

Employment Structure and Returns to Skill in Vietnam

Estimates Using the Labor Force Survey

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&

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Abstract

This paper uses Labor Force Survey data to assess key aspects of the labor market in Vietnam over 2007–14. The analysis finds large growth in wage employment in the foreign-owned and domestic private sectors. However, the state sector remains a major employer, particularly for workers with higher education, employing 70 percent of wage workers with a university degree. Low-skilled occupations dominate the stock of existing jobs, but the top growing occupations overwhelmingly belong to high-skilled

categories. The paper notes that the high unemployment rates of recent university graduates, which have raised concern about a mismatch between skills and employer needs, reflect the transition to the job market and diminish sharply as graduates age. The returns to education in the private sector are highest for university graduates. Finally, women and ethnic minorities are less likely to work in wage jobs, and those that do earn lower wages, although the wage gap for women has declined over time.

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Employment Structure and Returns to Skill in Vietnam: Estimates Using the Labor Force Survey¹

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1 Introduction

Vietnam is in the midst of an ongoing structural transformation that continues to propel economic growth and lift citizens out of poverty. While growth during the 1990s in Vietnam was driven by productivity growth in agriculture, following the decollectivization of farms and the creation of tradable land use rights, since 2000 a principal factor has been the shift of workers out of agriculture into manufacturing and other higher productivity sectors, which has involved an expansion of the portion of the population working in wage jobs.

This transformation has taken place simultaneously with a large increase in educational attainment. One measure of the value of education is the private returns observed for workers in wage jobs. The trajectory of the returns to education over time during structural transformation is uncertain because while the demand for skills is almost certainly increasing, the supply of educated workers is increasing at the same time. In addition to the supply of educated workers and the demand for skills in the private sector, the observed returns to education are determined by the “quality” of the education system—in terms of its effectiveness in equipping students with skills—and the premium paid to educated workers in the public sector, which employs a large share of such workers in Vietnam.

The principal contribution of this paper is a new time series of the returns to education over the period 2007-2015, using Vietnam’s Labor Force Survey (LFS), which provides for a more fine-grained analysis than previous work on the topic. By way of background, we also sketch a profile of the labor market in 2015 and changes in its key features over this period. We also examine the differences in wages and employment between men and women and between ethnic minorities and members of the ethnic majority.

The Vietnamese LFS was first introduced in 2007 and has evolved substantially over time with modifications in the sample, the survey instrument, and the variables collected. By carefully reviewing the documentation available for each round of the LFS, we construct a time series of comparable labor market variables. The resulting analysis is the first using LFS data over such a long time series. A secondary contribution of this paper is documentation of the changes in the LFS.

The paper is structured as follows. Section 2 reviews previous work on the returns to education and gender and ethnic wage differentials in Vietnam. Section 3 describes the Labor Force Surveys and outlines the steps that were taken to standardize the data to make it comparable for analysis over time. Section 4 provides a description of the profile of the labor market and its evolution over the period 2007-2014. Section 5 presents an analysis of the returns to education in wage employment as well as the differences in wages by gender and ethnic minority status. Section 6 concludes. The analytical findings from the paper are presented via graphical summaries and key tables in the main text. More complete results can be found in a series of tables in the annex.

2 Literature Review

2.1 Returns to Education

Previous research on the returns to education in Vietnam has examined major trends in rates of return during the country's transition from state ownership to greater market orientation, policies influencing those trends, and inequality between the public and private sectors. While there are differences in the methodologies and data employed, studies consistently have found that wages increased rapidly during Vietnam's transition and that returns to education in Vietnam are low but have increased over time.

Using Vietnam Living Standards (VLSS) data, Gallup (2002) finds a very low rate of return to a year of schooling in the 1990s, with an increase from 2 percent in 1993 to 4–5 percent in 1998. This study shows that the lowest rates of return to schooling were in the regions that have the lowest education levels, while the highest rates of return are found in the regions that have the highest levels of schooling.

Liu (2006), also using 1993 and 1998 VLSS data, analyzes the changes in the wages of men and women with different education levels during Vietnam's transition. The author concludes that earning differentials between workers of different education groups can be explained by the increase in the relative demand for better-educated individuals.

Doan, Tuyen, and Quan (2016) use eight rounds of the Vietnam Household Living Standards Surveys and find an increase in returns from 1998 to 2008 and a significant decline since 2008. The authors suggest that the lowering of returns to education could be explained by an expansion of higher education and lower economic growth. They question if the higher-educated labor force is oversupplied or if there is a large distortion in the labor market and/or mismatching in the labor market and outdated skills in training.²

Several studies have mentioned the significant wage gap between the state and non-state sectors. Imbert (2010) notes the rise in the relative average earnings of state sector workers from 1993 to 2006 and finds that the rise in the state sector wage premium cannot be explained by a change in worker selection into the sector.

Phan and Coxhead (2011) suggest that the greater increase in skill premium for state workers is related to the privileged position that the state sector has with respect to trade, access to capital and regulatory treatment. Phan and Coxhead (2013) find that capital and labor market segmentation creates a two-track market for skills, in which state sector workers earn higher salaries than non-state workers. Tien (2014) argues that the most educated part of the workforce is

² Note that the 1993 and 1998 surveys were the two rounds of the Vietnam Living Standards Survey, while the biannual series beginning in 2002 is referred to as the Vietnam Household Living Standards Survey.

attracted to the public sector while the majority of workers with lower levels of education end up taking low-end jobs in the private sector.

2.2 Labor Market Outcomes for Women and Ethnic Minorities

Several studies of the returns to education in Vietnam also examine gender wage differentials. Gallup (2002) finds lower rates of return for women compared to men, with a shrinking of the difference between 1993 and 1998. Liu (2005) also finds lower returns for women than for men in 1993 and 1998, with a larger gender wage gap in the private sector than the government sector. Pham and Reilly (2007) investigate gender wage disparities for wages in Vietnam over the period 1993 to 2002 using mean and quantile regression analysis and find that the gender wage gap fell by half over that period. Tien (2014) finds a gender wage gap in most economic sectors and notes that women are mainly involved in low-value manufacturing while men are more likely to work in medium-value manufacturing. Young women are often hired for assembly-line work in the footwear and garment industries in Vietnam. In general, these jobs offer lower wage rates, involve longer working hours, and insecure job tenure (Baulch, Dat and Thang, 2012).

Several studies examine the gap in living standards between the ethnic minority and other households in Vietnam (e.g., Baulch et al., 2007; Baulch et al. 2010; Turner, 2011; Cuong, 2012). For example, Cuong (2012) documents differences in farm income and non-farm income per working hour among those living in the Northern Mountains area.

