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# INCOME DIVERSIFICATION AND THE RURAL NON-FARM ECONOMY

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## ABSTRACT

This paper empirically investigates the role of off-farm and non-agricultural activities in Myanmar's rural sector, based primarily on the nationally representative MLCS 2016/17. We find evidence of extensive diversification: rural households are generating about 25 percent of their income on the farm; the remaining income comes from wage labor (34 percent), non-agricultural businesses (27 percent), and about 15 percent from passive sources (remittances and others). More than half of rural households engage in non-farm activities. Despite this large participation, the non-farm sector is informal and has yet to reach its full job-creating potential. Diversification is broad-reaching, and prevalent at all levels of income; however, wealthier households participate more heavily in the non-farm sector. Land constraints, household size, education levels, and gender all appear correlated with households' propensity to diversify. Since the start of the twin crises, we continue to see significant diversification in rural incomes and all sectors – farm and non-farm – suffering very similar income shocks.

## **1. INTRODUCTION**

The 2011-2021 decade in Myanmar was characterized by political and economic reform, which ushered rapid transformation throughout the economy. In the rural sector, these processes have been well documented in relation to farming, including profound changes in agricultural crops grown, practices, markets, and value chains (Belton & Filipski, 2019; Boughton et al., 2018; Filipski et al., 2020; World Bank, 2017). However, this period also witnessed a diversification of activities away from agriculture (Boughton et al., 2018; Phyo et al., 2016; Pritchard et al., 2019), with incomes shifting away from reliance on subsistence farming, and on agriculture in general. The contributions of wage work and rural non-farm businesses are growing in importance as the rural sector moves beyond an agrarian model (Belton et al., 2017).

This piece aims to shed light on the nature and extent of these diversification processes, based primarily on nationally representative data from the 2016/17 Myanmar Living Conditions Survey (MLCS), as well as on the Myanmar Household Welfare Survey (MHWS) of 2021-2022. We analyze patterns in income-generating activities off the farm, including wage employment (agricultural and non-agricultural) and non-farm businesses. Beyond propensities 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 of this study is the use of a nationally-representative dataset, complementing regional efforts to document rural diversification in Myanmar, such as Phyo et al. (2016) in the Delta region.

We find evidence of extensive diversification: more than half of rural households engage in nonfarm activities which contribute at least a third of total rural household incomes. Despite this large participation, the non-farm sector is informal and has yet to reach its full job-creating potential. Diversification is broad-reaching, and prevalent at all levels of income; however, wealthier households participate more heavily in the non-farm sector. Land constraints, household size, education levels, and gender all appear correlated with households' propensity to diversify.

The chapter is organized as follows: after presenting an overview of the data and methodology (section 2), we provide a general overview of the income diversification in the rural economy (section 3). We follow with a detailed description of wage employment opportunities (section 4), and of the non-farm business landscape (section 5). We then provide an econometric analysis of the correlates of income diversification (section 6). Before concluding, we analyze (section 7) MHWS data to shed light on the impact the twin crises that started in 2020 have had on these diversification processes.

## 2. DATA AND METHODS

The Myanmar Living Conditions Survey (MLCS) 2016/2017 is a nationally representative survey, designed to provide a comprehensive source of information on livelihoods. It collected, among others, the detailed information we need on household occupations and income sources for each household member. It reached a total of 13,730 households, of which 8,388 households were rural and were therefore included for the present analysis.

The Myanmar Household Welfare Survey (MHWS) consists of three rounds of surveys collected by phone between December 2021 and August 2022. It contains modules specifically referring to respondents' experience of the twin crises, and any associated coping mechanisms. We analyze some of these data in relation to the rural non-farm sector in the last section of this chapter.

Following Barrett *et al.* (2001) let us 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 (owned or not, and including agricultural wage work). Because of how these categories were defined in the survey, other primary sector workers (forestry and fishery) are also included with agriculture: we will refer to this as the agricultural sector, as farming is the overwhelmingly dominant category. All other work is considered "non-agricultural" or "non-farm", such as non-farm wage employment or non-farm business activities. Non-farm business activities may include the processing of agricultural goods, or the transport or trading of agricultural goods other than 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 (agricultural or not). Finally, passive income sources such as rents or transfers (including remittances from relatives abroad) are excluded from all the categories defined above, as they do not require active work by current household members.

In much of the analysis, we partition the country into four agro-ecological regions: "Delta", "Coastal", "Dry Zone", and "Hills and Mountains" (Figure 1). In terms of population, these regions account for 28 percent, 14 percent, 26 percent, and 33 percent of our sample, respectively.



#### Figure 1: Map of Myanmar Agro-Ecological Zones

## **3. DIVERSIFICATION BEYOND AGRICULTURE**

In this section we focus on the overall breakdown of income sources by type of activities: on and off the farm, agricultural or not, for a wage or not. We will show that while agriculture remains important, it is far from dominant.

