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ACKNOWLEDGEMENTS

This poverty and shared prosperity update report was prepared by Obert Pimhidzai (Senior Economist, GPV02) and Chiyu Niu (Economist, GPV02), with contributions from Tran Cong Thang (Vice Director General, IPSARD), Lan Vu Thi (Researcher, IPSARD), Hardwick Tchale (Senior Economist, GFA02) and Diji Chandrasekharan Behr (Senior Natural Resources Economist, GENE2).

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Currency Unit = VND (Vietnamese dong)
VND 23,204.50 = US$1.00
Fiscal Year = January to December

ACRONYMS AND ABBREVIATIONS

ECE Early Childhood Education
FDI Foreign Direct Investment
GSO General Statistics Office
HCMC Ho Chi Minh City
IPSARD Institute for Policy and Strategy for Agriculture and Rural Development
PPP Purchasing Power Parity
PFES Payment for Forest Environmental Services System
MARD Ministry of Agriculture and Rural Development
NTP National Target Programs
NTP-SPR National Target Programs for Sustainable Poverty Reduction
NTP-NRD National Target Programs for New Rural Development
SME Small and Medium Enterprise
TLU Total Livestock Unit
UNFP United Nations Population Fund
VARSS Vietnam Agricultural and Rural Household Survey
VBSP Vietnam Bank for Social Policies
VFD Vietnam Forests and Deltas (VFD) Program
VHLSV Vietnam Household Living Standards Survey
VND Vietnamese Dong
VNFF Vietnam Forest Protection and Development Fund
SIGNIFICANT TRANSFORMATION OF THE RURAL ECONOMIC STRUCTURE IS UNDERWAY

A massive reorganization of the rural labor market is underway, with workers leaving agriculture in large numbers. The agriculture sector has been consistently losing an average of 4 percent of its workforce annually since 2013. Most of those leaving agriculture have remained in rural areas and been absorbed into non-agriculture sectors, which have been creating rural non-agricultural jobs at a rapid pace. Nearly 4 million off-farm jobs have been created in rural areas since 2013, mostly in the industry sector, led by manufacturing. There are now almost as many non-agricultural jobs as agricultural jobs in rural areas. The share of people in wage employment in rural areas has risen dramatically, reaching 38 percent in the first quarter of 2018, compared with just 28 percent in 2013.

Rural households in Vietnam are now earning most of their income outside the agriculture sector. Agriculture’s contribution to rural incomes declined to 41 percent in 2016. Wages and remittances were the fastest rising sources of income. Combined with household businesses, they now contribute 57 percent of income. Households have largely diversified their incomes rather than leave the agriculture sector entirely, with the share of households still engaged in agriculture remaining very high.

REMTENESS AND LOW POPULATION DENSITY EXPLAIN MOST OF THE DIFFERENCES IN ACCESS TO NON-AGRICULTURAL JOBS

The gap between the total incomes of ethnic minorities and the Kinh and Hoa majority is accounted for almost entirely by differences in non-agricultural wage income. On average, non-agricultural incomes of ethnic minorities were 57 percent of the Kinh and Hoa, partly because access to off-farm opportunities varies widely by region. Job prospects are lowest in the mountainous areas where ethnic minorities are concentrated, and highest in the inland-delta areas.

Market potential, reflected in population density and distance to urban hubs, accounts for most of the variation in access to non-agricultural jobs. A statistical decomposition to better understand the differences in access to non-agricultural employment between ethnic minorities and the Kinh and Hoa majority suggests that about 62 percent of the difference is because ethnic minorities tend to live in communities with low population densities. About 13 percent of this difference is a result of these communities being far away from economic hubs, while 24 percent is attributed to their lack of secondary or tertiary education. Thus, economic distance—defined as proximity to sizeable centers of economic activities—largely explains the limited access to off-farm opportunities in lagging areas.

WOMEN DO NOT HAVE EQUAL ACCESS TO NON-AGRICULTURAL JOBS

The division of labor within the household disadvantages women no matter where they live. Women are less likely to engage in non-farm work to begin with, and even more likely to withdraw from off-farm work and engage more in farm work when there are young children in the family. Women are most likely to shift to agriculture in response to marginal increases in crop prices.

THE RURAL LABOR MARKET IS SEGMENTED BY DEMOGRAPHY

Off-farm job prospects differ dramatically between younger and older demographic groups. This is not only because the older generation is less educated, but largely because of intra-household divisions of labor between farming and non-farming activities. Given that households are holding onto their farms, and diversification guarantees higher incomes for most households other than the richest quintile, farm work is assigned to the older generation, while younger family members seek non-agricultural jobs. Consequently, the labor market is segmented into a traditional agriculture sector dominated by older people and a fast-growing non-agriculture sector for the younger generation. As such, agriculture will remain the only source of employment for a significant population demographic.
UNLOCKING UNTAPPED POTENTIAL IN AGRICULTURE WILL PROVIDE BETTER OPPORTUNITIES FOR THE POPULATION SEGMENT REMAINING IN THE SECTOR

The poor mostly have agriculture-based livelihoods, but they earn substantially less from agriculture than those non-poor households that farm. This difference is partly explained by land-use patterns. In most cases, poor households do not allocate their land for different agricultural purposes in line with the suitability of the land in their areas. Differences in agricultural incomes between poor and non-poor households in mountainous areas, for example, can be explained by the poor making far less income from perennial crops and livestock than the non-poor. Reforms that optimize land use will therefore be crucial to boosting the incomes of the poor in remote and lagging areas.

The ongoing economic restructuring in rural areas provides an impetus for agricultural restructuring too. The sustained outflow of labor from agriculture and the sub-optimal use of land among poorer communities make agricultural restructuring imperative. Land utilization rates in household farms could decline sharply given that it is largely the older demographic that is being left on the farms. Most of these older farm workers are unlikely to fully utilize their land but will still hold onto it to keep their land-user rights. As labor moves out of agriculture and land utilization rates decline, the remaining land will become increasingly misallocated. Land consolidation, and a shift toward more farm operator-based agriculture, will become necessary if agriculture is to keep up with the shift in labor.

LAND-OWNERSHIP STRUCTURE AND SECURITY, ALONG WITH AGRICULTURE FINANCING, DRIVE AGRICULTURAL LAND-USE PATTERNS

Households are held back from fully exploiting their regional comparative advantages in their land-use patterns by weak land security, fragmented land and reliance on self-financing. Households with land-user certificates and those with larger amounts of land are much more likely to cultivate industrial and perennial crops. When that land is fragmented, households opt instead to use it mostly for cereals. Households tend to rely more on their current incomes to finance agricultural activities, which then determines how much of their land they devote to non-traditional crops. Other studies have shown that access to credit improves household livestock assets, which is a major contributor to household incomes in high mountain communes.

STRATEGIC FOCUS ON EXPANDING ACCESS TO BETTER OPPORTUNITIES

To address the key constraints to accessing off-farm opportunities and optimizing land use, this report identifies three strategic areas for policy focus. These three areas are: (i) reducing economic distance; (ii) making better use of agricultural land; and (iii) increasing women’s economic empowerment. They are summarized in the graphic below.

---

**Reducing economic distance**
- Integration into network economies, leveraging digital technologies
- Creating secondary economy
- Reducing cost of migration
  - Broadband investments
  - Regulatory reforms to facilitate online commerce and transactions
  - Transport infrastructure and logistical services
  - Skills development
  - Equalize access to services for temporary residents
  - Invest in low-cost housing

**Putting land to better use**
- Enhancing land management and policy
- Innovations in agriculture financing
- Integration of food markets
  - Strengthen land security
  - Reduce agriculture land use restriction
  - Broaden land consolidation beyond rice farming
  - Improve financial literacy
  - Promote loan offerings tailored to agriculture
  - Improve rural connectivity

**Women’s economic empowerment**
- Promote flexible work opportunities
- Reduce child-caring burden for women
  - Expand child-care services
  - Enhance participation in the digital marketplace
i. Reducing economic distance for remote and low-density areas where most of the poor are concentrated

Unlike densely populated areas, growth of non-agriculture sectors in more distant, low-density areas is normally based on absolute advantage, driven by external demand, and delivered mostly by small and medium enterprises (SMEs) due to the limited scope for achieving scale. Strategies to expand economic opportunities in these areas should aim to: (i) create a secondary economy supporting industries based on the regional absolute advantages; (ii) integrate these areas into the network economy to expand their market potential; and (iii) reduce the cost of migration to increase long-distance migration domestically. This can be achieved by:

- Improving connectivity through investments in transport networks, logistical services and internet broadband aimed at improving the links of these areas with markets, and leveraging digital technologies to expand local opportunities and reach global markets.
- Implementing supportive regulations to sustain the digital marketplace and better leverage digital technologies.
- Skills development to provide the necessary skills to expand the range of economic activities for the secondary economy (e.g., producer services), better operate in the network economy (e.g., digital literacy) and attract relocating industries.
- Equalizing access to services for temporary residents and investing in low-cost housing to encourage greater long-distance migration.

ii. Putting agricultural land to better use to increase incomes of those left behind in agriculture and adjusting to the net outflow of labor

There is a clear need to better manage agricultural land use to maximize its potential. This requires continuing reforms in land policies to strengthen land security, reduce agriculture land-use restrictions and broaden land consolidation beyond rice farming.

It is also important to reduce reliance on self-financing for agriculture. There is evidence that farming households do not fully exploit existing loan schemes and that loan repayment terms are not consistent with cash flows from investments in industrial crops, which take longer to yield returns. Potential interventions to support the shift from self-financing include: (i) improving financial literacy; and (ii) promoting loan offerings tailored to agriculture.

Integrating food markets is also critical in optimizing land use through shifting production to higher-value and more agronomically suitable perennial crops. Evidence of a low supply response to crop-relative price changes and the tendency for remote households to use more of their land to grow food crops suggests that households have a strong incentive to produce for their own consumption requirements, which they can do at a lower cost than by purchasing food. Meanwhile, high transaction costs in remote areas also reduce the profitability of any surplus they produce for crops marketed outside the area or through intermediaries. Thus, investing in connectivity infrastructure and better integrating food crop markets would be important in optimizing land-use choices of households in remote areas.

iii. Women’s economic empowerment to increase their chances of off-farm employment

An important area of focus is to reduce the burden of child care, and increase the availability of, and returns from, opportunities offering flexible working arrangements. These objectives can be achieved by: (i) expanding child-care facilities; and (ii) promoting participation in the digital marketplace.
BACKGROUND AND CONTEXT
RECENT PROGRESS RETOLD

Poverty in Vietnam has started to decline more broadly

The pace of decline in extreme poverty in Vietnam remains robust. The share of people living in extreme poverty halved in just six years, from 20.9 percent in 2010 to 9.8 percent in 2016. International experience suggests that poverty becomes harder to reduce at lower levels, as the remaining poor are harder to reach. But recent trends in Vietnam show no such faltering. Poverty declined by 4 percentage points in 2014-16, more than keeping pace with the pace of the decline in earlier years. Per capita consumption of the bottom 40 percent grew by about 6 percent annually in 2014-16. Significant progress is observed in human development indicators over this period too. Post-secondary education completion among 20- to 25-year-olds rose from 52 to 59 percent during 2014-16, while early childhood education (ECE) increased by 13 percentage points to 67 percent and access to improved water increased by 6 percentage points to 78 percent. The details of such progress are documented in the Vietnam Poverty Update Report for 2018 (World Bank, 2018a).

Vietnam’s stellar progress in improving living standards was previously driven by gains among the ethnic majority, resulting in significant disparities in all socioeconomic indicators, even today. For instance, the average per capita consumption of ethnic minorities is less than 45 percent of the majority Kinh and Hoa. Only 7 percent of ethnic-minority working-age adults have a post-secondary education compared with one-third of the Kinh and Hoa majority. At 33 percent in 2015, the stunting rate of under-5-year-old ethnic-minority children was twice as high as the majority. More worrying still is that progress among ethnic minorities appears to have stalled. The poverty rate among ethnic minorities barely changed during the period 2012-14, even though poverty declined by 3 percentage points nationally.

The recent poverty reduction pattern has now changed. During 2014-16, the reduction in poverty nationally was driven by greater gains among ethnic minorities, with a 13.5-percentage-point decline in poverty among them. Without this progress among the ethnic minorities, poverty would have declined by less than 2 percentage points. With just 3 percent of the Kinh and Hoa majority now classified as poor, continued progress in poverty reduction among the ethnic minorities is vital to the national poverty reduction agenda. As of 2016, the poverty rate among the ethnic minorities was 44 percent, meaning that 6.6 million of the ethnic minorities were still living in poverty. Minorities therefore make up 73 percent of the total number of poor people nationally (9 million), even though they comprise just 14 percent of the total population.

The middle class is growing fast

The middle class is rising fast thanks to strong economic gains at all income levels. Those who have escaped poverty continue to see broad economic gains. As a result, there has been a continuous decline in the share of the population living in extreme or moderate poverty, or classified as economically vulnerable. Instead, there has been a surge in an emerging consumer class, defined as those who earn large enough incomes to meet their day-to-day consumption, save for any shocks and still have extra income left over for discretionary consumption. The share of people classified as belonging to this emerging consumer class in Vietnam expanded from 50 percent of the population in 2010 to 70 percent in 2016. Furthermore, many Vietnamese households in this group have also joined the ranks of the global middle class, being able to spend more than US$15 per person per day in purchasing power parity terms (equivalent to VND 135,940.5 per person per day in 2016). Between 2014 and 2016, about 3 million people joined this global middle class, bringing the share of the global middle class in Vietnam to 13 percent in 2016.

An emerging consumer class comes with shifting expectations and priorities for the poverty and shared-prosperity agenda. The emerging consumer class expects to sustain sufficiently high income levels to improve the comfort and quality of their lives, rather than merely just putting food on the table. They target being able to afford higher quality housing and better access to services, from education, health, water and sanitation, and public infrastructure in general. This is
reflected in their different consumption and household asset holdings (Table 1). Their consumption needs are also a boon to the domestic economy, and could become a strong driver of economic growth and job creation going forward.