3 Data

The Labor Force Survey is conducted by the General Statistics Office (GSO) of Vietnam. In 2014 the LFS was conducted on a monthly basis and covered a sample of 16,880 households per month. The LFS collects information about demographic characteristics and main activities related to the labor market for individuals aged 15 and above. The LFS is statistically representative at the regional level by quarter and at the level of provinces by year (GSO, 2015).

Over the period 2007-2014, several changes were introduced in the LFS questionnaire, together with updates in concepts and definitions used. As a result of this, a careful standardization process was needed in order to compare labor market outcomes over the 2007-2014 period. The standardization work included both 1) combination of information collected via differently worded questions in different years in order to create comparable labor market indicators, and 2) combination of different response options within a question in order to create comparable classifications over time. Annex 1 describes in detail the steps taken to standardize the data.

4 Structure of the Labor Market

This section highlights critical features of Vietnam's labor market, beginning with the overall distribution of employment, followed by various breakdowns.

The share of the population that is of working age, the labor force participation rate, and the employment rate are all quite high in Vietnam. Figure 1 presents an overall portrait of the employment picture in Vietnam as of 2014.³ Due to a rapid decline in fertility in the 1980s and 1990s, the share of the population that is of working age is now at a peak. Of a population of 91 million, 62 million (68 percent of the population) are between 15 and 64 years of age. The labor force participation rate is substantial: 8 of 10 of those of working age (52 million) reported having worked in the 30 days before the time of the survey.⁴ The unemployment rate—calculated as per the International Labor Organization definition—is extremely low. Just 1 million people (2 percent of those in the labor force) are classified as unemployed.

Following two decades of rapid structural transformation, the profile of employment is complex. A simple breakdown into three categories provides a birds-eye view. Among the employed population of working age, more than 4 out of 10 workers (21 million total) are in farming, which overwhelmingly consists of smallholder agriculture. An additional 21% work in non-farm self-employment, while 37% hold wage jobs. Breaking down wage work further, various forms of classification can be used to determine whether a wage job is “formal.” One simple measure is whether the worker holds some form of employment contract.⁵ Wage workers with a contract make up 23% of the workforce while 15% hold wage jobs without contracts. These four major categories—farming, non-farm self-employment, wage with contract, and wage without contract—are used in the following discussion to provide a profile of Vietnamese workers.⁶

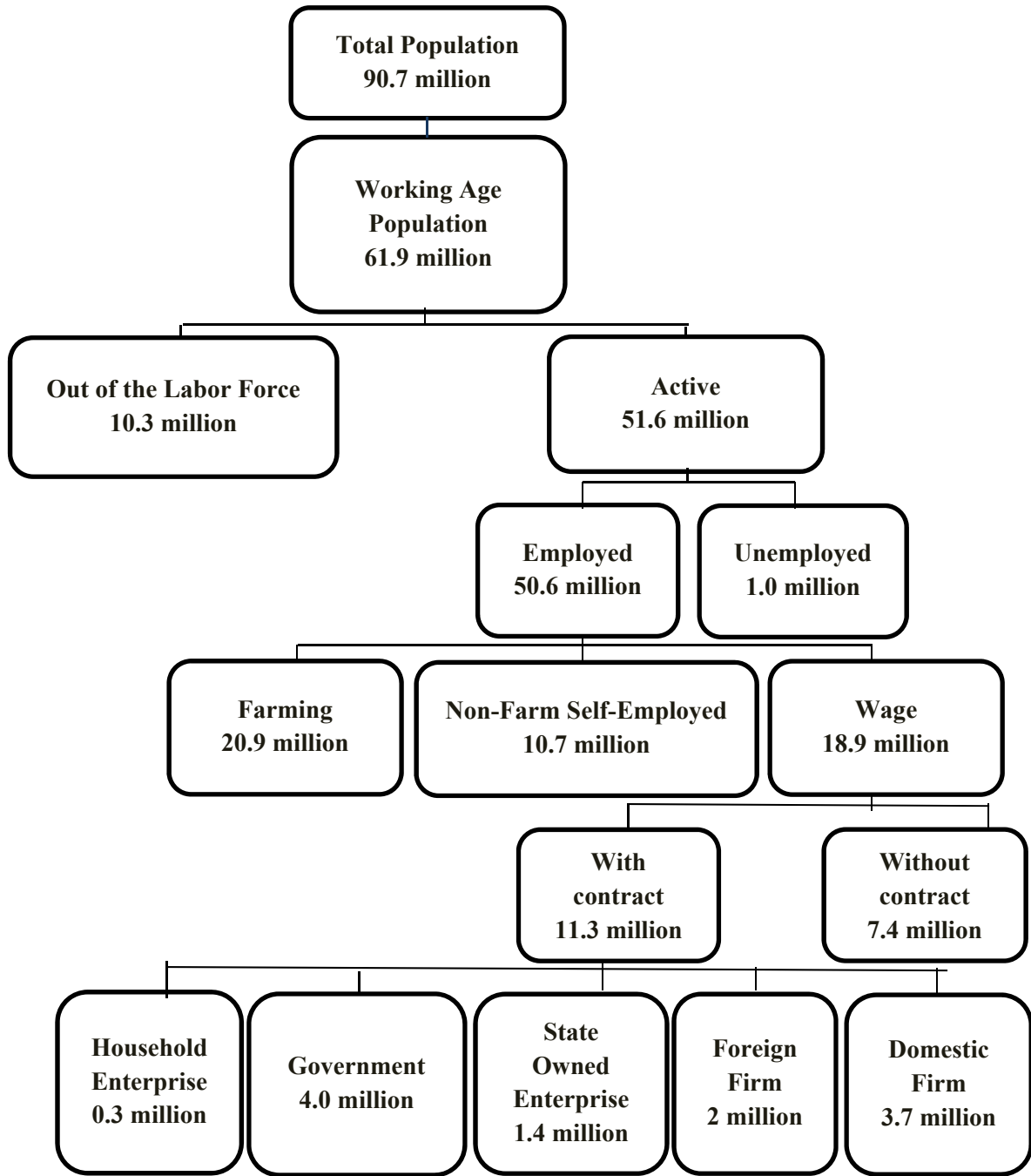
³ All figures here are based on employment in the primary job.

⁴ This figure also includes those who said they were not working during the previous 30 days but had a job to go back to.

⁵ Annex 3 presents the overlap between different measures that are generally used to define formality.

⁶ The small number of agricultural wage workers (8% of the total working age population employed in agriculture) is included in the wage category.