#### 3.1 A reduced role of agriculture in rural incomes

While a large majority of rural households in Myanmar (70 percent) still engage in some form of agricultural production (growing crops, livestock, or fish), the importance of farming as an incomegenerating activity is far smaller. Figure 2 shows that merely 21 percent of rural incomes comes from crop production, with livestock sales adding less than 1 percent and aquaculture less than 2 percent (even when lumped with fisheries).<sup>1</sup> 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 are only generating about 25 percent of their income on the farm.

The remaining income comes from wage labor (34 percent), non-agricultural businesses (27 percent), and about 15 percent from passive sources (remittances and others). Broadly speaking, Myanmar rural households draw about a quarter of their income from farming, a third from wage work, another quarter running non-farm businesses, and the remaining sixth mostly from transfers. This testifies to a highly diversified rural economy.



#### Figure 2: Average Distribution of Income Sources in Myanmar's Rural Sector

Source: Authors' calculations based on the MLCS

Source: Authors' calculations based on the MLCS

<sup>&</sup>lt;sup>1</sup> Note that the pie shows shares of total incomes generated. Looking at average income shares produces a similar ranking of activities, with the difference that average income share from non-farm businesses is lower (only 15 percent), and all other shares are higher by 1-3 percentage points.

The largest source of rural income is by far wage labor, at 34 percent. Wage labor is an *off-farm*, but not necessarily a *non-farm*, activity. This distinction is particularly relevant in Myanmar, where landlessness among the rural population is remarkably high, hovering around 50 percent depending on the region (Lambrecht et al., 2022; Boughton et al., 2018; World Bank, 2016).<sup>2</sup> This has created a large class of landless agricultural laborers and could explain the high share of incomes coming from off-farm wage work. However, further breaking down wage work into agricultural and non-agricultural jobs shows that the two contribute roughly equally to income, about 17 percent each (Table 1, last column). While we do not know the number of workers involved or days worked, we can still confidently conclude that non-agricultural jobs are now as big an income-generator as farm jobs in Myanmar's rural sector.

Because earnings are low in the farm sector, the low contribution of agriculture to incomes is partly explained by sectoral earnings disparities. Indeed, the shares of participation to agricultural activities (bottom panel of Table 1) are much higher than shares of income from these activities (upper panel of Table 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. Over a quarter of households (26.8 percent) have wage workers that only work on farms, against 19 percent with only non-farm wage workers -- only 9.4 percent do both. In total, 36.2 percent of households have at least some members engaging in some non-farm wage work, bringing in 16.7 percent of income.

	Agro-ecological Zones (%)					
Livelihood*	Delta	Coastal	Dry Zone	Hills and Mountains	All	
Share of household income from activity, percent:						
Crop production	21.8	10.8	21.1	26.9	20.1	
Livestock	0.2	0.2	0.9	1.4	0.7	
Aquaculture/Fisheries	2.6	8.1	0.5	0.3	2.9	
Wage labor, of which:	34.6	34.8	32.7	32.9	33.7	
a. Agricultural	14.8	19.6	20.2	12.3	16.7	
b. Non-Agricultural	19.8	15.2	12.5	20.7	17.0	
Non-farm businesses	24.6	31.7	29.5	24.0	27.5	
Remittance	10.0	10.6	9.6	11.9	10.5	
Others	6.2	3.7	5.8	2.5	4.6	
All Ag work (farm or wage)	39.4	44	44.3	56.4	45.9	
Share of household engaged in activity, percent:						
Crop production	43.1	45.4	55.8	69.3	52.5	
Livestock	58.9	54.3	59.7	57.7	58.5	
Aquaculture/Fisheries	18.3	19.4	2.1	13	11.9	
Wage labor, of which:	58.7	52.9	58.5	46.3	55.8	
a. Only Agricultural	28.5	28.5	26.3	20.9	26.8	
b. Only Non-Agricultural	20.8	15.4	21.9	17.6	19.5	
c. Both	9.5	9.0	10.2	7.8	9.4	
Non-farm businesses	33	33.5	30	22.4	30	
Remittance	20	24.8	18.9	19	19.8	
Others	22.7	9.8	29.3	6.2	20.7	
Any Ag work (farm or wage)	71.8	78.8	77.4	85.9	78.9	

#### Table 1: Importance of different activities in household income

Source: Authors' calculations based on the MLCS

<sup>&</sup>lt;sup>2</sup> These high rates of landlessness result from number of factors, including weak tenure arrangements, losses of collateral, and a history of public confiscations (Thein et al., 2018).

The first four columns of Table 1 further break down these statistics by agro-ecological zone. They reveal only mild disparities overall. The Delta and Coastal zones are less reliant on farming (even when including fishing and fish-farming) than the Dry Zone or Hills and Mountains zones. 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, both in terms of participation and incomes, but 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, agriculture was the dominant income generator for Myanmar's rural population (Dapice, 2003); that is not the case anymore.