Table 1. Living condition indicators by economic class, 2016

<table>
<thead>
<tr>
<th>Economic Class</th>
<th>Extremely Poor</th>
<th>Moderately Poor</th>
<th>Middle Class</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living area (m²)</td>
<td>51</td>
<td>57</td>
<td>121</td>
<td>84</td>
</tr>
<tr>
<td>Piped water or borehole (%)</td>
<td>8.3</td>
<td>20.3</td>
<td>85.7</td>
<td>62.3</td>
</tr>
<tr>
<td>Concrete or brick wall house (%)</td>
<td>30.8</td>
<td>43.0</td>
<td>97.8</td>
<td>84.2</td>
</tr>
<tr>
<td>Lives in villa or a house with private bathroom and kitchen (%)</td>
<td>0.0</td>
<td>1.4</td>
<td>55.4</td>
<td>23.2</td>
</tr>
<tr>
<td>Has air conditioners (%)</td>
<td>0.0</td>
<td>0.4</td>
<td>58.6</td>
<td>18.8</td>
</tr>
<tr>
<td>Has a washing machine (%)</td>
<td>0.0</td>
<td>0.7</td>
<td>74.7</td>
<td>35.5</td>
</tr>
<tr>
<td>Non-food expenses (VND '000)</td>
<td>1,267</td>
<td>2,230</td>
<td>17,196</td>
<td>7,967</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2016.

Favorable labor market conditions have been the key driver of poverty reduction

Favorable labor market conditions have driven the reduction in poverty and sustained income growth. There has been robust labor demand in the non-agriculture sector. About 3 million net additional jobs were created between 2014 and 2016, half of them in the export-oriented manufacturing sector. This triggered a net outflow of labor from agriculture. Real wages also increased by 14 percent cumulatively, including in the agriculture sector.

Overall, growth in wage incomes directly or indirectly accounted for close to two-thirds of the poverty reduction and half of the increase in the emerging consumer class. The increase in average wage levels was the biggest contributor, accounting for 48 percent of the reduction in poverty. Remittances, strongly associated with migrant wage labor, made up another 20 percent. These estimates suggest that Vietnam’s growth model has brought significant benefits to the general population. The country’s growth poverty elasticity of 1.63 during the period from 2010 to 2016 is evidence that economic growth translated into a more-than-proportionate decline in poverty.

Agricultural transformation has also played its part in reducing poverty. Growth in non-crop agricultural incomes (agriculture sidelines, livestock and aquaculture) accounted for 14 percent of the reduction in poverty nationally, and 16 percent of the reduction in rural poverty. Its contribution to the expansion of the consumer class was more modest, suggesting that agriculture is much more important for reducing extreme poverty, while non-agricultural incomes are crucial for both poverty reduction and the shared-prosperity agenda.

IN FOCUS – BETTER ECONOMIC OPPORTUNITIES FOR ALL

This report builds on the chapter in the previous Vietnam Poverty Update on who is left behind, which identified limited access to better income-generating opportunities as the main reason behind poverty among rural and ethnic minorities. Broadly speaking, ethnic minorities and the Kinh and Hoa majority earn relatively similar levels of agricultural income, but the Kinh and Hoa earn far more in non-farm wages, household enterprises and other non-labor income (Figure 1). Reducing gaps in off-farm income earnings would therefore help to close the income gap between the ethnic minorities and the majority.
Poor people mostly have agriculture-based livelihoods, but they earn substantially less than non-poor households also engaged in agriculture. This is mainly due to differences in the profitability of the agricultural activities the poor and non-poor are engaged in. The non-poor generate more income from perennial and annual crops (Figure 2). This difference accounts for the difference in crop income between the poor and non-poor. It also points toward the untapped opportunities in agriculture, through improved crop choices. In terms of reducing poverty, closing the agricultural earnings gap will be just as important as reducing the non-farm income gap.

Facilitating access to better opportunities for poor and vulnerable groups is therefore key to reducing poverty and sharing prosperity in Vietnam. While labor market trends point to expanding non-agricultural employment in rural areas, it is also clear that participation of the poorest groups remains limited. Some households have succeeded in expanding their agricultural incomes, but the poor have not yet been able to maximize these opportunities.

This report is therefore focused on identifying the challenges preventing, and ways to enhance, the poor’s participation in more productive income-generating opportunities. The analysis focuses exclusively on rural areas, where 95 percent of the current poor reside. It is presented in four sections. The first section presents the evolution of rural incomes in Vietnam since 2010, showing how non-agricultural incomes have grown in importance and broadly transformed rural livelihoods. The second section then explores the role of household and farm-specific attributes, alongside local economies, in facilitating non-agricultural employment, to identify the most critical factors holding back the poor from being integrated into off-farm activities. The third section turns to opportunities in agriculture. This focuses on identifying challenges and policy remedies for optimizing crop and land-use choices among lagging groups to maximize their agricultural incomes. The report concludes with a section on policy implications, building on the presented analysis to suggest policy options that provide a pathway for the economic integration of the poor.
01 EVOLUTION OF RURAL INCOMES
NON-AGRICULTURE JOB CREATION HAS TRANSFORMED THE RURAL ECONOMY

Vietnam is turning into a non-agricultural wage-based economy

The domestic labor market has been favorable since 2009. More than 9 million non-agricultural jobs were created between 2009 and 2017 (Figure 3). Nearly 7 million of these were wage jobs, outstripping the number of new labor-market entrants by 1 million. The share of wage employees in the economy thus increased from around 33 percent in 2009 to nearly 42 percent in 2017. This upturn was most significant in 2014, when off-farm job creation accelerated. Job creation remains robust. Data for the first quarter of 2018 show there were 1 million more wage jobs and 1.3 million more non-agricultural jobs than in the same quarter in 2017.

Real wages have increased steadily too, rising by about 19 percent since 2013 due to robust labor demand. This increase was seen across all sectors (Figure 4), cumulatively rising by 24 percent in agriculture, 22 percent in industry and 15 percent in services. Data for the first quarter of 2018 suggest that real wages rose by more than 3 percent and 1.3 percent in the industry and services sectors, respectively, compared with the same quarter in 2017, but stalled in the agriculture sector, with only a 0.6-percent increase. In recent years, the relative wage between the agriculture and industry sectors has remained the same, at around 65 percent, but increased from 55 to 58 percent relative to the services sector. Wages in both the agriculture and industry sectors are thus catching up with wages in the services sector.

The rural economy has been transformed by this ongoing process. This is seen in four remarkable shifts, namely: (i) a decline in the rural labor force; (ii) an absolute decline in employment in agriculture in rural areas and nationally; (iii) a rise of rural wage work; and (iv) the dominance of non-agricultural incomes, mirroring a decline in agriculture’s contribution to rural incomes. These trends are briefly discussed below.

The rural labor force has peaked and income per worker is rising fast

Growth of the rural labor force has now peaked, though the national labor force is still increasing slightly. The number of workers in rural areas has stagnated at around 37 million people since 2013, even declining in some years (Figure 5). Meanwhile, overall employment has continued to increase, albeit at a reduced pace, driven by rising urban employment. Thus, the rural share of total employment is shrinking more rapidly. In 2017, rural employment made up 67 percent of total workers, compared with 77 percent in 2000. The rural labor market has therefore reached a turning point, at which the rural labor force is starting to decline, further accelerating the change in the structure of economic activities in rural areas.
Rural incomes have continued to grow, driven by growth in the average income per worker. Even with a stagnant labor force, rural incomes grew by 121 percent in real terms in 2010-16. This growth could either have come only from growth in average incomes per worker or in non-labor income (i.e., remittances and transfers). Income estimates from the Vietnam Household Living Standards Survey (VHLSS) suggest that the increase was driven by rising incomes per worker, which contributed more than 92 percent of the increase in rural incomes. The other emerging shifts in the rural economy explain this outcome.

Reallocation of rural labor from agricultural to non-agricultural activities in rural areas

Employment in agriculture is declining rapidly. The number of people employed in the sector peaked in the second quarter of 2014 and has declined consistently thereafter. By the first quarter of 2018, close to 4 million people had left their rural agricultural jobs. In just five years, the rural agriculture sector lost more than 17 percent of its workforce, equivalent to an average 3.9 percent annual decline.

Growth in rural manufacturing jobs has largely driven this transformation (Figure 7). Employment in manufacturing expanded at an average of 7.3 percent annually between 2013 and 2017, contributing to more than half of the net increase in rural non-agricultural jobs in this period. The industry sector as a whole accounted for 75 percent of the net increase in jobs, with additional jobs coming from the construction sector, while the services sector made up the other 25 percent. Employment growth in the services sector was driven by the non-retail subsectors such as transport, and hotels and catering. While employment in the wholesale and retail sector has been highly volatile, it has grown consistently since the beginning of 2017.

Those who left agriculture have been mostly absorbed into non-agriculture sectors within rural areas (Figure 6). There has been a massive reorganization of the rural labor market as a result. Off-farm employment rapidly expanded and continues to expand, while agricultural employment is in decline. Agriculture employed more than 22 million people at its peak at the beginning of 2014, and non-agricultural employment averaged 14.4 million people then. By the first quarter of 2018, almost as many people in rural areas were employed in non-agriculture sectors (18.1 million) as in agriculture (18.7 million). Thus a significant transformation in the composition of rural economic activities has occurred in just five years.
All this job growth has been private-sector driven. This was partly a result of accelerating foreign direct investment (FDI) in rural areas, resulting in 11 percent average annual growth in employment in foreign-owned enterprises in rural Vietnam since 2012. But employment in foreign-owned enterprises started from a low base, thus net job creation in these enterprises has contributed to about 25 percent of rural non-agricultural jobs growth. The domestic private sector therefore contributed the lion’s share of new non-agricultural jobs (Figure 8), despite growing at an average of 4 percent. Meanwhile, employment in state-owned entities broadly declined.

Most jobs are still in low skilled occupations. Construction workers, factory workers in food and garment-processing, and machine operators are the major occupations, accounting for over 80 percent of jobs in the industry sector. Two-thirds of all rural non-farm jobs are in the secondary sectors, such as manufacturing (38 percent) and construction (26 percent) (Figure 9). The other one-third of jobs are scattered among various services areas, such as education and health (10 percent), wholesale and repair (7 percent), and the communist party and political services (6 percent). Within the tertiary sector, educator is the most popular occupation (18 percent of all services sector jobs), followed by sales staff (10 percent) and employees in the transportation system (9 percent).

The rise of rural wage work

The number of rural wage workers is expanding rapidly, while unpaid work is in decline. Rural wage employment increased from around 10 million people in 2013 to more than 13 million by the start of 2018 (Figure 10). The number of people in unpaid work declined commensurately, indicating a direct shift from unpaid to paid work in rural areas. The share of wage workers in rural areas thus increased by around 10 percentage points to about 37 percent at the beginning of 2018. This trajectory suggests that paid work will become more common than unpaid work within the next decade.
Rural wage work is also becoming more rewarding. Real wages in rural areas increased by 21 percent in the period 2003-17 (Figure 11), about 2 percentage points faster than the increase in the national average wage rate over the same period. Wages in the industry sector increased by 26 percent and the services sector by 12 percent, partly due to slower wage growth of state employees of 7 percent, compared with 25 percent and 27 percent for employees in foreign-owned and domestic private sector enterprises, respectively. This increase has been maintained. Rural wages grew by more than 6 percent in 2017 across all sectors.

FIGURE 11. TRENDS IN RURAL REAL MONTHLY WAGES BY SECTOR, 2013-18 (VND ‘000)

Rural household wage incomes thus grew considerably, with both wage employment and real wages rising. Estimates from the VHLSS suggest that average household non-agricultural wage income grew by 41 percent between 2010 and 2016. Only remittances grew at a faster rate (44 percent), with agricultural incomes experiencing the slowest increase of about 13 percent. This underpins the most significant shift in rural livelihoods, which we discuss below.

Overall dominance of non-agricultural incomes among rural households

Rural households in Vietnam are on average now earning most of their income outside the agriculture sector. Though 84 percent of rural households still engaged in some form of agriculture in 2016, the sector accounted for only 41 percent of their incomes. This is a further decrease from its contribution of 48 percent in 2010. In 2016, cereals production made up only 13 percent of household income, showing how the contribution of the traditional family farm—rice and corn cultivation—to household income has waned.

Put together, non-agricultural wages and household business incomes contributed nearly as much (40 percent) to rural incomes as agriculture in 2016. Together with rapidly rising remittances, these three streams of income made up 57 percent of rural incomes. About 9 out of 10 rural households received remittances in 2016, 47 percent had a non-agricultural wage income and 28 percent had a business income.

Of these three, the share of remittances is rising the fastest, from 10 to 17 percent of income during the period 2010-16, followed by wage incomes (a 3-percentage-point increase), while the share of household business incomes hovered between 13 and 14 percent during this period. Fewer households are receiving government transfers, hence the overall contribution of transfers has declined. Thus, wages and remittances are the fastest-growing income streams in rural areas overall.

INCOME DIVERSIFICATION AS A WINNING STRATEGY

The rise of non-agricultural work, especially wage work, does not reflect a replacement of agricultural activity at the household level altogether. As participation rates in Table 2 show, households are not really leaving farming as such, but are diversifying or growing their other incomes instead. Despite the 10-percentage-point decline in the share of agriculture workers in rural areas, the share of households engaged in some form of agriculture declined by only 2 percentage points. Only 16 percent of rural households do not have any agricultural income.
Table 2. Rural households’ livelihood participation and income composition

<table>
<thead>
<tr>
<th></th>
<th>Participation (%)</th>
<th>Share of total household income (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All agriculture</td>
<td>86</td>
<td>86</td>
</tr>
<tr>
<td>HH farming</td>
<td>84</td>
<td>83</td>
</tr>
<tr>
<td>Cereal</td>
<td>69</td>
<td>67</td>
</tr>
<tr>
<td>Non-cereal</td>
<td>53</td>
<td>50</td>
</tr>
<tr>
<td>Other farming</td>
<td>70</td>
<td>67</td>
</tr>
<tr>
<td>Agricultural wage</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Non-agricultural wage</td>
<td>46</td>
<td>45</td>
</tr>
<tr>
<td>Business</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>Remittances</td>
<td>86</td>
<td>85</td>
</tr>
<tr>
<td>Transfer</td>
<td>50</td>
<td>49</td>
</tr>
</tbody>
</table>


Rural households in Vietnam typically have multiple income streams and their income portfolios are becoming less concentrated. A typical rural household counts three out of six income streams, comprising: (i) family farming; (ii) agricultural wages; (iii) non-agricultural wages; (iv) household business; (v) remittances; and (vi) transfers. The most common combination of these is agriculture, remittances and non-agricultural wages. More than 30 percent count at least four out of these six income streams. Less than 5 percent have a single income source (Figure 12). This pattern of diversification is observed among both the bottom 40 percent and the top 60 percent of the welfare distribution, suggesting that it is a widespread practice in rural Vietnam.

Figure 12. Distribution of households by number of income sources, 2016

Growth in non-agricultural employment has reshuffled intra-household labor allocations and deconcentrated income away from agriculture without abandoning it. The stability of the share of households still operating their farms, at a time when off-farm employment is increasing, suggests that households have economic or social incentives to hold on to their farms, even as they reallocate labor away from agriculture. This may include hedging against losing the land for failure to use it, or that the labor market is segmented, preventing a complete transition out of agriculture.