Figure 1: Distribution of Population in Vietnam

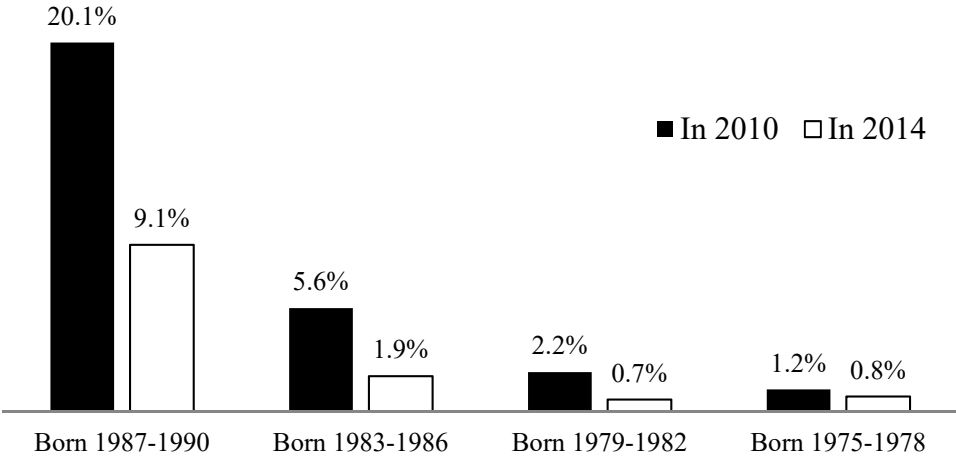


Source: Analysis of 2014 Labor Force Survey

Note: The total number of employed individuals (50,6 million) is larger than the sum of the people employed in the underlying subsectors (50,4 million). This is due to the fact that for 0,13 million individuals, there was not enough information to classify the sector. Similarly, the total number of wage earners (18,9 million) is higher than the sum of the underlying categories (18,7 million) because of missing information. Contrarily, the number of wage earners with contract (11,3 million) is larger than the sum in the underlying categories due to rounding. The definition of the main labor market aggregates, i.e. out of the labor force, employed, unemployed, follows the ILO definition. A detailed discussion on the concepts used in the LFS can be found in the “Report on Labour Force Survey 2014”, published by GSO. A description of the concepts introduced in this paper, i.e. farming, non-farm self-employed, and wage workers can be found in Annex 2.

As in other fast-growing countries in East Asia, concerns have been raised about apparently high rates of unemployment among fresh graduates in Vietnam. The employment rate for university degree holders aged 20-23 was 27% in 2014. However, Figure 2 shows that by tracking age cohorts over time, we see that these high rates of unemployment do not persist. Unemployment rates were also high (20%) for university degree holders between 20 and 23 years of age in 2010. This group corresponds to those born between 1987 and 1990. The unemployment rate for this same cohort of university degree holders in 2014—when they were age 24-27—dropped to 9%. Likewise, for the cohort of university degree holders who were 24-27 in 2010, the unemployment rate dropped from 6% to 2% between 2010 and 2014.⁷ This finding suggests that rather than facing major enduring unemployment, many graduates experience a search period during the transition from school to work.

Figure 2: Unemployment Rates for University Degree Holders by Year of Birth Cohort



Source: Analysis of 2010 and 2014 Labor Force Surveys

A breakdown using the four major categories by gender, urban/rural location, ethnic group, and major region provides a coarse profile of employment (Table 1). Women are slightly more likely to work in farming, but also slightly more likely to hold wage jobs with a contract, reflecting the substantial number of women who are employed in public sector jobs and manufacturing. The breakdown also shows the diversity of the rural economy, with large numbers of workers in wage jobs and non-farm work. Farming is overwhelmingly dominant among ethnic minorities as well as in the two regions—the Northern Mountains and the Central Highlands—where they are concentrated. Finally, rates of wage employment with a contract are high in the Southeast region

⁷ Note that as with any quasi-panel analysis, the cohort groups are not identical in 2010 and 2014 due to entrance and exit. In particular, over this period, new members entered the group by obtaining university degrees or migrating from abroad. Others departed the group due to out-migration or death.

(including Ho Chi Minh City and nearby industrial areas) and the Red River Delta, which encompasses the industrial areas around the cities of Hanoi and Hai Phong.

Table 1: Major Categories of Employment by Various Groups

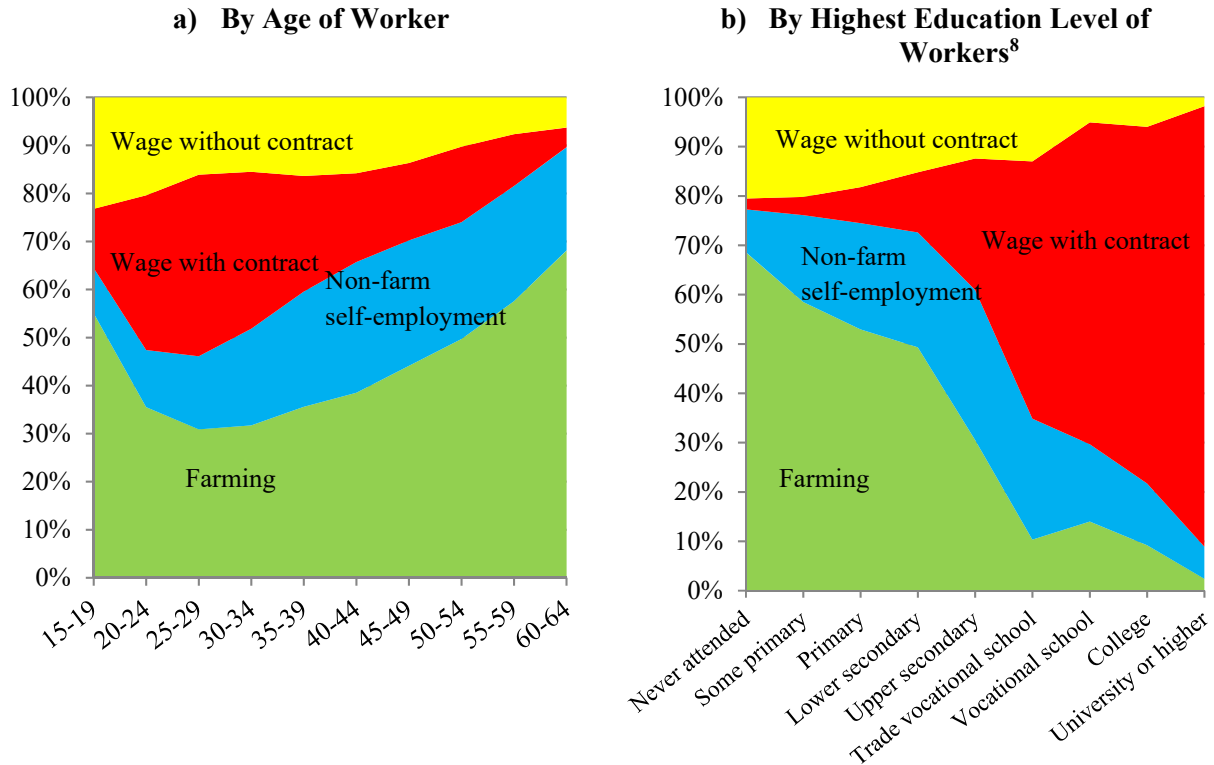
	Employment Distribution in 2014 (%)				
	Farming	Non-farm self-employment	Wage with contract	Wage without contract	Total
<i>Male</i>	39.0%	18.9%	22.1%	20.0%	100%
<i>Female</i>	44.3%	23.6%	23.0%	9.1%	100%
<i>Urban</i>	12.1%	32.4%	41.4%	14.0%	100%
<i>Rural</i>	54.6%	16.2%	14.1%	15.0%	100%
<i>Kinh</i>	34.8%	24.1%	25.4%	15.7%	100%
<i>Ethnic Minority</i>	75.1%	6.8%	8.1%	10.0%	100%
<i>Red River Delta</i>	31.7%	25.0%	29.5%	13.8%	100%
<i>Northern Mountains</i>	67.7%	11.3%	13.7%	7.2%	100%
<i>Northern and Central Coast</i>	47.3%	19.5%	16.9%	16.4%	100%
<i>Central Highlands</i>	66.8%	12.9%	11.0%	9.4%	100%
<i>Southeastern</i>	13.4%	27.5%	42.7%	16.4%	100%
<i>Mekong Delta</i>	43.3%	23.3%	13.6%	19.8%	100%