#### 3.2 Rural wealth is becoming detached from land

We look for associations between wealth and income diversification in our data along two dimensions of wealth: total income, and total landholdings. We define five income quintiles (1 being the poorest, and 5 the wealthiest), and three landholding terciles (1 being the smallest 33.3 percent of landholdings, 2 the intermediate and 3 the largest).

There is a very strong relationship between income levels and participation in non-agricultural activities, meaning non-farm businesses and/or non-farm wage work. Participation shares grow from each income quintile to the next (Figure 3, right). Only 24 percent of the poorest-quintile households derive income from non-agricultural sources; among the richest households, that share is 77 percent.

This strong association is likely reflecting a bidirectional causal relationship. Wealthier households are likely better able to engage in non-agricultural activities (financial means, network connections, etc.). Conversely, engaging in non-agricultural activities likely generates higher incomes. While this does not preclude the existence of "distress diversification" (whereby the poorest households are forced into the non-farm sector by lack of other options), clearly that is not the norm in our data.

The correlation between land ownership and non-agricultural work is much weaker. Landless households are, perhaps unsurprisingly, the most likely to engage in non-agricultural work, at 58 percent (Figure 3, right). However, among landed households, the shares are remarkably similar: roughly 35 percent of landed households derive some income from non-agricultural activity. Even the largest landowners, in Tercile 3, are likely to engage in non-farm work.



#### Figure 3: Participation in non-agricultural work by land tercile and income quintile

Taken together, these results suggest that the sources of wealth in the rural sector may be shifting. Rather than being primarily based on farmland as it would in a purely agrarian economy, rural wealth may increasingly be determined by other forms of capital supporting non-farm activities.

Source: Authors' calculations based on the MLCS

As observed over a decade ago by Rigg (2006) for a number of low-income countries, "[rural livelihoods] are becoming delinked from land". It also follows that diversification in Myanmar's rural sector is likely linked to growth, rather than distress. Similar conclusions were recently reached by Martin and Lorenzen (2016) for neighboring Laos.

## 4. THE RURAL NON-FARM BUSINESS LANDSCAPE

Operating a non-farm business is the second most common occupation in the sample after agriculture. Nearly one-third (27.5 percent) of the surveyed rural households engage in some form of non-farm businesses (Figure 4). Additionally, a quarter of households with non-farm businesses operate more than one business. Comparing regionally, rural non-farm enterprise participation is slightly higher (40 percent) in Thailand (Chawanote, 2012), and slightly lower (22.3 percent) in the Philippines (Anabo, 2021), and relatively close (32 percent) in Bangladesh (Sen et al., 2021).

The types of businesses operating in the rural sector is diverse, but dominated by trade and retail, comprising 45 percent of answers. This includes any wholesale or retail trade, from food to motor vehicles. Similar results were reported by Nagler and Naude (2017) and Tafesse et al. (2015) for other countries. The next largest category is manufacturing (19 percent), which includes a diverse range of activities, the most common being food processing and textiles, but also refined petroleum furniture, paper products, rubber and plastic products, etc. Transport services account for 11 percent of rural businesses.

The remaining categories include mining, food and accommodation, construction, utilities (smallscale electricity, water collection services) and professional services, as well as the catch-all "other services". Businesses linked to the agricultural sector are spread across all these different subcategories, but overall, they constitute about 11 percent of the total non-farm businesses. This shows that the non-farm sector in rural Myanmar has moved beyond its reliance on agriculture.



#### Figure 4: Share of household engaging in various types of non-farm businesses

Source: Authors' calculations based on the MLCS

### 4.1 Regional patterns

Trade and retail businesses are the most widespread type of non-farm business across all four agroecological zones (Table 2). Overall, the second most important business type is manufacturing, which is particularly dominant in the Dry Zone region. Transport services also occupy a large share in the Delta region, likely reflecting higher population densities and proximity to Yangon markets and infrastructure.

Non form Ducinesso	Agro-ecological zones (%)				
Non-tarm Businesses	Delta	Coastal	Dry Zone	Hills and Mountains	Total
Mining	0.3	0.5	3.1	5.2	1.9
Manufacture	11.2	16.8	32.4	14.2	19.4
Utility	0.1	0.4	0.2	0.1	0.2
Construction	3.0	3.3	1.3	4.3	2.6
Trade and Retail	47.3	50.8	41.7	45.3	45.5
Transport	15.6	9.2	4.7	9.9	10.5
Food and Accommodation	7.6	5.8	4.5	7.9	6.4
Professional Service	2.4	3.5	3.5	2.1	2.8
Other Services	12.5	9.7	8.8	11.1	10.8
Total	100.0	100.0	100.0	100.0	100.0

#### Table 2: Distribution on businesses in each agro-ecological zone

Source: Authors' calculations based on the MLCS

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 in proximity 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 manufacture (56.8 percent) and mining enterprises (54 percent) in the country. Similarly, the Hills and Mountains region hosts a large share of mining businesses, consistently with its significant mineral reserves, but a low share of manufacturing, utilities, or professional services reflecting limited access to opportunities and infrastructure (Mohanty et al., 2018).