Diversifying out of agriculture raises incomes particularly for the poor. Non-parametric estimates suggest that among the bottom 40 percent and rural households on average, labor income is consistently lower as the household’s share of agriculture in total income increases. However, some of the top 60 percent household earning more than 80 percent of their income from agriculture (Figure 13), earn just as much as those earning most of their income outside agriculture, suggesting that specializing in agriculture can still be profitable at high levels of productivity.
Economic participation and earnings remain uneven

Despite Vietnam's impressive record of creating off-farm job opportunities, the availability and access to these jobs is far from even. Rural areas closer to Ho Chi Minh City (HCMC) and Ha Noi economic clusters have a far higher concentration of jobs. Provinces in the Northern Mountains region, on the other hand, have far fewer jobs, averaging fewer than 20,000 per province.

Disadvantaged groups, such as ethnic minorities and households living in poverty, still lag in off-farm participation and earnings. While 52 percent of the Kinh and Hoa majority had a non-agricultural wage income in 2016, just one-third of ethnic-minority households did (Table 3). Ethnic minorities captured more agricultural wage jobs instead. The share of ethnic-minority households with an agricultural wage income increased by 4 percentage points in 2010-16, even as it declined among the Kinh and Hoa. The remaining poor seem to be mostly those without access to non-agricultural wage opportunities. Only 28 percent of the poor had non-agricultural wage incomes in 2016, compared with 47 percent nationally. The decline in the share of poor households with a non-agricultural wage income over time suggests that poor households with a wage income stand a better chance of escaping poverty, leaving behind those with more limited access to non-agricultural wage jobs.

Average incomes are substantially lower for ethnic minorities in all other income categories (Table 4). Though more of them farm and have agricultural wage incomes, average agricultural incomes among ethnic minorities are about 78 percent of the Kinh and Hoa majority. Their incomes from non-cereal production are substantially lower, at between 47 and 51 percent of the Kinh and Hoa. In the period 2010-16, non-agricultural wage incomes for ethnic minorities grew substantially (15.5 percent annually), but the Kinh and Hoa saw even higher wage income growth (16.9 percent annually). Thus, average non-agricultural wage incomes earned by the ethnic minorities in 2016 were still 57 percent of the Kinh and Hoa’s average earnings. Agriculture income growth for the Kinh and Hoa also exceeded that of the ethnic minorities, though ethnic minorities’ incomes from non-cereal crop cultivation and agricultural wages grew faster. (Page 16)
### Table 4. Average incomes by income source and ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Ethnic majority</th>
<th>Ethnic minority</th>
<th>Bottom 40%</th>
<th>Ethnic majority</th>
<th>Ethnic minority</th>
<th>Bottom 40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>All agriculture</td>
<td>48,507</td>
<td>38,214</td>
<td>35,660</td>
<td>10.9</td>
<td>10.0</td>
<td>11.3</td>
</tr>
<tr>
<td>HH farming</td>
<td>44,078</td>
<td>31,644</td>
<td>29,523</td>
<td>10.7</td>
<td>8.6</td>
<td>10.6</td>
</tr>
<tr>
<td>Cereal</td>
<td>16,934</td>
<td>13,374</td>
<td>12,720</td>
<td>8.2</td>
<td>4.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Non-cereal</td>
<td>21,649</td>
<td>10,224</td>
<td>10,748</td>
<td>13.7</td>
<td>16.3</td>
<td>16.9</td>
</tr>
<tr>
<td>Other farming</td>
<td>25,502</td>
<td>12,812</td>
<td>14,278</td>
<td>13.3</td>
<td>11.2</td>
<td>14.5</td>
</tr>
<tr>
<td>Non-agricultural wage</td>
<td>73,560</td>
<td>41,899</td>
<td>52,873</td>
<td>16.9</td>
<td>15.5</td>
<td>18.6</td>
</tr>
<tr>
<td>Business</td>
<td>81,140</td>
<td>28,645</td>
<td>35,823</td>
<td>13.7</td>
<td>19.7</td>
<td>16.9</td>
</tr>
<tr>
<td>Remittances</td>
<td>9,967</td>
<td>4,578</td>
<td>5,736</td>
<td>12.8</td>
<td>15.2</td>
<td>16.6</td>
</tr>
<tr>
<td>Transfer</td>
<td>6,322</td>
<td>3,235</td>
<td>4,638</td>
<td>15.2</td>
<td>14.4</td>
<td>18.1</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2010 and 2016.

### SUMMARY

In sum, economic activities in rural areas have been significantly restructured, but nonetheless remain unequal. Wage employment has risen dramatically, but ethnic-minority households have captured more agricultural wage jobs than non-agricultural wage jobs—the exact opposite of the Kinh and Hoa majority. Average incomes for ethnic minorities are substantially lower and they are not catching up fast enough with the majority. Lower participation in non-agricultural economic activities partly explains this, but lower returns in activities such as agriculture also contribute. The next two sections focus on the determinants for increased off-farm participation and optimizing land use in agriculture to maximize incomes in the sector for those still lagging behind.
02
DETERMINANTS OF OFF - FARM LABOR PARTICIPATION - LOCATION VS INDIVIDUAL ATTRIBUTES?
THE CONFLATION OF DETERMINANTS OF OFF-FARM EMPLOYMENT

Determinants of off-farm employment are interrelated

Most factors identified as causing ethnic minorities and the poor to lag behind in off-farm participation are intertwined. The better educated and those living in better connected areas seem to have better access to these opportunities in general. But these factors are lagging in regions where the poor and ethnic minorities are concentrated (Table 5). Data from the economic census show that firms are sparse in mountainous areas, which tend to be further away from economic hubs, are poorly connected and have the lowest levels of education. These are the areas where ethnic minorities and the poor population mostly reside.

Table 5. Commune attributes by topography

<table>
<thead>
<tr>
<th></th>
<th>Coastal</th>
<th>Inland/Delta</th>
<th>Hill</th>
<th>Low Mountain</th>
<th>High Mountain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share employed in non-agriculture wage jobs (%)</td>
<td>29.5</td>
<td>41.0</td>
<td>41.6</td>
<td>32.3</td>
<td>17.3</td>
</tr>
<tr>
<td>Average distance to major cities (km)</td>
<td>190</td>
<td>106</td>
<td>120</td>
<td>180</td>
<td>273</td>
</tr>
<tr>
<td>Have roads in commune (%)</td>
<td>89.0</td>
<td>92.9</td>
<td>98.7</td>
<td>99.4</td>
<td>94.8</td>
</tr>
<tr>
<td>Share with post-secondary education (%)</td>
<td>5.1</td>
<td>6.5</td>
<td>6.0</td>
<td>5.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Has a firm within the commune (%)</td>
<td>85.8</td>
<td>92.6</td>
<td>94.1</td>
<td>85.3</td>
<td>59.9</td>
</tr>
<tr>
<td>Population density (individual/km²)</td>
<td>196</td>
<td>254</td>
<td>151</td>
<td>88</td>
<td>34</td>
</tr>
<tr>
<td>Share of ethnic minorities (%)</td>
<td>4.9</td>
<td>3.2</td>
<td>5.4</td>
<td>29.1</td>
<td>70.2</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2016.

This section disentangles the determinants of participation of households in non-agricultural employment activities in rural and peri-urban areas. There is abundant research exploring occupational choices, or why some groups lag in off-farm participation in Vietnam. These all tend to converge on the same set of factors, albeit with different emphasis (see Hoang et al, 2014; Newman and Kinghan, 2015). The analysis in this section attempts to disentangle, isolate and quantify the contributions of each individual factor, while also factoring intra-household labor allocation decisions. It focuses on the relative importance of individual characteristics, local economic development and geography in explaining differences in access to non-agricultural jobs.

The starting point of the analysis is that households in Vietnam typically generate income from multiple sources. Where the opportunities exist, rural households often combine non-farm and farm incomes to maximize their total family income, as the evidence in the previous section confirms. The inability to do so explains rural households’ poverty (Reardon et al, 1992; Barrett et al, 2001; World Bank, 2018a). The portfolio of activities that households end up doing is shaped by multiple factors that influence farm and non-farm revenue potential for the households.

Household participation in non-agricultural employment is therefore analyzed as an outcome of a household’s joint decision-making process. This allocates labor between farm and non-farm activities subject to the local conditions that households face, together with their own household-specific attributes. These include a household’s personal characteristics, such as education, household demographics and social networks that determine the type of jobs and level of earnings they can achieve. It also includes their fixed assets and farm characteristics, such as the amount and type of land they have, and the type of crops they grow. Local economic conditions such as local wages, prices and the local economic structure, including connectivity to job centers, are also factored in.

The question is: which of these factors matter most in determining households’ engagement in off-farm employment and lagging groups’ limited participation. Geography determines some of these factors, for example, the type of land and proximity to major job centers. Therefore, we also quantify the extent to which differences in access to non-agricultural employment

Better Opportunities for All
are explained by geographical disadvantages, to what degree, and what public policies can make a difference. The factors just mentioned influence the creation of off-farm opportunities or labor demand. We also consider the role of household supply-side decisions. Income-maximizing households might respond to rising agriculture prices by devoting more labor to agriculture, or choosing to keep lower educated household members in farm production, while the young and better educated seek off-farm wage jobs. Our empirical framework of analysis brings together these labor demand and supply factors (see Annex 1 for more details).

MARKET ACCESS AND ECONOMIC DISTANCE ARE PRIMARY DETERMINANTS OF JOB ACCESS

Access to local opportunities and economic hubs determine job prospects in rural areas

Most rural labor market entrants seek jobs in areas that they can commute to from their own homes, underlining the importance of accessible local off-farm opportunities for securing non-agricultural employment. In 2016, only 10 percent of the new entrants to the rural labor market migrated upon graduation from school. Many who stayed worked in local or neighboring areas. As a result, access to local non-agricultural opportunities is crucial for the clear majority that stayed. This makes local economic development and proximity to economic hubs a defining factor for access to off-farm wage jobs.

Local opportunities are ubiquitous, but not for those living in mountainous areas. In 2016, 84 percent of the rural labor force had access to a hiring firm within daily traveling distance. Of those not within daily traveling distance of a local hiring firm, 69 percent live in mountainous areas (Figure 14). Compared with other topographical areas, such as coastal, inland delta and hills, mountainous areas have the lowest average number of non-agricultural firms per commune, as well as the second-lowest average number of people hired per non-agricultural firm (Table 15 in Annex 3). Thus, in addition to having fewer firms, the ones operating there tend to have limited scale.

Availability of jobs within commuting distance, and roads that make them accessible, emerge as important predictors of wage employment. The presence of a road is not only important for both attracting local investments that create jobs, but for making these opportunities accessible at a reasonable cost. For an ethnic-minority family living in a mountainous area, having a hiring firm in the commune increases the chances of obtaining a wage job by an average of 3 percent for all working adults if the commune has a road. The chances of finding a wage job is nearly halved if the commune does not have a road. Even for the Kinh and Hoa in inland areas, the non-agricultural wage job prospects for a person with secondary education declines from 47 percent when their commune has a road to 30 percent if there is a firm in the commune but no road (Figure 15).
Figure 15: Predicted probability of off-farm wage employment by proximity to firms and access to commune roads

![Bar chart showing predicted probabilities of off-farm wage employment by proximity to firms and access to commune roads.]

Source: Authors’ calculations from VHLSS 2016.
Notes: Predicted for a person with lower secondary education, aged 20 to 30 years old, separately for ethnic minorities, and Kinh and Hoa living in high mountain and inland areas.

Table 6: Predicted probability of off-farm wage employment by population density (people per km²)

<table>
<thead>
<tr>
<th></th>
<th>Household Head (%)</th>
<th>Elderly Working Age Child (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Inland-delta</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>Hill</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>Low mountain</td>
<td>34</td>
<td>38</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2016.
Notes: Predicted for ethnic majority, married, rice-planting, with accessible hiring firms. High mountains are not shown due to the small sample size at lower economic densities.

But market potential is the most critical aspect of local economic development that determines access to off-farm opportunities. The local population density is a defining factor (Table 6). For the youth in inland-delta communes with secondary education, their prospects of finding a wage job increase from 42 percent when the population density in their commune is 20 to 55 people per km² to at least 71 percent if the population density is between 148 and 403 per km². Substantial improvements in non-agricultural wage job prospects in higher density communes are observed in all geographical areas. For married women, the jobs prospects generally double (Table 16 in Annex 3).

Population density matters for creating local opportunities. Easy-to-start household businesses tend to be concentrated in the services sector (mostly retail and trade). There are many of these firms and they could grow enough to hire paid workers, if there is sizeable demand. This also applies to construction activities, especially for residential structures. There are only so many houses, shops or agricultural structures that can be built when the number of households is small. Besides being a market, a higher population density also means a larger pool of available workers, which attracts labor-intensive firms close to such highly populated localities. Thus, being sparsely populated, high-mountain areas have too few people to support the mushrooming of shops or a manufacturing sector.
Besides local opportunities, proximity to urban economic hubs is a critical factor. There is a sharp decline in the probability of having a non-agricultural wage job the further away someone lives from a major economic hub such as Ha Noi or HCMC. For the youth with lower secondary education living in low-mountain areas, the non-agricultural wage job prospects decline from 49 percent in communes within 50 km of a major city, to 35 percent when living 200 to 250 km from a major city. In high-mountain areas, the change in the job prospects is small because the prospects are generally very low, but significant changes in job meeting their subsistence needs. But a comparison of the share of net-rice buyers among households with different number of members engaged in off-farm work suggests the opposite. The share of rice net-buyers is higher among households with many people engaged in non-farm work in both remote highland and inland/delta communes (Figure 31 in Annex 3), contradicting the notion that disintegrated food markets trap people in agriculture in remote areas. It means the low availability of such opportunities is the limiting factor to household off-farm income generation.
WHERE OPPORTUNITIES EXIST, INDIVIDUAL CHARACTERISTICS DETERMINE WHO GETS THE JOBS

Even when there are accessible jobs, individual and household characteristics determine who gets them. These attributes include a person’s own qualifications, their age, gender, ethnicity, social networks, household demographics and non-labor income sources. Such attributes either factor in employers’ hiring decisions, influence people’s own labor-supply decisions, or confer additional advantages or disadvantages in the labor market.

Education is the most important individual attribute determining access to off-farms jobs

Irrespective of age, gender or marital status, educational attainment is the most important individual attribute for accessing non-agricultural jobs. The chances of finding a non-agricultural wage job increase from 21 percent with primary education to 68 percent with a tertiary education for a typical ethnic-minority male from a rice-growing family in a mountainous commune with accessible local firms. For a typical female in similar circumstances, the job prospects increase from just 10 percent to 52 percent. The returns to lower secondary education are negligible, only increasing job prospects by no more than 5 percent compared with primary education, irrespective of location. To reap the benefits of education, one needs to go all the way and attain a tertiary qualification.