Source: Analysis of 2014 Labor Force Survey

Note: See Annex 2 for detailed definition of employment categories

There is a marked pattern of employment by age, reflecting both life-cycle patterns and shifts by cohort (Figure 3a). Most workers under age 20 and over age 50 are in agriculture. The predominance of farming among older workers may reflect shifting patterns by cohort. Older workers who entered employment before the economy's structural transformation was initiated have worked in farming all their lives and are still principally employed in agriculture. Wage jobs with a contract are most common among Vietnamese in their 20s. Non-farm self-employment is uncommon among fresh entrants in the labor market, but accounts for a larger share of the workforce after age 30. This trend could reflect workers' choice to exit the wage sector once they have accumulated enough human, social, and financial capital to start their own business. Work in the wage sector without a contract is most common for young workers.

Figure 3: Employment Profile by Age and Education, 2014



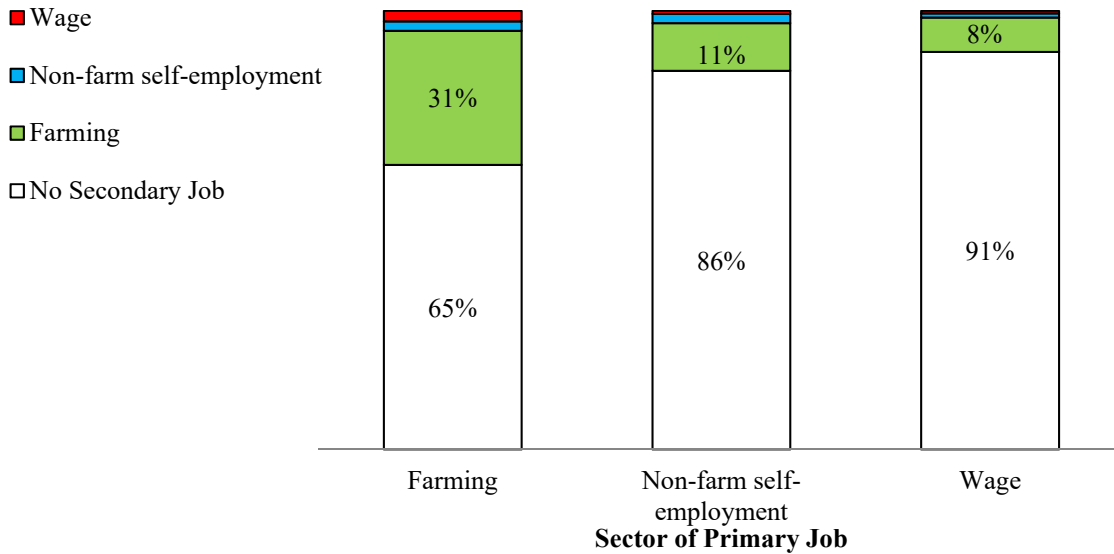
Source: Analysis of 2014 Labor Force Survey
 Note: See Annex 2 for detailed definition of employment categories.

Workers with higher levels of education are much less likely to work in farming and much more likely to hold wage jobs (Figure 3b). Almost 90% of people with a university degree or a higher title hold a wage job with a contract, while just 1 in 4 Vietnamese workers with completed upper secondary education are in the wage sector with a contract. Non-farm self-employment is more common among those with intermediate levels of education, and the likelihood of having a wage without a contract declines with education.

The quality of employment varies across employment sectors. Individuals employed in farming work fewer hours per week (35 vs. 48 in the other three sectors) and almost never have written contracts (0.4%), health insurance (0.1%), or social insurance (0.1%). Only 3.6% of the individuals employed in farming report to be working less than 40 hours per week and willing to work more (Table A6 in the annex). Many (35%) workers with a primary job in agriculture hold secondary jobs (Figure 4). In the large majority of cases (87%), their secondary jobs are also in agriculture. Unlike in other sectors, the majority of the workforce in farming has been employed in the same job for over 10 years.

⁸ The educational categories “Trade Vocational school” and “Vocational School” are not necessarily presented in a sequential order, as these professional certifications can be obtained at different stages of academic education.