#### 4.2 Characteristics of businesses

Most non-farm businesses were established recently. Figure 5 reveals that most non-farm businesses in rural Myanmar are relatively new. While some businesses have been operating for

decades (up to 80 years for the oldest), these are few in the sample. Of the businesses interviewed, 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 non-farm businesses in the recent past.<sup>3</sup>

Almost 95 percent of businesses operated 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 is needed to shed light on the underlying causes, which could include population growth, labor-saving technologies, de-agrarianization, etc.

# Figure 5: Distribution of the businesses based on years of operation



Source: Authors' calculations based on the MLCS

Most businesses are informal, home-

based, one-person operations. The business landscape is dominated by relatively informal enterprises, 52 percent of which are home-operated, and another 26 percent are mobile (including transport businesses, but also some retail). Manufacturing businesses are overwhelmingly home-based (86 percent), suggesting a dominance of informal, low capital investment operations. The vast majority (93 percent) of businesses we interviewed were not registered in the municipal council nor 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-scale.

<sup>&</sup>lt;sup>3</sup> Due to 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 non-farm businesses.



Figure 6: Average number of workers (hired or family) in non-farm businesses, by type

Source: Authors' calculations based on the MLCS

A large proportion of enterprises (67 percent) are micro-scaled, with only one worker involved (Figure 6), including the owner and any family or hired help. The number of enterprises involving more than 10 people is negligible at only 1 percent overall. This figure is slightly higher for construction businesses, but even in those categories only 16 percent and 11 percent of businesses have more than ten workers, respectively.

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 of businesses, most hire very few workers, though the highest number of employees in the sample reached 213. The dominance of self-employed, small-scale enterprises without paid employees is consistent with regional patterns and developing economies in general (Anabo, 2021; Chawanote & Barrett, 2012; Haggblade et al., 2007).

Construction and mining businesses generated slightly greater demand for hired labor, but the number remains low (5 and 2 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 non-farm businesses in rural Myanmar are widespread and seem to be absorbing a growing share of the labor force, their ability to generate opportunities for hired employment remain limited.

Over half of business owners are women. Overall, they represent 53 percent of non-farm business owners (Table 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 the general population (bottom of Table 3).

Although the shares of men and women owning non-farm enterprises are roughly equal, there is a high degree of gender differentiation in some specific businesses. In agricultural and fishing businesses, male ownership dominates heavily (71 percent); likewise in mining (60 percent). In contrast, food and accommodation businesses have higher shares of female owners (58 percent).

#### Table 3: Demographics of non-farm business owners

Characteristics	Age (mean)	% Head of	% Female	% Married
Business type		the family		
Mining	29.1	21.5	40.1	61.2
Manufacture	34.1	24.9	53.6	51.0
Utility	40.8	33.5	50.6	58.3
Construction	30	29.2	50.7	46.2
Trade and Retail	33.5	28.9	54.5	50.4
Transport	29.5	29.4	48.0	56.8
Food and accommodation	35.6	27.1	57.6	49.6
Professional Service	36.6	21.5	52.1	62.8
Other Services	35.2	30.5	51.6	52.9
All businesses owners	33.5	27.9	53.1	51.9
Population	31.3	23.3	52.7	48.0

Source: Authors' calculations based on the MLCS

### 4.3 Business activities and wealth

Many households engaged in non-farm businesses are landless. More than half (56 percent) of business-owning households in the survey are landless. Rural Myanmar has a high share of landlessness (45 percent), but even so, the contribution of landless households to non-farm businesses is disproportionately high (Table 4). It is not clear how to interpret this: it may be that land constraints push households to engage in non-farm 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 work is needed to fully interpret the origins of this correlation.

Business tune			Land owners	hip	
Busiliess type	Landless	T1	Т2	Т3	Total
Mining	51.7	6.8	20.8	20.7	100.0
Manufacture	48.0	15.2	19.8	17.1	100.0
Utility	74.9	0.0	0.0	25.1	100.0
Construction	77.1	8.6	10.4	3.9	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
Food and accommodation	68.6	9.8	10.8	10.8	100.0
Professional Service	62.7	16.3	12.7	8.3	100.0
Other Services	49.3	13.9	16.1	20.7	100.0
Total	56.1	12.7	15.4	15.9	100.0
Population %	45.3	15.6	20.9	18.2	100.0

#### Table 4: Share of non-farm businesses by landholding group

Source: Authors' calculations based on the MLCS

Construction, transport and food and accommodation businesses earn the most. Figure 7 shows that the highest average earnings are made by construction businesses, followed by transport and food and accommodation. 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. On the other hand, manufacture and utility businesses lie at the other extreme of median incomes, even though they are typically thought of as capital-intensive, again suggesting these are very small-scale operations.