Even with good qualifications, job prospects are limited in high-mountain areas and for ethnic minorities. The relative returns to education are high, because they start with very dismal prospects to begin with. With primary education, a typical Kinh and Hoa male in an inland commune would have a 49 percent chance of finding a wage job, increasing to 92 percent with tertiary education qualifications (Table 7). In high-mountain areas, the same individual would have a 32 percent chance of finding a wage job with primary education, only rising to 69 percent with a tertiary qualification. If the individual was an ethnic minority in a high-mountain area, the chance of finding a wage job is only 68 percent with a tertiary qualification. This means that there are simply not enough opportunities in high-mountain areas. The opportunities available are also not equally accessible for ethnic minorities, and the Kinh and Hoa majority with similar qualifications living in the same areas.

The significantly lower chance of finding a wage job even with upper secondary and tertiary qualifications in high-mountain areas could discourage households from investing in education. A considerable number of participants in a recent qualitative study on ethnic minorities (World Bank, 2019a) were discouraged from investing in education. They felt that investments in education were pointless, since suitable opportunities were lacking in their areas. This creates a vicious cycle, where ethnic minorities in high-mountain areas make sub-optimal investments in education, in turn contributing to lower jobs prospects.

Table 7. Probability of off-farm wage employment by levels of education and ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Inland delta (%)</th>
<th>High mountain (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kinh and Hoa</td>
<td>Ethnic minorities</td>
</tr>
<tr>
<td>Primary education</td>
<td>49</td>
<td>41</td>
</tr>
<tr>
<td>Lower secondary education</td>
<td>58</td>
<td>48</td>
</tr>
<tr>
<td>Higher secondary education</td>
<td>62</td>
<td>41</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>92</td>
<td>81</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2016.
Note: Predicted for married males in rice-planting family with accessible hiring firms.
Labor market prospects widely differ by age group and gender

The labor market prospects of younger and older people differ dramatically, irrespective of educational qualifications. Controlling for all factors, younger people are more likely to be engaged in non-agricultural wage jobs. Wage job prospects for males in high-mountain areas are best for the 20- to 30-year-old age group (Figure 18).

Figure 18. Probability of off-farm wage employment by age group

Source: Authors’ calculations from VHLSS 2016.
Note: Predicted for males with lower secondary education and access to hiring firms, separately for high mountain and inland areas.

Among males with a secondary education, this age group has almost a 60-percent chance of finding a non-agricultural wage job, compared with less than 36 percent for those aged 45 or more. For ethnic minorities in high-mountain areas, the 20- to 30-year-old age group is twice as likely to have a non-agricultural wage job as similarly educated males in the same areas. In general, the probability of being in a wage job declines to less than 10 percent as an individual approaches 60 years of age.

The younger generation is indeed better prepared than the older generation, at least in terms of education (Figure 19). About 9 percent of the youth have some tertiary qualifications, compared with just 2 percent among the 55 to 65 age group. About 90 percent of those aged 36 years and above have at best lower secondary education, but the same number is less than two-thirds for those younger than 35 years old. This gives the younger generation an advantage in the wage job market.

But the better off-farm job participation of the youth also reflects a clear division of labor in households. The older parents tend to farm, while their children do wage work. At lower levels of education, those above 45 years old are 23 percentage points (or 43 percent) less likely to be in a wage job than 26- to 35-year-olds. The gap only narrows to about 10 percentage points for those with tertiary qualifications (Figure 20). This result is also consistent with the life-cycle theory of labor supply, which expects the young to be more proactive than the old (McCurdy, 1981). This partly explains why household farming is only slowly declining even as wage employment is picking up in rural areas. Households benefit most from those jobs being taken by their children, who are better qualified and can earn more, while the older, less-educated parents keep on farming.

Figure 19. Education attainment by age group, 2016

Source: Authors’ calculations based on the VHLSS, 2016.

Figure 20. Predicted probability of off-farm wage employment by age and education

Source: Authors’ calculations based on the VHLSS, 2016.
Note: Predicted for males in inland delta area.
Because of this difference, local economic development factors have a greater impact on employment prospects of young people in the family than their parents. Among families with children old enough to work, having a local firm within traveling distance matters more for the employment of the children than their parents. The impact of proximity to urban hubs is twice as high for the children and that of population density is more than 50 percent higher. This portrays a picture in which wage opportunities and policies influencing them generally work better for the younger generation in rural areas than for their parents, who instead focus more on family farming.

Intra-household gender dynamics keep women out of off-farm employment

Married women have the lowest non-agricultural wage job prospects. Even with the same level of education, women are less likely than men to engage in off-farm wage employment across all regions. While women’s chance of having a wage job increases with education, the gap in wage employment rates widens with more education among both ethnic minorities and the Kinh and Hoa in high-mountain areas. In inland areas, the wage participation gap narrows slightly at tertiary educational attainment (Figure 21).

Married women bear the child-caring burden at the expense of their off-farm wage employment. Having young children between 0 and 5 years of age in the family reduces wage employment chances for spouses, mostly women. There is no impact on the wage participation of working age children if there is only one child under five years of age, while the head of the household tends to seek more wage opportunities (Figure 22). Thus, the child-care burden is first and foremost carried by the spouse of the household head, who withdraws from non-agricultural wage employment instead.

Social networks do not have a significant impact on women’s off-farm participation. Being in a women’s group does not increase the chances of women’s off-farm wage employment prospects. If there is any impact, it is negative, suggesting that such groups are centered more on agricultural activities. Estimates also suggest that spouses in families with a party member are significantly less likely to be engaged in off-farm wage employment. Thus, to the extent that social networks have any impact on married rural women’s labor force supply decisions, they seem to reinforce the cultural bias toward the tendency for women to do farm work.

Figure 21. Probability of off-farm wage employment by education, gender and ethnicity

Source: Authors’ calculations from VHLSS 2016.
Note: Predicted for individuals who are married, planting rice, living in high mountain with accessible hiring firms,
Farm dynamics influence household engagement in off-farm work

Rural households in Vietnam collectively choose between profitable agriculture and wage employment as a family decision. They consider which household members should work on farming activities and on off-farm activities in response to economic incentives, and other factors that affect farm and non-farm incomes. For farm incomes, such factors include farm attributes, agriculture prices, and input costs including the availability and wages of hired labor, as well as the household’s own labor productivity as determined by their technical and farm management skills.

As crop prices increase, all household members tend to work less in non-agricultural jobs. However, the price response differs across household members. Spouses’ labor supply is more responsive than household heads to smaller crop price changes and levels off at higher crop price changes, while the response for household heads is linear (Figure 23). This suggests that households respond to agricultural wages initially by keeping women on farms. It also means that when agriculture is profitable, people choose to stay on farms.

Unlike rice cultivation, other types of farming take spouses’ and children’s labor supply away from off-farm wage employment. Industrial crops and fruit tree planting seem to reduce the spouses’ and children’s off-farm wage participation the most. However, male household heads who grow rice are much more likely to have non-agricultural wage jobs (Figure 24).

Overall, rural households are less likely to seek non-agricultural wage employment when agriculture is profitable. High agriculture prices thus decelerate the transition out of agriculture, as households can gain as much income from farming. Households that grow high-value crops are less likely to seek wage employment. For such households, not engaging in off-farm work is a deliberate choice to maximize their farm incomes. Indeed, measures of productivity suggest that daily earnings from some types of agriculture are comparable to manufacturing and construction daily wages (World Bank, 2018b). This may also explain why agricultural wages are rising in step with non-agricultural wages.
ETHNIC MINORITIES’ DISADVANTAGES ARE ENTRENCHED

Ethnic minorities have entrenched disadvantages. They are disadvantaged both in key endowments and the relevant knowledge to utilize them in securing non-agricultural opportunities. Ethnic minorities have lower educational attainment levels. Just 2.5 percent have a tertiary qualification, while many more (35 percent) have no formal education at all. Concentrated in high-mountain areas, ethnic minorities live an average of 229 km from a major urban economic hub. The population densities in the areas in which they reside are less than one-fourth of the national average. In short, these areas are lacking in economic density, the most crucial aspect of local economic development, and education, the most critical individual attribute for non-agricultural wage employment (Table 8).

Table 8. Comparison of off-farm wage jobs enhancing attributes by ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Kinh and Hoa</th>
<th>Ethnic minorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share employed in non-agriculture wage jobs (%)</td>
<td>38</td>
<td>19</td>
</tr>
<tr>
<td>Share with post-secondary education (%)</td>
<td>6.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Average distance to major cities (km)</td>
<td>139</td>
<td>229</td>
</tr>
<tr>
<td>Have roads in commune (%)</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Live within daily travel distance to firms (%)</td>
<td>90</td>
<td>63</td>
</tr>
<tr>
<td>Population density (individual/km²)</td>
<td>206</td>
<td>46</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2016.

We therefore quantify the contributions of lack of economic density and low individual endowments such as education to the differences in access to non-agricultural wage jobs between ethnic minorities and the Kinh and Hoa. This is done using a statistical exercise that splits the difference in non-agricultural wage employment between ethnic minorities and the Kinh and Hoa into the contribution of differences in measurable characteristics and differences that exist even if the gaps in these characteristics were eliminated.

The latter could either be attributed to different returns or responses to the economic environment, or to unequal access to opportunities for ethnic minorities irrespective of their qualifications.

Disadvantages in measurable characteristics account for about 71 percent of the difference in off-farm wage-employment between ethnic minorities and the majority (Table 9). Of the differences attributable to observed characteristics, nearly 54 percent is a result of ethnic minorities living in communities with low population density. About 20 percent is attributed to their lack of secondary or tertiary education, and 21 percent is attributed to living in high-elevation areas compared with living in inland-delta areas. Thus, geography per se explains only 14 percent of the differences in off-farm wage employment between ethnic minorities and the majority. But population density and distance from urban hubs, and having a road in the commune, together account for 62 percent of the explained difference. This implies that local economic potential or economic distance accounts for more than 44 percent of the overall difference in wage employment between ethnic minorities and the majority. However, ethnic minorities have a demographic advantage in that they have a higher share of younger people, which helps to reduce some of the gap in participation relative to the Kinh and Hoa majority.

In addition to observed disadvantages, ethnic minorities also receive lower returns from their endowments. Some of this reflects a weak response to economic incentives, or unobserved lack of necessary knowledge in utilizing them. For example, Oaxaca-Blinder decomposition further shows that ethnic minorities are far less responsive (have smaller coefficients) to price and wage signals than ethnic-majority groups. This may be partly due to lack of information, or constraints to labor mobility. Most jobs are obtained through information from friends and relatives (World Bank, 2018b), which means that ethnic minorities with smaller networks may not receive timely information to respond to these opportunities.

---

1 See Jann (2008) for an explanation of Oaxaca-Blinder decomposition methodology.
Table 9. Decomposition of the off-farm wage participation gap between ethnic minorities and the Kinh and Hoa majority

<table>
<thead>
<tr>
<th></th>
<th>Absolute difference</th>
<th>Percentage of explained gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-farm wage participation gap</td>
<td>0.186</td>
<td></td>
</tr>
<tr>
<td>Explained gap</td>
<td>0.132</td>
<td>100%</td>
</tr>
<tr>
<td>Demographic composition</td>
<td>-0.030</td>
<td>-23%</td>
</tr>
<tr>
<td>Education attainment</td>
<td>0.026</td>
<td>20%</td>
</tr>
<tr>
<td>Farm characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm activity type</td>
<td>0.015</td>
<td>11%</td>
</tr>
<tr>
<td>Agricultural prices</td>
<td>-0.002</td>
<td>-2%</td>
</tr>
<tr>
<td>Agric wages relative to non-agriculture wages</td>
<td>0.004</td>
<td>3%</td>
</tr>
<tr>
<td>Local economic potential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population density</td>
<td>0.071</td>
<td>54%</td>
</tr>
<tr>
<td>Distance to major hubs</td>
<td>0.011</td>
<td>8%</td>
</tr>
<tr>
<td>Road in commune</td>
<td>0.000</td>
<td>0%</td>
</tr>
<tr>
<td>Residual location differences</td>
<td>0.027</td>
<td>21%</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2016.

But in most cases the lower returns from ethnic minorities’ endowments reflect barriers or even biases—intentional or unintentional—against them. A typical married ethnic-minority male with upper secondary education living in a high-mountain commune with local hiring firms would have a 29 percent chance of finding a wage job. His chances would have been 43 percent if he were a Kinh. Unfortunately, this disadvantage persists even with tertiary education (67 percent vs 70 percent). Gaps in employment prospects between ethnic minorities and the majority exist among both the older and younger cohorts, but have narrowed for the younger cohorts (Figure 25). An improvement in job prospects is also observed for the younger cohorts in both groups.

Figure 25. Probability of off-farm wage employment in high mountain areas by ethnicity, age and education

Source: Authors’ calculations from VHLSS 2016.
Note: Modeled individuals in the first four bars are married, local, planting rice, living in a high-mountain area, having local hiring-firm opportunities, with secondary education.
The uneven access to job opportunities in Vietnam is due to economic factors that government policies can influence. Local economic distance or local economic potential are the primary reasons for ethnic minorities’ and, in general, poor people’s limited employment in non-agricultural wage jobs. This means that spatial development and improved connectivity to create economic density is the most critical factor for the economic integration of the poor, as far as non-agricultural wage job opportunities are concerned. A second factor is education, where ethnic minorities lag significantly. However, returns to education only become significant at the tertiary education level, requiring ethnic minorities to make significant investments in human capital. Even with the same level of economic potential and qualifications as the majority, ethnic minorities would still not totally close the gap in off-farm wage employment, reflecting unequal access to opportunities.
03
ENHANCING OPPORTUNITIES IN AGRICULTURE
UNLOCKING UNTAPPED AGRICULTURAL POTENTIAL FOR THE POOR

Increasing agricultural incomes is the most feasible alternative for a cohort of people locked out of non-agricultural wage jobs. The older cohorts of working age adults in rural areas, particularly in sparsely populated areas far from economic hubs, have limited prospects of engaging in non-agricultural employment due to poorer education, geographic factors, and how work is divided within households. Even when households diversify into non-agricultural activities, they are unlikely to abandon agriculture completely in the medium term. Thus, agriculture will remain a major source of income for a significant subgroup of the population.