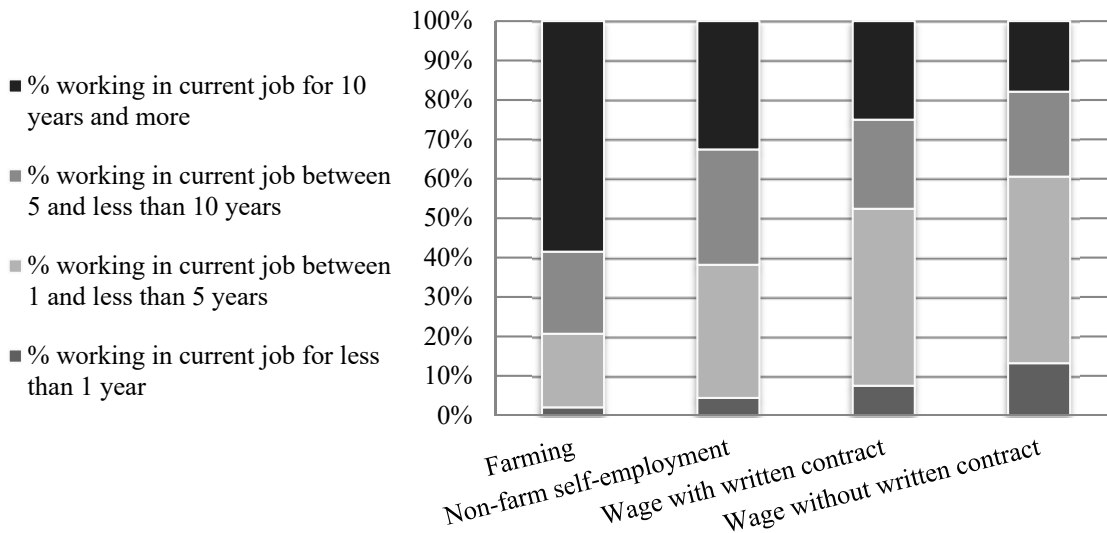
Figure 4: Employment Sector of Secondary Job by Primary Job



Source: Analysis of 2014 Labor Force Survey
 Note: See Annex 2 for detailed definition of employment categories

On the opposite side of the job quality spectrum, the wage sector with a contract is associated with benefits such as health and social insurance (86% and 84%, respectively) and virtually no underemployment (0.2%). While secondary jobs are not common in non-farm self-employment and in the wage sector, most of the people who do have a second job in these sectors have secondary employment in agriculture.

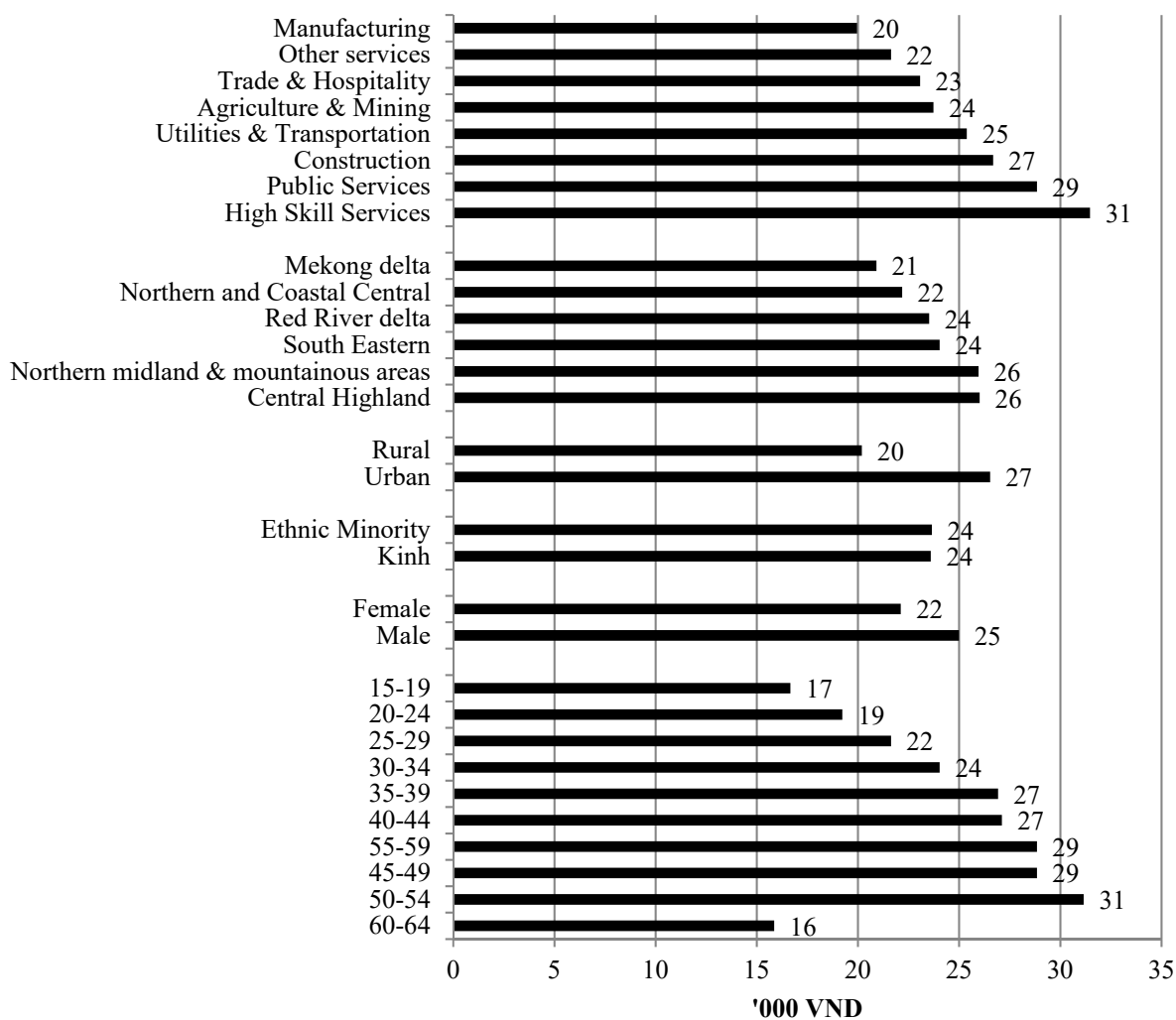
Figure 5: Employment Sectors by Job Tenure



Source: Analysis of 2014 Labor Force Survey
 Note: See Annex 2 for detailed definition of employment categories

While offering in general better job opportunities, there is some heterogeneity in the remuneration received by different population subgroups in the wage sector with a contract. Not surprisingly, hourly wages tend to be higher for more experienced workers, with the exception of the 60-64 age cohort, for which wages seem to be lower. The evidence presented so far would suggest that this could be the result of a high concentration of elderly workers in low-skilled occupations. Men tend to have higher salaries than women, while a first look would suggest that the same is not true for ethnic minorities as opposed to ethnic Kinh. Jobs in the public sector tend to offer high salaries, similar to jobs in high-skilled services. On the other hand, in manufacturing, low-skilled services and trade and hospitality, wages tend to be the lowest. The differences in wages across geography are likely to reflect the diverse sectoral structure in different areas of the country.

Figure 6: Median Hourly Wages (Including Bonus) in the Wage Sector with Contract by Subgroups, 2014



Source: Analysis of 2014 Labor Force Surveys

Note: As of August 14, 2016, the exchange rate is such that 1 Vietnamese Dong equals 0.000045 US Dollar

4.1 Evolution of Labor Market Structure

This section highlights changes in employment patterns over the 2007-2014 period. Overall, this was a period of remarkable job growth. Concurrently with an increase by almost 5 million individuals in the total working age population, the share of individuals in employment increased from 78.4% in 2007 to 81.7% in 2014. This trend was accompanied by a decrease of both the share of the unemployed (from 2.0 % to 1.6%) and of those out of the labor force (from 19.6% to 16.7%).