Differences in earnings could simply be reflecting the scale of businesses, but these results are nearly perfectly reproduced with earnings-per-worker. The right panel shows again that transport and food and accommodation businesses have the highest productivity in terms of earnings-perworker, followed by utility. The bottom of the ranking still features manufacture and other services.





Source: Authors' calculations based on the MLCS

## 5. THE ROLE OF WAGE EMPLOYMENT

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

#### 5.1 Sectoral patterns

The household data analyzed in the previous section showed that the share of households with at least one member engaging in non-agricultural wage work is large, and in fact it is larger than the share of households with at least one agricultural worker. At the member level, however the picture is slightly different: of all the jobs reported in the data, 55 percent are agricultural, against 45 percent non-agricultural (Figure 8). 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 non-agricultural wage work, farming is still the larger employer in terms of job numbers.

Among non-agricultural wage occupations, the manufacturing and construction industries are the largest employers, with 24 percent each. Professional services (health, education, finances, etc.) provide 16 percent of non-agricultural paid jobs, and retail 11 percent. A number of categories split the remaining quarter of occupations. Overall, this portrays a highly diversified set of non-farm jobs for rural workers.

#### Figure 8: Sectoral division of the wage occupation



Source: Authors' calculations based on the MLCS

Table 5 below shows the distribution of wage industries by agro-ecological zones. Some patterns emerge in the distribution of wage industries compared to population (given in the last row). The Hills and Mountain zone, which is home to 19 percent of total population, has a significantly higher share of mining industries (38.2 percent), lower agriculture (12.2 percent) and much lower manufacturing (5.4 percent). This likely reflects the large mineral reserve in the area and poor agricultural land characteristics. Compared to the population distribution, the Delta has relatively higher shares of wage industries, particularly transportation.

	Agro-ecological zones (%)				
Industries	Delta	Coastal	Dry Zone	Hills and Mountains	Total
Agriculture and fishing	42.9	9.1	35.8	12.2	100.00
Construction	38.4	7.0	41.3	13.3	100.00
Manufacture	49.1	6.1	39.4	5.4	100.00
Professional Service	37.1	8.6	32.1	22.2	100.00
Trade and Retail	35.7	8.1	44.0	12.1	100.00
Transport	56.6	2.0	31.0	10.5	100.00
Mining	12.4	6.8	42.6	38.2	100.00
Food and accommodation	36.8	10.9	24.7	27.6	100.00
Other Services	50.3	3.3	37.7	8.8	100.00
Total	42.5	8.9	36.8	12.7	100.00
Population %	36.0	9.6	35.3	19.0	100.00

#### Table 5: Sectoral distribution of wage work by agro-ecological zone

Source: Authors' calculations based on the MLCS

The wage employment sector in rural Myanmar is predominantly low-skilled, with a majority of workers (64 percent) that can be categorized as low-skilled (Table 6). However, the remaining 36 percent includes skilled workers of the primary sector, craftsmen and women, and other workers who can be categorized as skilled and thus likely command a higher wage.

Main occupation	Freq.	Percent (%)
Low-skilled occupation	3454	64.0
Skilled ag, forestry and fishery workers	626	11.6
Crafts and skilled trades	523	9.7
Professionals	263	4.9
Services and sales worker	160	3.0
Plant operators and assemblers	136	2.5
Manager	41	0.8
Others	195	3.6
Total	5398	100.0

#### Table 6: Wage work by occupational category

Source: Authors' calculations based on the MLCS

We further found that wage work was almost invariably informal. An almost insignificant number of wage employees reported having a written contract (5 percent). About 10 percent of wage-employed individuals are supposed to get a pension from their employer, and a currently similar percentage of wage workers get 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.

#### 5.2 Wage work and wealth

Wage employment decreases gradually with wealth. Figure 9 shows the negative correlation between wage employment and landholding. 72 percent of landless households are involved in wage employment. This share decreases in each successive landholding tercile with only 31 percent in tercile 3. We also found a somewhat less dramatic positive correlation between wage employment and household income (right panel). Wage labor is generally thought of low productivity work, and better-off households tend to engage in trade and industry where they could earn higher incomes (Gordon & 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 most likely driven by the large share of non-agricultural wage work within wage employment, which positively affects the wealthier household participation.



# Figure 9: Household participation in wage employment by land tercile (left) and income quintile (right)

Source: Authors' calculations based on the MLCS

## 6. CHARACTERISTICS ASSOCIATED WITH DIVERSIFICATION

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

We present results of the analysis in two parts: First, we use regressions to explore the factors associated with participation in non-farm business activities or non-farm wage work. Second, we compute indices of income diversification at the household level and explore their correlates. The variables used in the regression analysis are described in Table 7.