Table 10. Average per capita annual agriculture income by agriculture type and topography, 2016

<table>
<thead>
<tr>
<th></th>
<th>Rice</th>
<th>Other Annual Crops</th>
<th>Perennial Crops</th>
<th>Forestry</th>
<th>Livestock</th>
<th>Aqua-culture</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Poor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal</td>
<td>2,772</td>
<td>2,250</td>
<td>4,654</td>
<td>171</td>
<td>5,441</td>
<td>30,174</td>
<td>86</td>
<td>45,550</td>
</tr>
<tr>
<td>Inland delta</td>
<td>8,462</td>
<td>3,294</td>
<td>5,929</td>
<td>226</td>
<td>7,276</td>
<td>4,411</td>
<td>621</td>
<td>30,219</td>
</tr>
<tr>
<td>Hills/midlands</td>
<td>3,973</td>
<td>1,819</td>
<td>9,717</td>
<td>826</td>
<td>17,560</td>
<td>1,038</td>
<td>470</td>
<td>35,402</td>
</tr>
<tr>
<td>Low mountains</td>
<td>4,343</td>
<td>2,744</td>
<td>12,446</td>
<td>1,462</td>
<td>10,512</td>
<td>1,805</td>
<td>385</td>
<td>33,698</td>
</tr>
<tr>
<td>High mountains</td>
<td>4,010</td>
<td>5,020</td>
<td>25,470</td>
<td>4,357</td>
<td>9,421</td>
<td>1,108</td>
<td>848</td>
<td>50,234</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal</td>
<td>998</td>
<td>475</td>
<td>280</td>
<td>15</td>
<td>1,423</td>
<td>5,403</td>
<td>-</td>
<td>8,594</td>
</tr>
<tr>
<td>Inland delta</td>
<td>3,815</td>
<td>590</td>
<td>1,249</td>
<td>589</td>
<td>2,945</td>
<td>3,072</td>
<td>-</td>
<td>12,260</td>
</tr>
<tr>
<td>Hills/midlands</td>
<td>3,529</td>
<td>707</td>
<td>3,560</td>
<td>1,450</td>
<td>5,153</td>
<td>822</td>
<td>-</td>
<td>15,221</td>
</tr>
<tr>
<td>Low mountains</td>
<td>4,390</td>
<td>3,662</td>
<td>3,586</td>
<td>3,038</td>
<td>5,221</td>
<td>527</td>
<td>405</td>
<td>20,829</td>
</tr>
<tr>
<td>High mountains</td>
<td>5,254</td>
<td>6,085</td>
<td>3,427</td>
<td>4,381</td>
<td>3,662</td>
<td>533</td>
<td>3</td>
<td>23,344</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS, 2016.

There is untapped potential in agriculture that can still be unlocked to boost incomes and enhance the prospects of these groups. A wide variation in agricultural incomes, and the gap between poor and non-poor within the same regions, together with varying topographical types, exist. In high-mountain areas, the average income of poor agricultural households in 2016 was about 47 percent of agricultural incomes of the non-poor, for example. That difference is largely attributed to up 62 percent of cultivated land in Vietnam (Figure 26). The Central Highlands region is the exception. There, 62 percent of agricultural land is used to grow industrial and other perennial crops, which are grown by nearly 82 percent of the households in the region. The Northern Mountains region has the second-lowest share of land used for rice, but the crop takes up 63 percent of agricultural land there.
The significant variation in land productivity and profitability by crop type across regions suggests the current rice-based farming system does not maximize the regional comparative advantages. The Red-River Delta, South East and Mekong River Delta have a comparative advantage in annual crops production. However, the Central Highlands and the Northern Mountains and Midland regions have a comparative advantage in perennial crops. While they are critical for food security, cereals are not always the most profitable crops to grow everywhere, despite their widespread cultivation (Table 12).

The poor are less likely than the non-poor to use their land in ways that are consistent with their regional comparative advantages. The bottom quintile households devoted about 78 percent of their cultivated land to cereals production, compared with 65 percent of the non-poor in 2008. That difference held up in 2016, with cereals accounting for 73 percent of the cultivated land of bottom quintile households and 63 percent of top quintile households (Figure 27). These differences are magnified when analyzed regionally. Fewer of the poor in the Central Highlands and the Northern Mountains and Midland regions grow perennial crops, even though more households in these regions grow perennials in general.

Table 11. Share of households engaged in agriculture by type of activity and region, 2016

<table>
<thead>
<tr>
<th>Region</th>
<th>Rice</th>
<th>Maize</th>
<th>Other annual crops</th>
<th>Industrial &amp; other perennial crops</th>
<th>Animal grazing &amp; aquaculture</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>79.8</td>
<td>24.2</td>
<td>27.6</td>
<td>31.9</td>
<td>8.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Red River Delta</td>
<td>91.5</td>
<td>8.9</td>
<td>19.8</td>
<td>11.3</td>
<td>2.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Northern Mountains and Midland areas</td>
<td>94.6</td>
<td>56.2</td>
<td>35.5</td>
<td>16.6</td>
<td>19.4</td>
<td>9.1</td>
</tr>
<tr>
<td>Central Coastal</td>
<td>87.4</td>
<td>18.8</td>
<td>42.3</td>
<td>29.7</td>
<td>1.4</td>
<td>4.1</td>
</tr>
<tr>
<td>Central Highlands</td>
<td>42.7</td>
<td>12.3</td>
<td>12.3</td>
<td>81.5</td>
<td>0.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Mekong River Delta</td>
<td>76.0</td>
<td>-</td>
<td>16.5</td>
<td>43.0</td>
<td>4.1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VARSS, 2016.
It is therefore possible to maximize agricultural incomes of the remaining poor by optimizing their land use to better suit the comparative advantages in their areas. This is particularly the case in the Central Highlands, and the Northern Mountains and Midland regions, where most of the poor are located, livelihoods are more dependent on agriculture, and there is potential for improving land use and productivity. The analysis in this section therefore focuses on identifying those factors and policies that can help the poor to shift toward more profitable agricultural production.

The analysis estimates determinants of land-use choices among rural households in Vietnam. These are estimated using panel data from the VARSS 2008-16, considering three broad sets of factors. First are household and farm attributes, such as labor supply, technical skills, financial resources, social capital and access to land. Second are institutional factors, such as land-use policies, land tenure, irrigation systems and agricultural support infrastructure and policies. Third are community attributes, such as connectivity, service provision, and local commodity prices (include relative prices of each agriculture type relative to others) and input costs. The analysis is done in a simultaneous estimation framework, using the seemingly unrelated estimation technique, over the households’ land shares to six land-use alternatives namely: (i) rice, (ii) maize, (iii) other annual crops, (iv) industrial/perennial crops, (v) grazing of animals and aquaculture, and (vi) other agricultural uses. Thus, land-use choices are considered both in terms of adoption of crops and the intensity of cultivation of those crops. This accounts for the trade-offs between competing land-use choices. (Details of the estimation techniques are provided in Annex 2.)

Results from this analysis are complimented with findings from other studies on determinants of income generation from livestock production. Besides non-traditional crops, livestock and aquaculture are a rising source of agriculture income where too the poor are lagging. Aquaculture production is predominantly in the coastal areas, significantly boosting incomes there, but it is not a viable source of income in high mountain areas where most of the poor reside. Livestock production offers great potential in the high mountain instead. This report relies on recent findings from Do, Nguyen and Grote 2019’s analysis of livestock production, rural poverty and perceived shocks in Vietnam.

**LAND-OWNERSHIP STRUCTURE AND AGRICULTURE FINANCING LARGELY INFLUENCE LAND-USE CHOICES**

Improving land user security promotes non-rice crop production

Stronger land security has a bigger impact on the cultivation of non-rice crops given that land is state-owned and there is an institutional bias toward rice cultivation. Having a ‘red book’ (land-use certificate)
does not have a significant impact on the share of rice-cultivated land. But it is nonetheless associated with a higher share of land used for industrial and other perennial crops, while having a negative effect on the share of land use for maize. Our estimates imply that, compared with the average, households with a ‘red book’ for their land devote 19 percent more and 44 percent less of their land for perennial and maize crop cultivation, respectively. Maize is grown mostly in the Northern Mountains and Midland areas (Table 11), where perennial crops are more profitable, so there is a direct trade-off. Since industrial and perennial crop production require long-term investments (Trung et al., 2016), increased land-use security encourages household investments in perennial crops and a shift from maize production, thus optimizing land use to maximize regional comparative advantages. This is a critical constraint for ethnic minorities that have land-use certificates for 55 percent of their land on average, compared with more than 80 percent for the majority.

**Land fragmentation is a key barrier to industrial or perennial crop production**

**Land ownership is generally fragmented in Vietnam.** A typical household has three plots of land for annual crop cultivation and one for perennial crops, with an average plot size of 0.5 hectares (Table 13). Fragmentation is greater in the Northern Mountains and Midland areas partly due to land limitations imposed by the mountainous terrain, causing farming land to be scattered. A typical household there has close to five plots under annual crop production and more than one under perennial crop cultivation. The average plot size is just 0.13 hectares. In contrast, households in the Mekong River Delta on average have more and less-fragmented land, with an average plot size of 0.44 hectares. The Mekong River Delta has seen far greater efforts at land consolidation.

**Such land fragmentation is a constraint on the shift toward industrial and perennial crop production.** Estimates suggest that land-use choices in Vietnam are much more sensitive to plot size. A one percentage increase in the average plot size is associated with 6.3 percentage points increase in the average share of land used for perennial crop production, matched by an equivalent decline in the combined share of land for rice (3.3 percentage points) and maize (3.1 percentage points) production. Accounting for the average plot size, households with more plots devote a greater share of their land to rice production and less to other activities. Taken together, the negative effect of the number of plots and positive effect of larger plot sizes on land allocated for perennial crops imply that land fragmentation dissuades households from growing industrial crops.

**The sensitivity of land-use patterns to land quality is very small, making the size and fragmentation of land the most important factors.** Lower average land quality tends to be used for livestock and maize, but household land-use changes in response to the quality of land is negligible. Also, there is no significant effect of land quality on the share devoted to other types of land use. The average plot size and the number of plots, combined with land-use rights, are therefore the primary determinants of land-use choices for households.

**Larger farm land size positively influences livestock assets, particularly for large livestock.** Do, Nguyen and Grote 2019, estimates that a one percent increase in land owned increases total livestock owned by 0.059 total livestock units (TLU) - equivalent to 7.5 percent of livestock assets. This impact was significant for large livestock for which a 1 percent increase in land owned is associated with a 0.045 TLU increase for large livestock (equivalent to 10 percent of large livestock assets) but no significant relationship is observed for small livestock.

**Table 13. Pattern of household land holdings by region, 2016**

<table>
<thead>
<tr>
<th></th>
<th>Average number of plots</th>
<th>Total land (ha)</th>
<th>Average plot size (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual crop land</td>
<td>Perennial crop land</td>
<td></td>
</tr>
<tr>
<td>Red River Delta</td>
<td>2.92</td>
<td>1.16</td>
<td>0.22</td>
</tr>
<tr>
<td>Northern Mountains and Midlands</td>
<td>4.67</td>
<td>1.36</td>
<td>0.67</td>
</tr>
<tr>
<td>North and Central Coastal</td>
<td>3.3</td>
<td>1.18</td>
<td>0.48</td>
</tr>
<tr>
<td>Central Highlands</td>
<td>2.07</td>
<td>1.65</td>
<td>1.47</td>
</tr>
<tr>
<td>Mekong River Delta</td>
<td>1.47</td>
<td>1.22</td>
<td>1.43</td>
</tr>
<tr>
<td>Vietnam</td>
<td>3.15</td>
<td>1.31</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from Agriculture Census, 2016.
Households’ own financial resources influence industrial crop cultivation

Agriculture in Vietnam is still mostly self-financed. Only 17 percent of all farmers in 2016 reported having received a loan for agricultural purposes either in 2015 or 2016. Even among perennial crop producers, who were more likely to borrow than other farmers, just 25 percent had obtained an agricultural loan. The lower utilization of credit is irrespective of farm area. Respectively, less than one-fifth and one-third of farmers who cultivated rice and perennial crops on more than 1 hectare utilized a recent loan. Most of these farmers nonetheless purchased market inputs, so their farming activities are largely self-financed.

Table 14. Share of households with a recent agricultural loan, 2016

<table>
<thead>
<tr>
<th></th>
<th>All farmers</th>
<th>0 – 0.5 ha</th>
<th>0.5 – 1.0 ha</th>
<th>1.0 – 3.0 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice farmers</td>
<td>16.8</td>
<td>15.6</td>
<td>16.2</td>
<td>19.1</td>
</tr>
<tr>
<td>Non-rice annual crop farmers</td>
<td>17.7</td>
<td>16.6</td>
<td>19.8</td>
<td>28.3</td>
</tr>
<tr>
<td>Perennial crop farmers</td>
<td>24.1</td>
<td>20.7</td>
<td>29.9</td>
<td>32.5</td>
</tr>
<tr>
<td>Fruit farmers</td>
<td>18.5</td>
<td>18.4</td>
<td>20.6</td>
<td>14.6</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS, 2016.

Households’ self-financing is particularly critical for investments in industrial crops. A 1-percent increase in household income is associated with a 3.8 percent increase in the share of industrial/perennial crop land the following year, and another 1.3-percent increase two years later. Liquidity is rather important for industrial crops. After factoring annual incomes, the value of fixed assets (non-land) is only associated with more rice-land cultivation and less industrial-crop production. Own savings, which are mostly small (averaging VND 20 million over one year), tend to be used more to expand maize cultivation and grazing or aquaculture. There is a tendency to increase the share of maize production when a household has more people to borrow from, but such support from relatives is not usually substantial. Thus, the availability of significant amounts of working capital is a key consideration for household land-use patterns.

There is evidence that access to finance positively influences large livestock assets. Do, Nguyen and Grote 2019’s estimates imply that households with access to credit had 0.076 TLU more large livestock units, thus close to 17 percent more large livestock assets than comparable households without access to credit. The difference was around 12 percent when total livestock assets are considered.

However, access to loans does not have a significant impact on the share of land used for industrial crop cultivation, primarily because most loans are short term and small. A typical household loan is only VND 19 million with a median two-year maturity. Therefore, these loans are currently unsuitable for growing industrial crops, which have a longer maturity period and require larger investments to grow a large area. Early maturing varieties of coffee plants are only harvested after five years, for example. Larger and long-term financing is therefore needed to promote industrial-crop production in Vietnam.

Household demography and education do not have a robust influence on land-use patterns

Demographic factors have a varying influence on land-use patterns. There is no significant link between the gender of the household head and land-use choices. Older people tend to grow marginally more annual crops than the average farmer, but there is no discernible relationship between age and land use for industrial crops and grazing of animals or aquaculture. Thus, land-use choices are not strongly tied to any demographic groups.