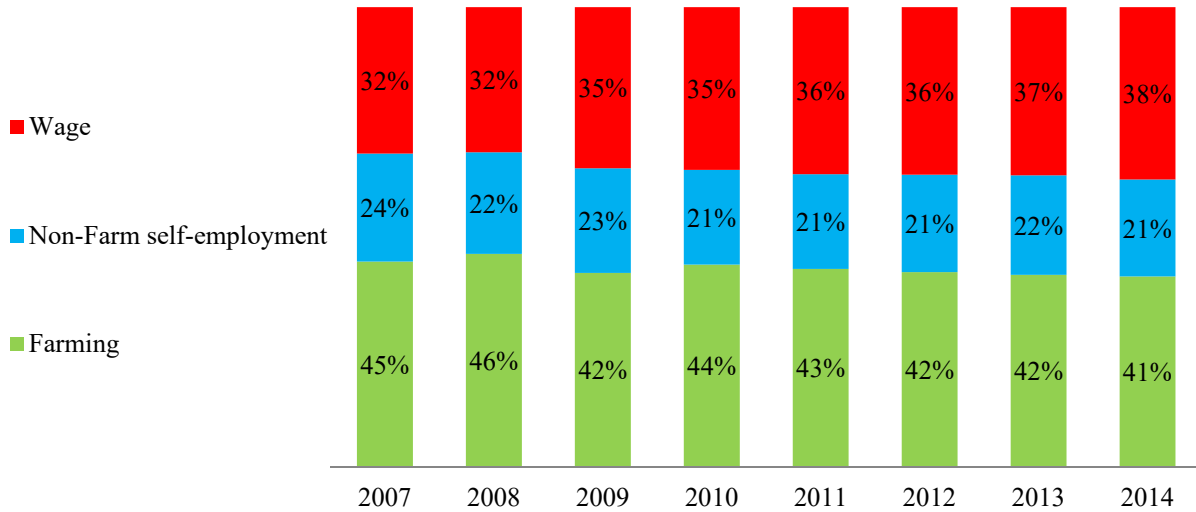
Table 2: Employment Status of Working Age (15-64) Population

	Employed	Unemployed	Out of the Labor Force	Total
2007	44,446,165 78.4%	1,155,157 2.0%	11,109,240 19.6%	56,710,562 100%
2008	45,284,207 77.2%	1,144,981 2.0%	12,193,934 20.8%	58,623,122 100%
2009	46,350,581 79.5%	1,277,573 2.2%	10,654,767 18.3%	58,282,921 100%
2010	47,824,042 80.2%	1,341,480 2.2%	10,492,465 17.6%	59,657,987 100%
2011	48,855,882 80.5%	958,054 1.6%	10,842,266 17.9%	60,656,202 100%
2012	49,507,225 80.8%	923,627 1.5%	10,860,846 17.7%	61,291,698 100%
2013	50,160,083 81.4%	1,035,278 1.7%	10,408,458 16.9%	61,603,819 100%
2014	50,618,172 81.7%	1,001,288 1.6%	10,340,261 16.7%	61,959,721 100%

Source: Analysis of 2007- 2014 Labor Force Surveys

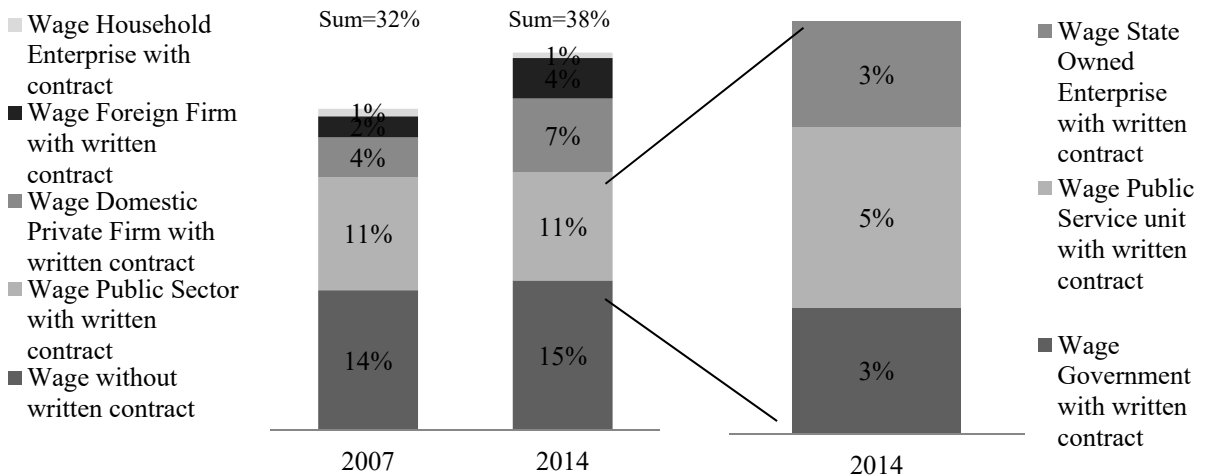
At the same time, rates of employment and labor force participation increased, the share of wage jobs grew dramatically, from 32% of total employment in 2007 to 38% in 2014 (Figure 7). This increase happened in parallel to a decline in both farming (from 45% to 41%) and in non-farm self-employment (from 24% to 21%). A closer look at the evolution of wage employment shows that the growth in wage jobs was principally in wage jobs with a contract, with both private domestic and foreign direct investment (FDI) firms (Figure 8). The share in public sector wage jobs remained flat at 11 percent (public sector jobs cover three categories: “government” civil service, “public service units” in public health and educational facilities, and state-owned enterprises).

Figure 7: Distribution of Employment Type by Year As Shares of Overall Employment



Source: Analysis of 2007- 2014 Labor Force Surveys
 Note: See Annex 2 for detailed definition of employment categories

**Figure 8: Further Disaggregation of Employment Type As Shares of Overall Employment
 Wage Sector in 2007 and 2014 Wage Public Sector with Contract in 2014**



Source: Analysis of 2007- 2014 Labor Force Surveys
 Note: See Annex 2 for detailed definition of employment categories

Next, we consider the shifts in major sectors within the large employment categories. Among wage jobs with a contract, the share working in manufacturing expanded. Manufacturing accounted for 31% of wage jobs with a contract in 2007, increasing to 36% in 2014. As a result of this trend, manufacturing became the largest employer of wage workers with a contract, followed by public services, whose share of wage employment with a contract declined from 46% to 34% between

2007 and 2014. Non-farm self-employment has shifted somewhat from manufacturing to the trade and hospitality sector. The share in manufacturing declined from 22% to 18%, while the share in trade and hospitality grew from 55% to 60%. A similar trend is observed for wage jobs without a contract. Manufacturing accounted for 23% such jobs in 2007, declining to 19% in 2014. Construction and, again, trade and hospitality are the economic sectors that expanded among wage jobs without a contract during the 2007-2014 period.