#### Table 7: Variables used in the regression analysis

Variables and definition	Mean	Std. Dev.
Dependent variables		
Non-farm businesses participation	0.30	0.46
Non-ag wage participation	0.24	0.43
Non-farm income share	0.35	0.44
Simpson's Index of Diversification (SID)	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 variables		
Age head of household	50.60	14.73
Gender head of household (1= female)	0.20	0.40
Marital status head of household (1=married)	0.75	0.43
Completed primary education head of household (1=yes)	0.29	0.46
Adult equivalents in the household	4.13	1.84
Has migrant (1=yes)	0.20	0.40
Area of farmland owned (ha)	1.47	3.69
Asset index	0.43	1.28
Agro-ecological regions (1=yes)		
Delta	0.37	0.48
Coastal	0.09	0.28
Dry Zone	0.34	0.47
Hills and mountains	0.19	0.38

Source: Authors' calculations based on the MLCS

### 6.1 Correlates of participation in non-farm activities

Table 8 presents associates of household participation in non-farm business and non-agricultural wage activities (marginals of a logistic regression). Each value represents the increase (or, if negative, decrease) in the probability of participating in those activities associated with a one-unit increase in the different variables.

Several factors appear significantly associated with non-farm businesses (first column), some of them likely reflecting life cycle dynamics. A household with an older head is more likely to participate in non-farm businesses (by 0.1 percent for each year of age), as are married households and those with more adults. Most strikingly, the education of the household head has a strongly significant association with the propensity to engage in non-farm business activities: someone who completed primary school (or more) is 11.5 percent more likely to have a business than one who did not. Land area is negatively associated with non-farm business activities, reflecting 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 et al. (2001) in Tanzania.

	(1)	(2)
	Non-Farm Business	Non-Ag Wage
Household head characteristics:		
Age of the head of the household	0.001*	-0.001***
	(0.000)	(0.000)
HH head is female (1=yes)	0.015	0.019
	(0.020)	(0.018)
HH head is married (1=yes)	0.060**	-0.021
	(0.020)	(0.018)
HH head completed primary education (1=yes)	0.115***	0.118***
	(0.010)	(0.009)
Household characteristics:		
Number of adult equivalents in the HH	0.015***	0.030***
	(0.003)	(0.002)
Household has a migrant	-0.041**	-0.049***
	(0.012)	(0.012)
Agricultural land area (ha)	-0.008***	-0.020***
	(0.002)	(0.003)
Agricultural assets index	-0.006	-0.029***
	(0.005)	(0.006)
Agro-ecological zone (relative to Delta):		
Coastal	0.014	-0.091***
	(0.017)	(0.015)
Dry Zone	-0.050***	-0.030*
	(0.014)	(0.013)
Hills and Mountains	-0.125***	-0.084***
	(0.013)	(0.012)
Ν	8388.000	8388.000

#### Table 8: Correlates of participation in non-farm business activities

Notes: Marginals from logit regressions. Standard errors in parentheses.\*,\*\*,\*\*\* indicate significance at 10%, 5%, 1% level, respectively. Source: Authors' calculations based on the MLCS

The presence of migrants in the household is associated with decreased engagement in nonfarm businesses. 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 mean that non-farm businesses are considered not profitable enough or too risky. It could mean that remittances are too low to support investment, or high enough that the household gives up seeking business opportunities (dependency). All are likely to occur depending on specific situations of the household.

Participation in non-agricultural wage employment (second column of Table 8) follows very similar association patterns as non-farm business. Again, demographics and agricultural wealth matter significantly, as is education of the household head. The importance of education in opening up higher-return non-farm activities, and in particular high-paying non-agricultural jobs, has been well documented in the literature (Barrett et al., 2001; Babatunde and Qaim, 2010; Reardon et al., 2000; Deininger & Olinto, 2001; Woldenhanna & Oskam, 2001; Wiggins et al., 2015). Again, we find that having migrants is negatively associated with non-farm wage participation.

#### 6.2 Livelihood strategies and diversification

We classify households into three "Livelihood strategy" categories by whether their income comprises farm sources only, off-farm sources only, or a mix of the two. Table 9 presents characteristics associated with each strategy (marginals in 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. Female-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, 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 farm work (Winters et al., 2010).

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 region (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.