Dependency on household labor supply is more of a consideration for land-use patterns. Households with more working age members are far more likely to devote a larger share of their land to crop cultivating, even after controlling for their income status. This partly reflects that rice production is less commercialized than industrial-crop production. But it also suggests that labor availability may not be a constraint to non-rice crop cultivation.
The impact of education on land-use choices is not robust. Those with secondary education and above clearly use less of their land for maize production. Meanwhile, grazing and aquaculture appear to be favored by people with lower secondary and primary education, compared with those with no formal schooling at all. Our estimations suggest that education is not a constraint to industrial-crop production too. In fact, those with lower secondary education are less likely to grow industrial crops. The bottom line is that education cannot explain why poor people tend to use less of their land for industrial and other perennial crop production.

**INSTITUTIONAL BIAS TOWARD RICE PRODUCTION IMPEDES CROP DIVERSIFICATION**

Rice is a key crop for Vietnam due to food-security concerns. This is reflected in various policies, key among them being land-use policies and agricultural infrastructure investments. Elements of these policies impose constraints, and introduce frictions, distortions or uncertainties that discourage a switch or investment into non-rice production. Our analysis suggests that some of these frictions have a substantial influence on households' land-use decisions.

Despite recent changes, land policies still have restrictions reducing land-use flexibility.

The revised 2013 Land Law introduced notable changes to improve land-use rights, but still contained some restrictions. Households do not own land but have land-use rights that can be inherited, leased, transferred, exchanged and used as collateral for loans. The duration of land allocation was extended from 20 years to a maximum of 50 years in 2013. Quotas on acquisitions of land-use rights have been extended to a limit of 10 times the agricultural land allocation quota.

More importantly, the law enforces a fixed regime for rice cultivation. Notable clauses include the requirement for the State to develop policies to protect land for rice cultivation and to limit the change from the purpose of rice cultivation to other non-agricultural purposes. As such, the State is required to take measures to supplement any rice land area converted to another purpose, or improve the efficiency in using land for rice cultivation. There are also specific provisions prohibiting those who use land for rice cultivation from using it for planting perennial trees, afforestation, aquaculture and salt production, or for non-agricultural purposes, without the State’s permission.

Evidence suggests these restrictions bind people to rice cultivation, but to a lesser degree. About 55 percent of households’ land is under some crop restrictions. The restrictions are highest in major rice-producing areas (Figure 28), such as the Red River Delta and Central Costal areas, but there is now more flexibility in the Mekong River Delta, where recent policy changes have led to an increased focus on annual cash crops. Regression estimates suggest that a 10-percentage-point increase in the share of a household’s land under any crop restriction is associated with only 0.5-percentage-point change in the share of land used for rice cultivation. A negative relationship is observed for all other agricultural land-use types, but this is not significant. The results suggest that land restrictions have only a weak bias toward rice production.

**Figure 28. Share of land use under crop restrictions by region (%), 2016**

<table>
<thead>
<tr>
<th>Region</th>
<th>Share of Land Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRD</td>
<td>70.4</td>
</tr>
<tr>
<td>NMM</td>
<td>49.7</td>
</tr>
<tr>
<td>CC</td>
<td>63.6</td>
</tr>
<tr>
<td>CH</td>
<td>42.5</td>
</tr>
<tr>
<td>MRD</td>
<td>47.9</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VARSS 2016.

Note: RRD = Red River Delta; MMD = Northern Mountains and Midland; CC = Central Coastal; CH = Central Highlands; MRD = Mekong River Delta.

Historical agricultural infrastructure investments favored rice production.

An institutional emphasis on adopting policies and investments supporting rice cultivation tilts the playing field against the production of other crops. The 2013 Land Law makes this explicit, with provisions requiring the State to adopt policies to support and invest in the construction of infrastructure, and the application of modern science and technologies to those...
areas earmarked for high-productivity and high-quality rice cultivation. Irrigation is a clear example: the higher the share of land under irrigation, the smaller the share of land used for any non-rice agricultural purposes, particularly annual crops, including maize. This is because most irrigated land in Vietnam is reserved for rice production. Article 11 of Decree 01/2017 CP-TTg on the procedures for land conversion specifies that when considering a household’s application for converting rice cultivation land to perennial crops, the Commune People’s Committee must ensure that the conversion does not damage transport and irrigation infrastructure for rice cultivation.

**Better Opportunities for All**

**Better Opportunities for All**

**36**

**Better infrastructure conditions promote crop diversification**

Better access to good infrastructure and services is more favorable to industrial-crop production. Improved local connectivity encourages households to increase production of perennial crops. Households about 15 km away (equivalent to 2 standard deviations) from an all-weather commune road devote 16 percent less of their land to industrial-crop production compared with the national average. Accounting for the quality of access to local roads, distance to other public infrastructure facilities (e.g., school, health center, hospital, Commune People’s Committee) seems to positively influence land use for maize production, but negatively impacts land use for grazing, with no significant impact on other land-use alternatives. The supply response to local relative agriculture price changes is weak.

The supply response to local relative price changes is limited, partly because social networks reinforce the rice bias. For all crops, a change in their price relative to rice does not translate into changes in their share of land cultivated. Speculative reasons could be that some crops take time to yield returns, making current prices a less reliable signal of future profitability. The result could also point toward information asymmetries on prices. But one established factor is that social networks either build around or reinforce the rice-based agricultural system. A higher number of household members belonging to some local groups or associations is linked to a higher share of land used for rice cultivation.

**Low food markets integration might be influencing land-use choices in remote areas**

The low supply price response, combined with evidence that remote households tend to use more of their land to grow food crops, suggests that food markets are not well integrated, thereby creating a price wedge. This means that when households are isolated, it is more costly to purchase food (e.g., rice) from outside markets because of higher transaction costs. Thus, households have a stronger incentive to produce for their own consumption requirements, which they can do at lower costs. Conversely, any surplus they produce would fetch a low producer price because of the same high transaction costs of marketing the crop outside the area. The result is a low-level subsistence equilibrium, biased toward rice and cereals, which disincentivizes a shift in production to higher-value and more agronomically suitable perennial crops.

**Summary**

Land-use choices are primarily driven by financial ability, access to land and the security of that access. Having access to more and less fragmented land, shifts land-use decisions in favor of industrial-crop production, while fragmentation leads to the continuation of traditional cereal-crop production. With an institutional bias toward rice production, security of tenure encourages more investment in more industrial- and perennial-crop production too, a similar effect to having own liquid resources. Thus, policies governing households’ access to land and agriculture financing are the most important drivers of land-use choices in Vietnam.
04

CONNECTING THE POOR TO BETTER OPPORTUNITIES
STRATEGIES FIT FOR DIFFERENT POPULATION GROUPS

It is apparent that Vietnam now has a dual economy, with a segmented labor market. The older generation works in the traditional agrarian rural economy, while the younger generation engages in non-agriculture sectors where such opportunities exist. Higher levels of education among the younger generation partly explain this segmentation. But it mostly reflects the household institutional setting, where farming remains integral both to keep the land and for food self-sufficiency. The farming role within the family is designated to older members of the household, most of whom have little or no education.

An effective strategy for creating better economic opportunities for the poor should recognize this segmentation largely based on demography. Not everyone will be able to transition out of agriculture. Therefore, a comprehensive strategy should not just aim to accelerate the transition out of agriculture but should also spur transformation of the agriculture sector too, increasing the incomes of the population segment that will be left behind, while also adjusting to the huge outflow of labor from agriculture. While demography is a major factor for non-farm participation, we have seen that it has little impact on changes to land-use patterns, hence is not a major constraint to the potential for the further transformation of agriculture. Special attention on women’s economic empowerment is also warranted to equalize access to opportunities.

This report proposes three strategic focus areas for equalizing access to better economic opportunities for lagging regions. These aim to address the key constraints to accessing off-farm opportunities and optimizing land use that were identified in the previous sections. These three areas are:

(i) Reducing economic distance for remote and low-density areas where most of the poor are concentrated;

(ii) Putting agricultural land to better use to increase the incomes of those left behind in agriculture and adjust to labor outflows; and

(iii) Economic empowerment of women to increase their chances of non-agricultural employment.

Below we elaborate on these focus areas and sketch some policy areas aimed at both increasing access to off-farm opportunities and enhancing incomes in the agriculture sector to provide better economic opportunities for poor and vulnerable groups, particularly ethnic minorities and women.

REDUCING ECONOMIC DISTANCE FOR REMOTE, LOW-DENSITY LOCALITIES

Creating off-farm opportunities in lagging rural areas requires overcoming the challenge of remoteness and low population density. These have been shown to be the largest contributors to accessing non-agricultural jobs in regions where Vietnam’s poor are concentrated. Due to remoteness and low density, the process and drivers of growth in sparsely populated and distant areas is inherently different from that of urban areas or rural areas close to large cities. Growth in urban areas can be sustained by internal factors due to large networks effects and linkages. This differs from remote and low-density areas in the following three aspects:

- Growth tends to be based on absolute local advantages, for example, land, forests, and ecological and cultural attractions (Box 1).
- Growth is driven by external demand, either domestic (from cities and other regions), and/or international, for example, in niche products and services or tourism.
- Growth is delivered mostly by SMEs, since it is usually difficult to achieve scale in low-density economies, except for single firm localities dominated by a large firm exploiting natural resources in the area, for example in mining.

Off-farm opportunities in remote and low population density areas could therefore be created by adopting two complimentary strategies, namely: (i) developing the secondary economy and expanding economic functions; and (ii) linking rural areas into the network economy.
Box 1. Non-timber forest and forest environmental services opportunities in northern-mountainous areas

Forests in Vietnam offer provisioning (e.g., foods, resins, timber, and so on) and regulatory services (e.g., sequestering carbon, reducing hill-side erosion, and so on). Non-timber forest products (NTFPs) and ecosystem services are sources of revenue from forests in many countries. In Vietnam, exploitation of NTFPs plays an important role for the rural poor as a source of income where alternative livelihood activities are scarce.

There are growing markets for several NTFPs that can provide significant income and job opportunities. Important NTFPs are identified with specific provinces; for example, cardamom in Lao Cai, Yen Bai, Lai Chau and Ha Giang provinces; bamboo in Thanh Hoa and Nghe An provinces; cinnamon in Yen Bai, Nghe An, Quang Nam provinces; pine resin in Quang Ninh, Lang Son, Nghe An, Ha Tinh, Quang Binh, Lam Dong, Gia Lai, and Kon Tum; ginseng in Quang Nam and Kon Tum, etc. Bamboo and rattan cover the largest area in Vietnam, with a mixed bamboo and wood forest area of 1,152,864 ha (8 percent of total national forest area) in 2017.

The global market for bamboo is expanding rapidly. Bamboo is increasingly being used for furniture, building materials and other consumer goods as a sustainable alternative to wood. The annual estimate for bamboo production in Vietnam is about 250,000 tons and, in 2014, the country exported over US$100 million worth of bamboo products, mainly bamboo and rattan basketwork and bamboo and rattan furniture. There are three high-density regions of production: the Northwest, North-Central, South-Central regions.

Other non-timber forests such as cinnamon, cardamom and pine resin also have great market potential. According to MARD, the export value of cinnamon is increasing with average rate from 109 to 130 percent per year. It is also estimated that annual pine resin production is about 3,000 tons per year, with the natural pine forest covering about 300,000 ha, mainly concentrated in the provinces of Quang Ninh, Lang Son, Nghe An, Ha Tinh, Quang Binh, Lam Dong, Gia Lai, and Kon Tum. There are about 22,000 ha of cardamom distributed in the northern provinces of Vietnam. In some districts such as Bat Xat, Sapa, and Van Ban, cardamom accounts for nearly 60 percent of total household income. Forests also provide many types of valuable herbs for medicine, creating further jobs and incomes for many ethnic-minority groups.

Vietnam is also one of the leading countries in operationalizing a payment for forest environmental services (PFES) system. PFES is a unique mechanism that incentivizes sustainable forest management and protection. Since 2008, PFES has generated nearly US$400 million from beneficiaries of forest environmental services (such as hydropower plants, water supply companies and ecotourism operators) to provide financial compensation to the individuals, communities and government agencies managing the country’s forests.

The current system of PFES payment distribution to forest owners is largely cash-based and presents a number of opportunities to become more efficient, transparent, and secure. Using current mobile technology, USAID’s Vietnam Forests and Deltas (VFD) Program is collaborating with the Vietnam Forest Protection and Development Fund (VNFF), Lam Dong and Son La provinces, and Viettel to pilot electronic PFES payments via mobile phone. In December 2018, Son La provincial forest fund successfully made the first e-payment transactions via the Viettel Pay system for 744 households in Son La city and Phu Yen district and Cat Tien National Park in Lam Dong successfully completed the first PFES e-payment in Lam Dong province by transferring payments to 258 households who help protect the park’s forests in January 2019. These exciting milestones represent the first time that innovative mobile-phone based payment mechanisms have been used for PFES and is an example of USAID’s support to the Government of Vietnam’s Industry 4.0 initiative. Following the successful pilot, VNFF expects to issue guidance on e-payment to support more effective payment to the 500,000 PFES recipients around the country.

2 INBAR- https://www.inbar.int/country/vietnam/#2
3 Nong Lam University- NTFPs focus on Pine Resin
**Developing the secondary economy**

Production in low-density economies tends to be based on absolute advantages, often in natural resources. Off-farm opportunities can be created by developing industries based on these advantages, for example agro-processing, wood-processing or eco-tourism. But further growth can be achieved by building a post-production economy in areas that support the primary production sectors. Such activities include developing producer services (e.g., logistical services, and business and accounting services) that could also be managed by SMEs, or complement consumer services.

Developing specialty businesses serving a narrow consumer base is also another option for low-density economies to develop their non-agriculture sectors. These economies inherently have limited scale. Therefore, they are most suited for niche products, or other products with a narrow consumer base whose demand they can easily satisfy. The important aspect is attracting investment into activities that could be produced by SMEs and that do not require mass production to be profitable.

**Integrating rural areas into the network economy**

It is crucial to link rural areas into the network economy to make up for low economic density. The lack of density makes growth of non-farm opportunities in lagging rural areas dependent on external demand. In order to sell more of what they produce, or to obtain a higher price for their produce, rural SMEs must sell to markets outside their own localities. Links to markets, both domestic and global, therefore become vital for expanding access to off-farm opportunities in lagging areas.

Rural areas could tap into regional and global value chains by attracting maturing industries that are seeking cost advantages beyond large urban centers. As agglomeration centers evolve into high-value products, some mature industries lose their competitive advantages in urban areas. They then seek to relocate to rural areas, with cheaper labor, rents and other services. This provides an opportunity for growth in rural areas, but one that most likely benefits rural areas closer to urban centers. The forthcoming World Bank Vietnam Development Report on Connectivity (World Bank, 2019b) and another on Urbanization (World Bank, 2019c) look at how this process is already evolving in Vietnam and the required policy responses.