Table 3: Economic Sectors by Employment Sector and Year

Wage with contract		
	2007	2014
Agriculture & Mining	5%	3%
Manufacturing	31%	36%
Utilities & Transportation	6%	6%
Construction	4%	3%
Trade & Hospitality	8%	9%
High Skill Services	7%	8%
Public Services	36%	34%
Other services	2%	1%
Total	100%	100%

Wage without contract		
	2007	2014
Agriculture & Mining	24%	23%
Manufacturing	23%	19%
Utilities & Transportation	5%	4%
Construction	28%	33%
Trade & Hospitality	12%	14%
High Skill Services	1%	1%
Public Services	2%	1%
Other services	5%	5%
Total	100%	100%

Non-farm self-employment		
	2007	2014
Mining	1%	0%
Manufacturing	22%	18%
Utilities & Transportation	8%	7%
Construction	4%	3%
Trade & Hospitality	55%	60%
High Skill Services	2%	3%
Public Services	1%	1%
Other services	7%	7%
Total	100%	100%

Source: Analysis of 2007- 2014 Labor Force Surveys

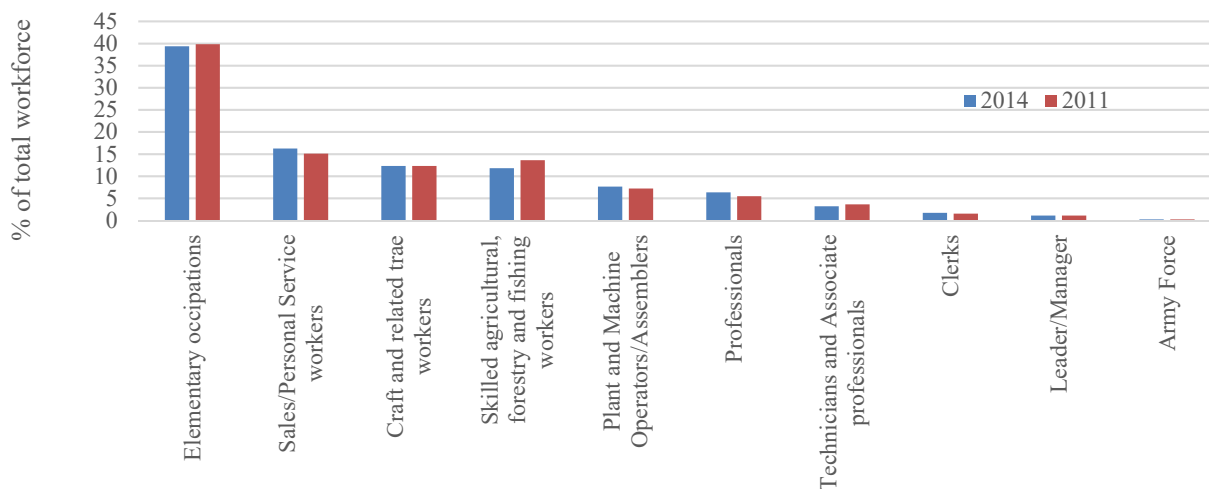
Note: See Annex 2 for detailed definition of employment categories

4.2 Evolution of Occupations

This subsection focuses on what jobs look like in Vietnam in terms of specific occupations, skills, knowledge, abilities and commonly performed tasks. The analysis compares jobs in 2011 and 2014 in the whole economy and by sector, when possible.

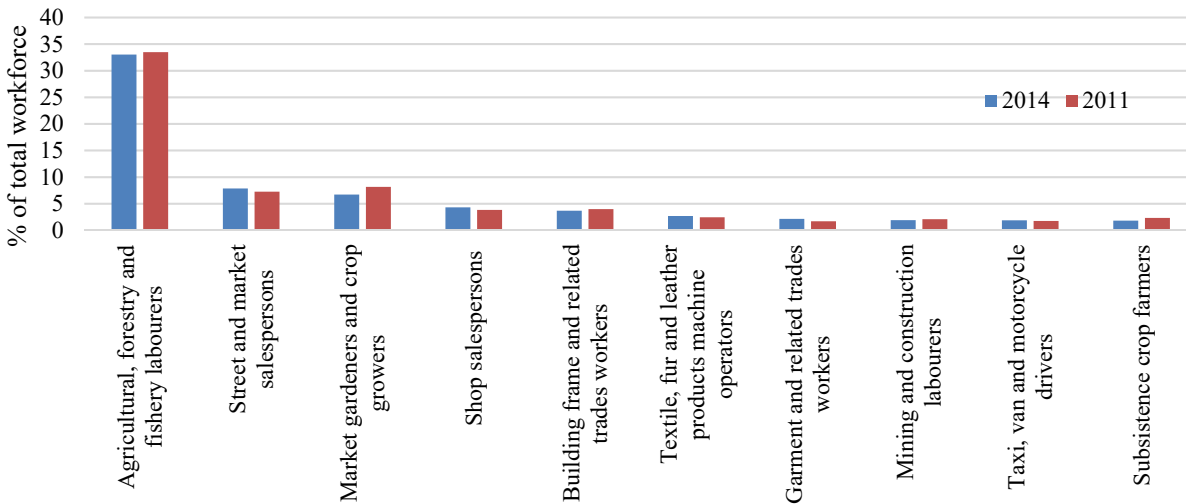
Elementary occupations were the dominant jobs in both 2011 and 2014, accounting for approximately 40% of employment in both years. Sales and personal service workers (15% in 2011, 16% in 2014), skilled agricultural workers (14% in 2011, 12% in 2014) and craft and related trade workers (12% in both 2011 and 2014) were other occupations accounting for large shares of employment. High-skilled occupations, including leaders/managers, professionals and technicians/associate professionals only accounted for approximately 10% of the workforce in both 2011 and 2014 (1% leaders/managers, 6% professionals and 3% technicians and associate professionals).