#### Table 9: Associates of livelihood strategies

	(1)	(2)	(3)
	Farm only	Farm + Off-Far <u>m</u>	Off-Farm Only
Household head characteristics:			
Age of the head of the household	-0.000	-0.001***	0.001***
	(0.000)	(0.000)	(0.000)
HH head is Female (1=yes)	-0.043**	-0.008	0.050***
	(0.017)	(0.020)	(0.015)
HH head is married (1=yes)	-0.018	0.025	-0.007
	(0.016)	(0.019)	(0.015)
HH head completed primary education (yes=1)	-0.066***	-0.003	0.069***
	(0.009)	(0.011)	(0.009)
Household characteristics:			
Number of adult equivalents in the HH	-0.010***	0.029***	-0.019***
	(0.002)	(0.003)	(0.002)
Household having a migrant	-2.581	1.994	0.586
	(79.541)	(60.812)	(18.729)
Ag land area (ha)	0.048***	0.149***	-0.196***
	(0.002)	(0.005)	(0.007)
Agricultural assets index	0.088***	0.244***	-0.332***
	(0.008)	(0.024)	(0.031)
Agro-ecological zone (relative to Delta):			
Coastal	0.035**	-0.037**	0.002
	(0.015)	(0.019)	(0.015)
Dry Zone	0.024**	-0.063***	0.039***
	(0.009)	(0.012)	(0.010)
Hills and Mountains	0.201***	-0.150***	-0.051***
	(0.013)	(0.014)	(0.012)
Observations	8388	8388	8388

Notes: Marginals from multinomial logit regression. Standard errors in parentheses.\*,\*\*,\*\*\* indicate significance at 10%, 5%, 1% level, respectively.

Source: Authors' calculations based on the MLCS

We further explore these questions by looking at associates of two measures of income diversification. The first is the non-agricultural income share (NAIS), which is simply the share of total household income generated from non-agricultural activities (business or wage work); the second is the Simpsons index of income diversification (SID).<sup>4</sup> Figure 10 plots regression coefficients akin to those presented in Table 8, but using Tobit regressions to account for the fact that these explained variables are bounded.<sup>5</sup>





Source: Authors' calculations based on the MLCS

<sup>&</sup>lt;sup>4</sup> The formula for the Simpson's index is  $SID = 1 - \sum_{i=1}^{n} P_i^2$ , where Pi is the proportion of income coming from the source i and n is the total number of sources of income.

<sup>&</sup>lt;sup>5</sup> Using OLS, Double-hurdle, or Heckman correction models did not significantly alter the results. DeJanvry and Sadoulet (2001) and Woldenhanna and Oskam (2001) use Tobit models in similar settings.

Results are mostly in line with previous regressions. Education is highly correlated with the share of income from non-agricultural activities. Household agricultural assets and land ownership are both negatively associated with the NAIS. More adults in the household correlate with higher shares of non-agricultural income, but having migrants is again negatively correlated, echoing the results from Table 8.

Turning to SID, two results that stand out. Female headship correlates 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.

## 7. THE RURAL NON-FARM SECTOR SINCE 2021

The survey used to generate the above results was collected in 2017. Since then, the twin crises of COVID-19 followed by the 2021 military coup have substantially altered the rural activity landscape. To shed some light on this, we analyze three rounds of the Myanmar Household Welfare Survey, conducted roughly around January - February 2022 (Round 1), April - May 2022 (Round 2) and July - August 2022 (Round 3), respectively. The phone surveys are not from the same sample as the MLCS used in the rest of the chapter, nor do they ask the exact same questions. Nevertheless, they provide the most comparable existing estimates in scope and nature and shed some light on how the situation has evolved since then.

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 do see evidence of that in the MHWS, when looking at challenges reported by non-farm business operators (Table 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 number of customers. Both of these shares decrease in round 2 and 3, suggesting the situation improved somewhat – but issues remain.

Difficulties experienced by business owners:	Round 1	Round 2	Round 3
No difficulty (%)	27.1	41.3	40.7
Supply disruptions (%)	6.5	7.8	7.5
High prices of supply / fuel / transport / electricity (%)	27.0	25.4	24.5
Fewer customers (%)	18.5	12.2	9.6
Customers cannot reach business (%)	14.8	6.9	8.8
Labor shortages (%)	1.7	0.7	1.1
Disruption to banking / loans (%)	4.1	5.1	1.5
Other COVID-related (%)	0.1	0.1	0.2
Other (%)	0.3	0.6	6.1
Total (%)	100	100	100

Table 10: Difficulties encountered by non-farm rural businesses in the twin crises

Source: Authors' calculations based on the MHWS

We further see evidence of a slow-down for wage laborers, with nearly half of wage workers reporting having some difficulties (Table 11). The most common issue reported was the reduction of working hours, followed by reduction in wages, testimony to the labor surplus.