**Improving connectivity is vital for integrating rural areas into the network economy**

Good connectivity is essential, both for integrating lagging rural areas into the network economy and developing a secondary economy. Goods need to be transported to other markets. They also need to be marketed to a global market. There should be a smooth exchange of information, connections with intermediaries and/or the ultimate buyers. Irrespective of the sector, connectivity is important for making markets and jobs accessible. A good road, for example, makes it easier to attract more tourists just as it makes it easier to transport goods to markets, or workers in neighboring localities to commute to work. The forthcoming Vietnam Development Report (World Bank, 2019b) will elaborate on the role of connectivity in improving economic outcomes.

In addition to a good transport network and logistical services, ICT investments are particularly crucial for reducing economic distance and leveraging digital technologies to generate new opportunities in rural areas. Access to the internet facilitates information flows and knowledge exchange. It creates marketplaces through leveraging digital platforms and e-commerce. These can expand the markets for low-density economies and create new forms of employment, such as developing logistical services industry once e-commerce starts to boom. The success of Alibaba’s Taobao Marketplace in China is evidence to the potential of digital technologies to integrate rural areas into a network economy (Box 2).
Box 2. Harnessing digital technologies to expand economic opportunities through e-commerce in rural areas in China: The case of the Taobao Villages

The Taobao marketplace is an Alibaba online shopping website founded in 2003 to facilitate consumer to consumer retail by providing a platform for individuals and small businesses to open online stores. By 2009, clusters of rural online entrepreneurs’ online shops on the Taobao marketplace began to emerge. A cluster with 100 online active users or at least 10 percent of village households engaged in e-commerce, with a combined annual transaction volume of at least RMB 10 million is defined as a Taobao village. Their number has increased from just 20 villages in 2013 to 3,202 in 2018. The top five purchased categories for Taobao villages are clothing, furniture, shoes, luggage and leather goods and household appliances/wares. Almost half of e-entrepreneurs in Taobao villages are women, compared with 25 percent of women entrepreneurs in China.

Participants tend to be younger and better educated, the demographic much more likely to use internet. Most e-shops are small, with fewer than five employees and owner-operated. A joint World Bank and Alibaba survey found that e-households’ per capita incomes were 80 percent higher than non-e-households, and that 55 percent of them perceive having attained a higher social status than five years ago compared with only 30 percent of non-e-households. E-shop workers in Taobao villages earn the same or more than workers in urban private industries. Many young and talented people, including women, have returned to their hometowns in rural areas, earning as much or more than they did as migrant workers in cities.

Figure 29. Connectivity and e-commerce in rural China

Successful Taobao villages are found in areas with good infrastructure and nearby markets. Such villages are closer to public means of local and long-distance public transportation. Access to the internet and mobile communications is universal. This signifies how important connectivity is in making areas more conducive to e-commerce.

But rural Taobao has also demonstrated potential to create new opportunities in remote areas. It has provided villages with access to a broad range of new products at a lower price and assisted villagers to sell specialty products to markets in other parts of China. It has become a platform for new rural logistics, facilitating the last kilometer delivery to rural remote areas by setting up logistics stations to link deliveries between cities and remote areas through co-operation with third-party logistics services providers. The platform has been used to improve quality and expand markets for agricultural products. In Bachu, Xinjiang, for example, Alibaba collaborated with local governments to provide technical services to farmers in a poor county with ethnic minorities, used big data to improve the quality of honeydew melons and signed pre-purchase contracts with farmers at favorable prices. Farmers’ incomes have increased nine-fold in three years as a result.
Skills development enables access and growth of new off-farm opportunities

Developing a secondary rural economy and linking rural areas to the network economy both require skills. Most labor in rural Vietnam is low skilled. Estimates from the first quarter of 2018 suggest that 86 percent of rural workers have no technical or professional qualifications. But some technical skills are needed to expand economic functions of rural enterprises to support a post-production economy, or to link to the network economy. In addition to connectivity, businesses seeking to relocate from urban areas will be attracted more to areas with better skilled labor. Producer services such as marketing and business planning require certain skills. Even participation in digital platforms requires digital literacy.

As our results show, better educated people have improved access to off-farm jobs. Other research also shows that those with higher education are more engaged on digital platforms and make more money from them. In the Taobao Villages in China, about 32 percent of people with just primary education used the internet compared with 95 percent of those with a vocational education or college degree. About 93 percent of e-commerce entrepreneurs had junior high school education or higher. A study on tourism and the sharing economy finds that more educated people were among the higher performing hosts (in terms of occupancy) in Jamaica (World Bank, 2018c). This is partly because many platforms offer only a little hands-on training, leaving people with better education at an advantage to make the best of this digital training. This gap needs to be closed with better training to equalize the chances for the less skilled, while also enhancing the attractiveness of rural areas for businesses too.

Migration offers an alternative link for lagging areas to the broader economy

Increased labor mobility, both into and out of low-density areas, would help to mitigate the disadvantages faced by distant low-density economies. Remittances are an increasing share of household incomes in rural areas in Vietnam. Their growth contributed to about 13 percent of poverty reduction among ethnic minorities in 2014-16 (World Bank, 2018a). But migration is still substantially lower among ethnic minorities. Only 3 percent of ethnic minorities had recently migrated in 2016. Those who move mostly stay within the same province or region. There is much less north-to-south migration. Three-quarters of migrants from the Northern Mountains and Midland region migrated within the region. Less than 5 percent migrated to the South East, Mekong River Delta and HCMC (GSO and UNF, 2016).

Encouraging long-distance migration domestically will be important for increasing access to off-farm opportunities for ethnic minorities and people in low-density economies. A primary barrier to long-distance migration is that migration for work is dependent on social networks, both for learning about job opportunities and temporary accommodation, which are a significant part of the search costs. Housing issues were the most cited challenge faced by migrants (43 percent), followed by no income (38 percent) and not being able to find a job (34 percent) among migrants surveyed in 2015 (GSO and UNF, 2016). There are social barriers for women, too. Married ethnic-minority women are most likely to move for a job if they can bring along their spouses and families (World Bank, 2019a). But poor access to services for people with temporary registration in cities is a discouraging factor (World Bank, 2016). The need to take care of the elderly also discourages migration among both men and women, and contributes to reverse migration. Adult children with elderly parents in rural Vietnam are less likely to migrate (Jiles and Huang, 2018).

Reducing the cost of labor mobility in Vietnam could facilitate migration. One set of interventions could be aimed at addressing the social barriers to people’s movement, namely unequal access to public services for temporary residents and providing the elderly with care services. The other factors include bridging information asymmetries in labor markets and minimizing the role of social networks, thereby reducing job search costs and increasing job matching. These interventions cover improving labor market information systems at the local level to increasing the availability of low-cost housing in order to reduce the job search costs for migrants.

International migration could be just as important, especially for ethnic minorities in border areas. Linguistic and cultural similarities with border provinces in neighboring countries make these attractive employment destinations for ethnic minorities. But it
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is imperative to foster safer and legal migration. The government, under the NTP-SPR program, already plans to help the poor obtain contractual employment overseas.

PUTTING AGRICULTURAL LAND TO BETTER USE

The segmentation of the rural labor market emphasizes the need for further restructuring of agriculture to put land to better use. The sustained outflow of labor from agriculture and the sub-optimal use of land among poorer communities make the further restructuring of agriculture imperative. Both imply that agriculture and land use need to be further reformed to unlock agricultural potential for the poor to increase their incomes and to make up for the loss of labor in the sector.

The outflow of youthful labor has immediate consequences for agriculture. At first, the reduction of disguised unemployment will boost labor productivity in the sector. But soon, labor shortages will become a constraint. Land-utilization rates in household farms could decline sharply as a result of the older demographic being left behind to work on farms. Most of them are unlikely to fully utilize their land, but will nonetheless hold onto it to keep their land-user rights in the absence of other forms of land security.

Agricultural potential will be further undermined by sub-optimal land-use choices among those, mostly poorer households, remaining in agriculture. Held back by weak land security, fragmented land and reliance on self-financing, most of the poor are not fully exploiting their regional comparative advantages in their land-use choices. This not only contributes to their poverty but could potentially drag down land productivity in the sector, as labor moves out of agriculture and land-utilization rates decline. Consequently, the remaining land will become increasingly misallocated in its use.

Land consolidation, underpinned by stronger land rights, is essential for putting agricultural land to better use

Land consolidation will be required for the most part to help restructure the agriculture sector in the face of these challenges. An acceleration toward larger farm operator systems might be required if more farming households start utilizing less and less of their land. While not all crops require larger land sizes, perennial crops in highland and mountainous areas tend to require more land, as our evidence suggests. The high degree of land fragmentation in these areas partly contributes to the poor using less of their land on perennial crops, even though these crops are more profitable.

Improving the functioning of land markets, which can only be underpinned by strengthening land rights further, will be central to successful land restructuring. Well-functioning land markets will improve efficiency in land use. This could facilitate land consolidation through the sale, rental and exchange of land between people who own excess or underutilized land, and those needing larger farms. It also encourages households to take on types of agriculture that require long-term investments. Recent attempts to improve land use (Decree 35/2015/ND-CP and Decree 01/2017 ND-CP) have been made, but still require households to register with the Commune People’s Committee and requires the change to be reversible if converting from land earmarked for annual crops.

Other land consolidation measures have been attempted, but there is still an inherent bias toward rice. Large-scale field models have been introduced and increasingly replicated in many provinces. According to the Agriculture Census, 2016, there were about 2,262 large-scale fields in 2016, of which 1,661 were rice fields; 162 vegetable fields; 95 sugarcane fields; 50 corn fields; 38 bud tea fields and 256 fields for other crops. This was a significant increase compared with 2011. Exchanging or merging farming plots has also been undertaken, resulting in an increase in the average land size by 242m² between 2011 and 2016. But this was mostly for paddy land. To unlock untapped agricultural potential, land consolidation interventions will need to focus on other crops too. A market-determined system of land consolidation underpinned by increased property rights would be an efficient tool for achieving this goal. There are however some physical limitations to the extent to which land consolidation can be implemented, especially in high mountain communes, where some of the fragmentation is driven by land limitations imposed by the mountainous terrain.
Innovations in agriculture finance are also needed

Household farming is largely self-financed. Evidence suggests that such reliance on self-financing limits expansion into industrial crop-production, where investments are constrained by households’ self-generated financial resources. Households that start off with a larger income are clearly more likely to devote a substantially higher amount of their land on industrial crops and less so on rice production. This clearly demonstrates the potential role of agriculture financing in expanding into non-rice crops.

Improving financial literacy would help to reduce dependence on the self-financing of agriculture. Survey data show that most communes have a financial institution—mostly the Vietnam Bank for Social Policy (VBSP)—that offers loans to the poor and other policy beneficiaries. However, despite clear evidence that liquidity is a constraint for households to better utilize their land, few of them borrow even these preferential loans. This points to a lack of financial literacy in financial planning, especially how to utilize loans to maximize lifetime income.

Innovations in providing agriculture financing are also needed to offer financial products that match the needs of the sector. Loan schemes under the VBSP are limited in size. As a result, they fail to make a significant contribution to large-scale investments. Penetration of commercial banks into the sector remains low. The median maturity for most loans is only two years, far shorter than the maturity of industrial crops. Arabica coffee needs a minimum of five years before harvesting, for example. There is a need for loan products with repayment terms that are consistent with income flows from investments in agriculture.

Expanding infrastructure and improving food markets integration

Improving infrastructure and integrating food markets help farmers to diversify their crop choices. Evidence of a low supply response to crop-relative price changes, and a tendency among remote households to use more of their land to grow food crops, may suggest that food markets are not adequately integrated. This creates a strong incentive for households to produce for their own consumption requirements, which they can do at a lower cost than by purchasing food. Transaction costs in remote areas are also high, thereby reducing the profitability of any surplus they produce for crops marketed outside the area or through intermediaries. Investing in connectivity infrastructure and better integrating food crop markets would be an important part of any effort to shift production to higher-value and more agronomically suitable perennial crops. This has already been a strong focus of the National Target Programs (NTPs), especially the NTP for New Rural Development (NTP – NRD). But it is important to build additional types of infrastructure to support not only rice but other agriculture purposes too. The evidence so far suggests that irrigation is mostly geared toward rice.

WOMEN’S ECONOMIC EMPOWERMENT

Women do not enjoy equal access to off-farm opportunities, largely due to the household division of labor. Household labor supply decisions tend to adjust female labor to changing household conditions more than they affect men’s. Women’s off-farm labor supply is more sensitive to small agriculture price changes than men’s, while having children impacts their labor outcomes more than men too. This points to a lack of economic empowerment of women within the household in rural areas.

Expanding access to child care helps to keep women in off-farm work

Women are responsible for child care, contributing to their withdrawal from non-farm wage employment. Access to child-care services could alleviate this burden and help to keep women in off-farm work. Research in Vietnam (Dang, Hiraga and Nguyen, 2019) shows that child-care attendance of under four-year-old children has a larger long-term impact on wage employment, and that this effect is larger for mothers than fathers. No significant impact is found on labor force participation. This is consistent with our finding that women with children withdraw their labor from non-agricultural wage employment and switch to agriculture instead. Access to child care therefore significantly reduces the chances of women withdrawing from non-agricultural wage work.
Leveraging digital technologies to expand off-farm opportunities for women

Digital technologies can also help address gender inequality in off-farm employment. Recent evidence suggests that digital platforms reduce barriers and facilitate women’s participation in the marketplace. Most listings and hosts for peer-to-peer accommodation are provided by women, for example (World Bank, 2018c). Niche, home-produced goods, such as handcrafts and embroidery, can be sold online to a global market. These can provide flexible working arrangements for women taking care of both children and the elderly, who can start small businesses or work part-time.

**SUMMARY**

To conclude, rural economic transformation has accelerated, creating massive off-farm job opportunities for rural dwellers. Workers are moving out of agriculture and into booming non-agriculture sectors, mostly in rural areas. This transformation is defined by two key trends: (i) access to these off-farm opportunities is uneven; and (ii) households are holding on to their farms despite the expansion in off-farm opportunities.

Access to off-farm opportunities is unequal geographically and by gender, ethnicity and age. The latter is the result of intra-household labor allocation decisions that favor keeping older household members and women on farms. Low population density and distance to major urban hubs together account for the vast part of the differences in access to non-agricultural wage jobs. Poor education is another factor, but it is also clear that, while it significantly increases non-agricultural employment prospects of ethnic minorities, these minorities do not receive the same level of benefits from education as the majority. Child-bearing responsibilities for women also limit their engagement in off-farm wage work.

