

World Bank. 2017. *Increasing the Impact of Public Spending on Agricultural Growth: Myanmar Agricultural Public Expenditure Review.* Yangon, Myanmar.