Difficulties experienced by wage workers:	Round 2	Round 3
No difficulty (%)	55.2	54.0
Reduced working hours / less work (%)	22.5	21.6
Low/reduced wages (%)	8.8	6.9
Not safe to travel to work location (%)	6.5	6.6
Not able to reach work location (%)	1.2	1.6
Not safe at work location (%)	2.2	2.6
Health issues (self or household member) (%)	3.3	4.0
Other (%)	0.4	2.7
Total (%)	100	100

#### Table 11: Difficulties encountered by rural wage workers in the twin crises

Note: Data for Round 1 not available

Source: Authors' calculations based on the MHWS

These challenges are likely harming household incomes. Indeed, a substantial share of rural households in the MHWS reported a substantial drop in income (Table 11). The data presented refers to the change, for each income source, between July-August 2021 and July-August 2022 (when the third round of the survey was collected). An important caveat is that the baseline here is mid-2021, which may already have been impacted by COVID as well as the political crisis, so we cannot say for sure how this compared to pre-crises levels and that these reflect nominal income changes.

Nearly a third of households reported decreases of over a 20 percent of income, across all activity types. Meanwhile, only about 5 percent of households reported increases of over 20 percent. This demonstrates the overall economic difficulties in 2022, as many more households had a bad year than a good one. However, a majority of households did not report dramatic changes: about 30 percent reported no change, and roughly equal shares reported small reductions and small increases, which balances out on average.

# Figure 11: Change in income compared to previous year (July/August 2022 versus July/August 2021)



Source: Authors' calculations based on the MLCS

The reported trends above do unfortunately not capture well changes in real terms as inflation has been substantial in 2022. To get at real changes, we look at the wages of agricultural laborers in particular, taking advantage of available 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 through adjustment by a food price inflation index, and by converting wages to kgs of rice and to USD (using market exchange rates).

We use three measures to derive estimates of what real wages constitute (Figure 12). First, when we take the costs of a food basket into consideration 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 to two years earlier. Compared to one year earlier, the decline amounted to 29 percent. Second, when wages are expressed in kilograms of rice that agricultural workers can buy, wages of men and women declined by 22 percent over the last year (from 9.3 kgs to 7.3 kgs for men and from 7.3 kgs to 5.7 kgs for women). Third, we also express agricultural wages in USD. During the monsoon of 2020, the mean wage paid in Myanmar was 4.2 USD/day for men and 3.5 USD/day for women. In the same period in 2022, these wages had fallen to almost half that level, by 44 percent for men (to 2.4 USD/day) and by 47 percent for women (to 1.8 USD/day). In the last year alone, a decline of 39 percent was seen. These trends therefore overall illustrate the significant real declines in wages - and therefore incomes - for farm wage workers.



#### Figure 12: Real agricultural wages (2020 - 2022)

Source: Authors' calculations based on the MHWS

Finally, Figure 11 does not suggest major differences between the farm and non-farm sectors: all four sectors suffered very similar income shocks. This suggests that the twin crises did not disproportionately affect the farm or non-farm sector. This is confirmed in Table 12, which shows participation shares in farm and non-farm 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 non-agricultural wage and non-farm business activities is slightly lower in the MLCS than the MHWS. This may be reflecting slightly different activity definitions between surveys, or sampling differences, or the true increase in non-agricultural activities over time. Either way, the trend towards rural income diversification does not seem to have been interrupted.

	MLCS	Myanmar Household Welfare Survey (2022)		
Household participates in:	2017	Round 1	Round 2	Round 3
Farming (%)	70.0	67.2	73.9	71.5
Agricultural wage (%)	36.2	34.7	29.4	35.6
Non-agricultural wage (%)	28.8	34.5	40.3	37.2
Non-farm businesses (%)	30.0	37.2	38.2	36.1

#### Table 12: Household participation shares by data source

Source: Authors' calculations based on the MHWS

## 8. 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 are directly coming from agriculture.

Over 55 percent of households have members engaging in wage work. While about half of these are farm workers, the rest are employed in construction, manufacturing, trade and other non-agricultural activities. Similarly, about a third of households have members engaged in a variety of non-farm businesses, ranging from trade to construction to manufacturing. These data further demonstrate the diversity of activities beyond farming that support rural livelihoods in Myanmar.

Diversification as such is not unusual in developing rural areas (Barrett et al., 2001), particularly where farming cycles release workers in the off-season (Losch et al., 2012). Nor is diversification necessarily a sign of growth: households may be driven to engage in odd-jobs and informal businesses by resource constraint ("distress diversification", Martin & Lorenzen, 2016). However, our data show a clear correlation between diversification and wealth, suggesting that it contributes meaningfully to rural growth.

Since 2020, Myanmar's rural sector has, as the rest of the country, faced significant challenges relating first to COVID-19 then to political instability. An encouraging sign is that nominal incomes seem to have more or less stabilized for part of the population, and that the diversity of rural economic activities has been maintained. Nevertheless, our data also show that a sizeable portion (about a third) of respondents faced significant hardships and nominal income losses of more than 20 percent. Especially casual agricultural wage laborers - among the poorest in the country - seem to have been hit hard as shown by strong declines in purchasing power since the start of the twin crises.

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