Despite increasing off-farm employment, households hold on to their farms, reflecting the intra-household division of labor across a diversified livelihood portfolio. While agriculture now contributes only about 41 percent of rural incomes, more than 84 percent of rural households still engage in agriculture. So far, the outflow of labor from agriculture has been accompanied by increased diversification of livelihoods without abandoning agriculture completely. Just 5 percent of households had a single source of income in 2016.

A major consequence of these two trends is that the rural labor market is becoming segmented by demography. The less educated and the older generation mostly remain in the traditional agriculture sector. Therefore, not everyone will transition out of agriculture. It is becoming more critical to spur further transformation in agriculture, both in response to the significant labor outflows and because it will remain an important source of livelihoods for a significant, mostly poorer, segment of the population. Unlocking the untapped potential in agriculture could help boost incomes of the poor who have lower agricultural incomes partly due to sub-optimal use of their land. Land fragmentation, weak land rights, land restrictions and reliance on self-financing are key constraints to improving the land-use choices of the poor in line with regional agricultural comparative advantages. But remoteness also results in lower food market integration that biases households’ incentives to produce their own food instead of higher-value and more agronomically suitable perennial crops.

Based on these findings, the report proposes three strategic areas for improving access to better economic opportunities within and outside of agriculture. These focus areas are: (i) reducing economic distance for remote and low-density areas by creating a secondary economy and integrating lagging rural areas into the network economy; (ii) putting agricultural land to better use by reforming land policies and improving agriculture financing and integration of food markets and (iii) economic empowerment of women by reducing the burden of child care and enhancing their participation in the digital marketplace. These are summarized in Figure 30.
Figure 30. Schematic summary of strategic interventions and policy focus areas

**Reducing economic distance**
- Integration into network economies, leveraging digital technologies
- Creating secondary economy
- Reducing cost of migration
- Broadband investments
- Regulatory reforms to facilitate online commerce and transactions
- Transport infrastructure and logistical services
- Skills development
- Equalize access to services for temporary residents
- Invest in low-cost housing

**Putting land to better use**
- Enhancing land management and policy
- Innovations in agriculture financing
- Integration of food markets
- Strengthen land security
- Reduce agriculture land use restriction
- Broaden land consolidation beyond rice farming
- Improve financial literacy
- Promote loan offerings tailored to agriculture
- Improve rural connectivity

**Women's economic empowerment**
- Promote flexible work opportunities
- Reduce child-caring burden for women
- Expand child-care services
- Enhance participation in the digital marketplace

Better Opportunities for All
REFERENCES


ANNEXES

ANNEX 1 – ESTIMATION OF OFF-FARM WAGE PARTICIPATION

The standard farm household model (Singh et al., 1986) is applied in this analysis, incorporating insights from the life cycle theory of labor supply (MaCurdy, 1981), to explain the observed off-farm labor participation decision. This is motivated by the findings that livelihood, especially labor supply decisions, are made collectively within a farm household (Huffman and Lange, 1989; Tokle and Huffman, 1991). The farm household model has been utilized extensively to analyze a wide range of development topics, such as on- and off-farm labor participation (Sumner, 1982; Corsi and Findeis, 2000; Corsi and Salvioni, 2012), farm income fluctuation (Mishra and Goodwin, 1997), and policy responses of farm households (Ahearn et al., 2006).

The farm household maximizes utility from household total consumption, leisure of the members, given the individual and household characteristics, under budget and time constraints. The model takes the following form:

\[
\text{Max } U(C_i, L_i, A_i, B_i) \\
\text{s.t.} \\
Q = f(T_f, H, A, F) \\
C + RH \leq PQ + \sum W_i^a T_i^a + \sum W_i^m T_i^m + Z_i \\
W_i^a = W_i^a(A, M^a) \\
W_i^m = W_i^m(A, M^m) \\
T_i = T_f^i + T^a + T^m + L_i \\
L > 0 \\
T_f^i; T^a; T^m \geq 0 \quad (4)
\]

where \( U \) is the utility function for household \( h \); \( C_i \) is the total household consumption; \( L_i \) is leisure time for family member \( i \), where \( i \) can be head, spouse, and the eldest child; \( A_i \) is a vector of individual attributes; \( B_i \) is a vector of household attributes; \( Q \) is the quantity of farm output, which is determined by a production function \( f \) with family labor input \( T_f^i \), hired inputs \( H \), subject to individual attributes \( (A_i) \) and household attributes \((F_i)\); \( R \) is the price of hired inputs; \( P \) is the price of farm output; \( W_i^a \) is the wage rate for wage employment in the agricultural sector; \( T_i^a \) is time devoted to the agricultural wage employment; \( W_i^m \) is the wage rate for non-agricultural wage employment; \( T_i^m \) is the time devoted to the non-agricultural wage employment; \( Z_i \) is non-labor income which includes capital income and transfer income.

Wage rates are a function of individual attributes and local labor market conditions in the non-agricultural sector, denoted by \( M^a \), and in the agricultural sector, denoted by \( M^m \). The time constraint is such that the sum of family labor input, wage employment in the agricultural sector and non-agricultural sector, and leisure is equal to the total time available, denoted by \( T_i \); nonnegativity constraints are imposed to allow for nonparticipation in the labor markets.

By solving the Kuhn-Tucker conditions, labor participation decisions are determined by set of condition in (2) where \( P \frac{\partial Q_h}{\partial T_i} \) is the marginal value of farm products; \( \frac{\partial U}{\partial L_i} \) is the marginal utility of leisure; \( \gamma \) is the marginal utility of income.:

\[
P \frac{\partial Q_h}{\partial T_i} \leq \frac{\partial U}{\partial L_i} / \gamma \; ; \\
W_i^a \leq \frac{\partial U}{\partial L_i} / \gamma \; ; \\
W_i^m \leq \frac{\partial U}{\partial L_i} / \gamma \quad (5)
\]

The first condition states that the optimal household farm labor hours equalize the marginal value of products and the marginal rate of substitution (MRS) between leisure and income. The second and third conditions show that the optimal labor hours in the agricultural and non-agricultural wage employment occur when the market wages in the respective sector are equal to the MRS between leisure and income. The solutions to the above structural model provide the intensive margins of optimal labor supply.

The extensive margins are obtained by comparing the marginal value of farm products and wage rates with the reservation wages, which are the MRS between leisure and income evaluated at zero labor hours in the respective labor activities. As a result, reservation wages...
The reduced-form extensive margins can be illustrated as the following equations 6(a)-(c):

\[
\text{Prob}(Y_i^* = 1) = \text{Prob}(P\alpha Q_i/\alpha T_i^f - W_i^a > 0) \quad \cdots \cdots \cdots (6a)
\]

\[
\text{Prob}(Y_i^a = 1) = \text{Prob}(W_i^f - W_i^a > 0) \quad (6b)
\]

\[
\text{Prob}(Y_i^a = 1) = \text{Prob}(W_i^a - W_i^f > 0) \quad (6c)
\]

where \( Y_i^f, Y_i^a, \) and \( Y_i^a \) represent the extensive margins of household farm labor, agricultural wage employment, and non-agricultural wage employment; \( W_i^f, W_i^a, W_i^a \) are the reservation wages for the respective labor activities.

The reservation wages are unobserved, so are the market wages for those unemployed. To arrive at a set of estimable reduced-form labor participation equations, the reservation wages are modeled by a function of the observed individual-level, household-level, local community-level characteristics, and individual random effects in the following equations 7(a) – (c):

\[
\text{Prob}(Y_i^f = 1) = \text{Prob}(P\alpha Q_i/\alpha T_i^f - W_i^a > 0) = \text{Prob}(P\alpha Q_i/\alpha T_i^f - W_i^a) > 0) \quad (7a)
\]

\[
\text{Prob}(Y_i^a = 1) = \text{Prob}(W_i^f - W_i^a > 0) = \text{Prob}(W_i^f - W_i^a) > 0) \quad (7b)
\]

\[
\text{Prob}(Y_i^a = 1) = \text{Prob}(W_i^a - W_i^f > 0) = \text{Prob}(W_i^a - W_i^f) > 0) \quad (7c)
\]

where \( \varepsilon_i \) is the individual random effect. In this analysis, we will focus on non-agricultural wage employment. By assuming \( \varepsilon_i \) is normally distributed, we arrive at the following probit model for non-agricultural labor participation for household head, spouse, and the eldest child:

\[
\text{Prob}(Y_i^n = 1) = \text{Probit}(A_i B_i F_i M_i^n, M_i^n) \quad (8)
\]

As labor supply decisions are determined collectively within the household, it is not reasonable to assume that is independently distributed among the household head, spouse, and the eldest child. To cope with the serial correlation within the household, we use a multivariate probit model (Benjamin and Kimhi, 2006) to jointly estimate the non-agricultural wage employment participation decisions.

There are two limitations of this analysis. The first limitation is related to the internal validity of the probit estimates. Given that the purpose of this analysis is to document the correlates of non-agricultural wage employment at various levels, we are assuming that the individual random effects are uncorrelated with \( A_i, B_i, F_i, M_i^n \), and \( M_i^n \). To the extent that this assumption is violated, we have limited internal validity of the estimates. Panel data strategies such as fixed-effects models can potentially control for this endogeneity. However, the rotating panels of VHLSSs in previous years (2012, 2014) result in small samples that do not provide enough statistical power to estimate the multivariate probit model. The second limitation is regarding the external validity due to sample selection. To estimate the multivariate probit model, we need to select the households that have at least one co-residing working-age child. However, living arrangement is not random. If the unobserved household-specific variables which determine living arrangement also affect non-agricultural wage employment, then we have restricted external validity to apply the results from this analysis to the rest of rural Vietnamese households. We solve this by estimating a household and spouse model, which covers a broader set of households. The findings are qualitatively similar.

To estimate the multivariate probit model, we use a sample of 4,257 rural households with 12,771 individuals from the Vietnam Household Living Standards Survey (VHLSS) in 2016. This is nationally representative survey that includes detailed information at the individual, household and commune levels. Within each household, we keep only the household head, the spouse, and the eldest child for the first model, or only the household and spouse for the second model. All individuals are in the prime age range between 15 and 64 years old, and are not currently attending school.
ANNEX 2 – ESTIMATION OF LAND-USE CHOICES IN RURAL VIETNAM

We estimate land use choices using pooled data from the biennial Vietnam Access to Resources Household Survey (VARHS) rounds from 2008-16. The VARHS is a panel survey conducted in 12 provinces selected to represent all the six ecological regions of the country. Its sample is representative of rural areas in these provinces. The original sample of 2,125 households was drawn in 2004. In 2012, 544 new households were added based on the 2009 population census. Fifty were replacement households and the remainder were drawn among the population with younger household heads to refresh the sample. The main purpose of the survey is to build a database on access to and interaction of rural households with the markets for land, labor and credit. It collects detailed agricultural data at the plot level.

\[ y_{it} = f(x_{it}) + \beta_{ik} + \mu_{itk}, \quad k = 1, 2, \ldots, 6 \]

For our analysis, total agricultural land area of a household is divided into six categories: rice, maize, other annual crops, industrial/perennial crops, grazing of animals or aquaculture, and other. The dependent variables for the estimation are land shares of these land use alternatives. The primary econometric specification of land use choice is given by the equation above, where: \( y_{itk} \) is the share of land use type \( k \) by household \( i \) in year \( t \); \( x_{it} \) is a set of independent variables; \( \beta_{ik} \) is time invariant, unobserved characteristic and \( \mu_{itk} \) is the time variant-unobserved characteristics of household \( i \) in year \( t \) for land use type \( k \). Since the error terms of land use choice is correlated between crops, this model is estimated using seemingly unrelated regressions (SURE). Six simultaneous equations are estimated with \( k = 1, 2, 3, 4, 5, 6 \) for rice, maize, other annual crops, industrial/perennial crops, animal grazing or aquaculture and other annual crops in respective order.

Following literature on land use choices (see Dinh et al. (2017) and Trung et al. (2016)), household attributes, farm attributes, institutional factors and community attributes are used as covariates in the regression. The specific variables used are listed below:

- **Household attributes** – capturing (a) household human capital—household head, age, sex, ethnicity and education of household head; number of working age household members, (b) financial capital—household income, saving, assets and credit access, (c) social capital – number of family members in local groups/org/associations, (d) farm attributes—land size and quality; number of plot owned. Lagged natural logs of financial variables are used in the regression to avoid reverse causality since current income if partly a function of the land use choice in that year.

- **Institutional factors** - land policy, represented by the share of the household’s land area under a crop restriction; having land tenure, irrigation practice as represented by percentage of HH land area under irrigation

- **Community attributes**—access to infrastructure, represented by average distance from home to people committee, public/private health care center, hospital and schools (primary, lower secondary and upper secondary school).
ANNEX 3 – ADDITIONAL TABLES AND FIGURES

Table 15. Average number of firms and firm size by topography

<table>
<thead>
<tr>
<th>Topography</th>
<th>Coastal</th>
<th>Inland delta</th>
<th>Hill</th>
<th>Mountain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of non-agriculture firms per commune</td>
<td>9.9</td>
<td>21.4</td>
<td>20.0</td>
<td>6.2</td>
</tr>
<tr>
<td>Average number of people hired per firm</td>
<td>9.9</td>
<td>18.3</td>
<td>19.2</td>
<td>13.1</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS, 2016.

Table 16. Predicted probability of women non-agriculture wage employment by population density (people per km²)

<table>
<thead>
<tr>
<th>Population density</th>
<th>20-55</th>
<th>55-148</th>
<th>148-403</th>
<th>403-1096</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>11%</td>
<td>13%</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td>Inland-delta</td>
<td>14%</td>
<td>16%</td>
<td>22%</td>
<td>28%</td>
</tr>
<tr>
<td>Hill</td>
<td>9%</td>
<td>15%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Low mountain</td>
<td>12%</td>
<td>15%</td>
<td>21%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ calculations from VHLSS 2016.

Note: Predicted for ethnic majority, married, rice-planting, with accessible hiring firms; small sample for high mountain areas.

Figure 31. Testing the agricultural price wedge hypothesis

Source: Authors’ calculations from VHLSS, 2016.

Note: Rural households with no farm land or no household members working on farm are excluded from the analysis. Both the share of households purchasing rice and the average share of purchase out of total rice consumption serve as proxies for rice subsistence status. The more households that purchase on the extensive and intensive margins, the less affluent the households are in terms of rice consumption. This figure shows that households below subsistence level of rice consumption are more likely to seek off-farm labor opportunities. The price wedge due to market disintegration would be a push factor for people in remote areas to engage in off-farm labor activities.