Figure 9: Distribution of employment by 1-digit occupations, 2014 and 2011



What do we know about more specific occupations? To answer this question, we focus on occupations defined at the 3-digit level of the Vietnamese Occupation Classification. Between 2011 and 2014, the top 10 occupations by employment size accounted for approximately 2/3 of total employment in Vietnam. Among the top 10 occupations, agricultural, forestry and fishery laborers accounted for approximately 1/3 of employment in both 2011 and 2014, confirming the high concentration of employment of the Vietnamese workforce in the agricultural sector and in low-skilled occupations. The other nine occupations in the top 10 are the same in both 2011 and 2014, even if there are some small changes in their relative rankings. All these occupations are mainly low skilled.

Figure 10: Top 10 3-digit Occupations by Employment size, 2014 and 2011

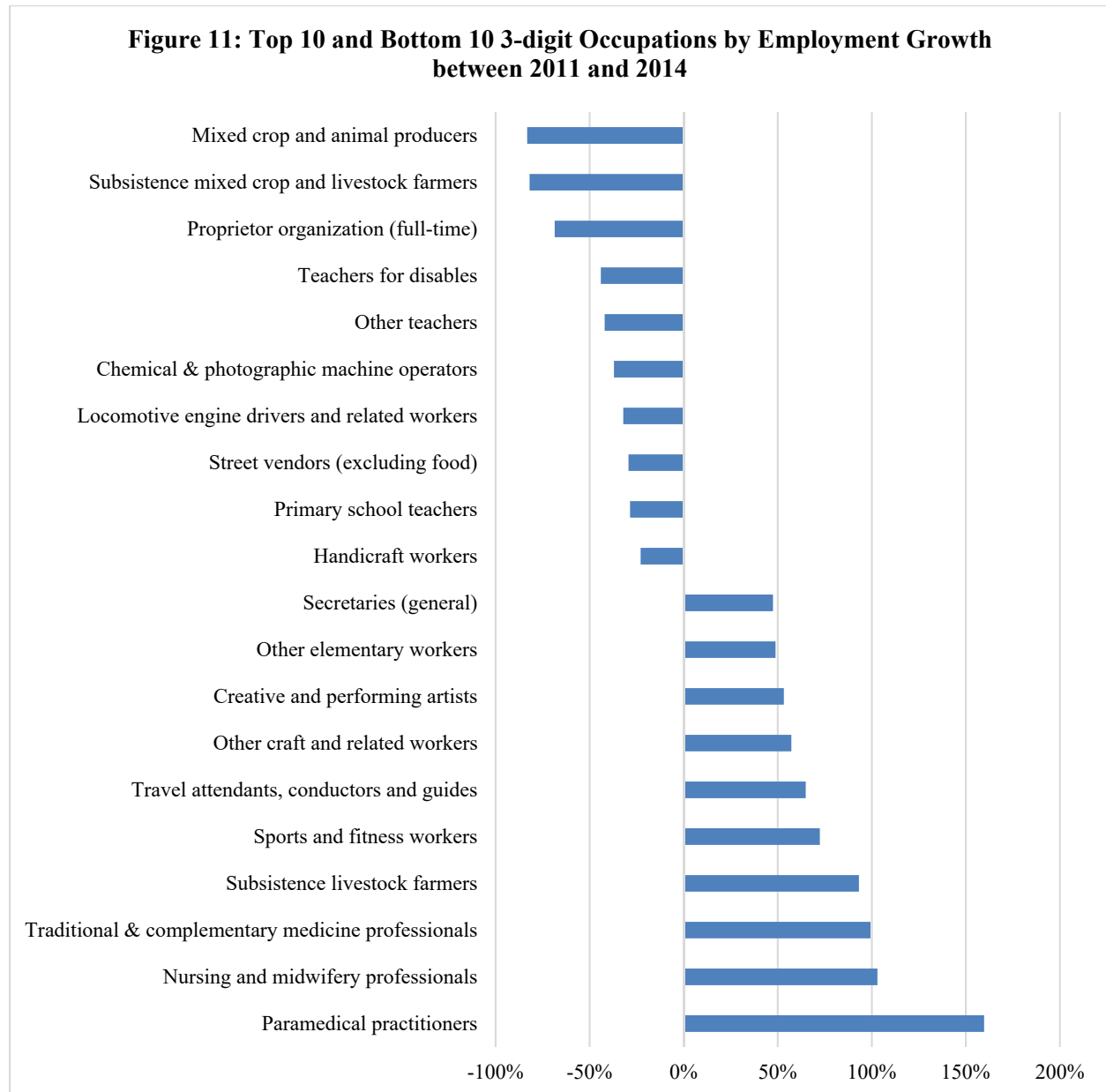


A slightly different picture emerges when we look at the top growing occupations between 2011 and 2014. Overall employment grew by 4 percent between 2011 and 2014, from approximately 48.9 million to 50.6 million workers. Despite the absolute dominance of low-skilled occupations in the Vietnamese workforce, professional jobs were the category that experienced the largest employment growth between 2011 and 2014 at around 20%. Clerks (17%), Sales/Personal Services workers (11%) and Plant and Machine operators/assemblers (10%) were other occupations that experienced employment growth significantly above the average. On the other hand, skilled agricultural, forestry and fishing workers as well as technicians and associate professionals experienced negative employment growth, with rates equal to negative 10 percent and 4 percent, respectively. Elementary occupations and craft and related trade workers were two occupational categories that grew at a slightly slower pace than the overall employment growth (2 percent and 3 percent, respectively). The employment growth of the leader/manager category was slightly above the aggregate employment growth, i.e., 5 percent versus an overall employment growth of 4 percent.

The same message is confirmed when we focus on the top growing and top shrinking occupations at the 3-digit level.⁹ In fact, the top growing occupations overwhelmingly belong to high-skilled categories, especially professionals. Among professionals, different health specialists appear in the top 10%. Paramedical practitioners, nursing/midwifery, and traditional/complementary medicine professionals doubled over the period 2007-2014. Services related to tourism (65 percent increase), entertainment (53 percent increase), and sports/fitness (72 percent) also emerged among the 15 fastest growing occupations. However, high growth was still observed among tasks that experts

⁹ We focus on the top and bottom 10% percentiles. The top 10% growing occupations accounted for 1.2 percent of total employment in 2011 and 1.8 percent in 2014. The bottom 10% growing occupations (or top 10% shrinking occupation) accounted for 2.7 percent of total employment in 2011 and 1.7 percent in 2014.

expect to become automated: secretaries increased by 48 percent and certain categories of elementary workers grew by 49 percent over three years.



Among the other shrinking occupations, three categories of teaching associate professionals experienced significant negative employment growth. This is in line with international standards, as in fact, these professions are specific to the Vietnamese labor market and are not defined at the associate professional level in the International Standard Classification of Occupations. This trend may suggest a move towards more specialization in the teaching profession at the primary level and for special needs students. No professionals appear to be in the list of the top shrinking occupations, which, except for the job categories already discussed, is dominated by low-skilled occupations.

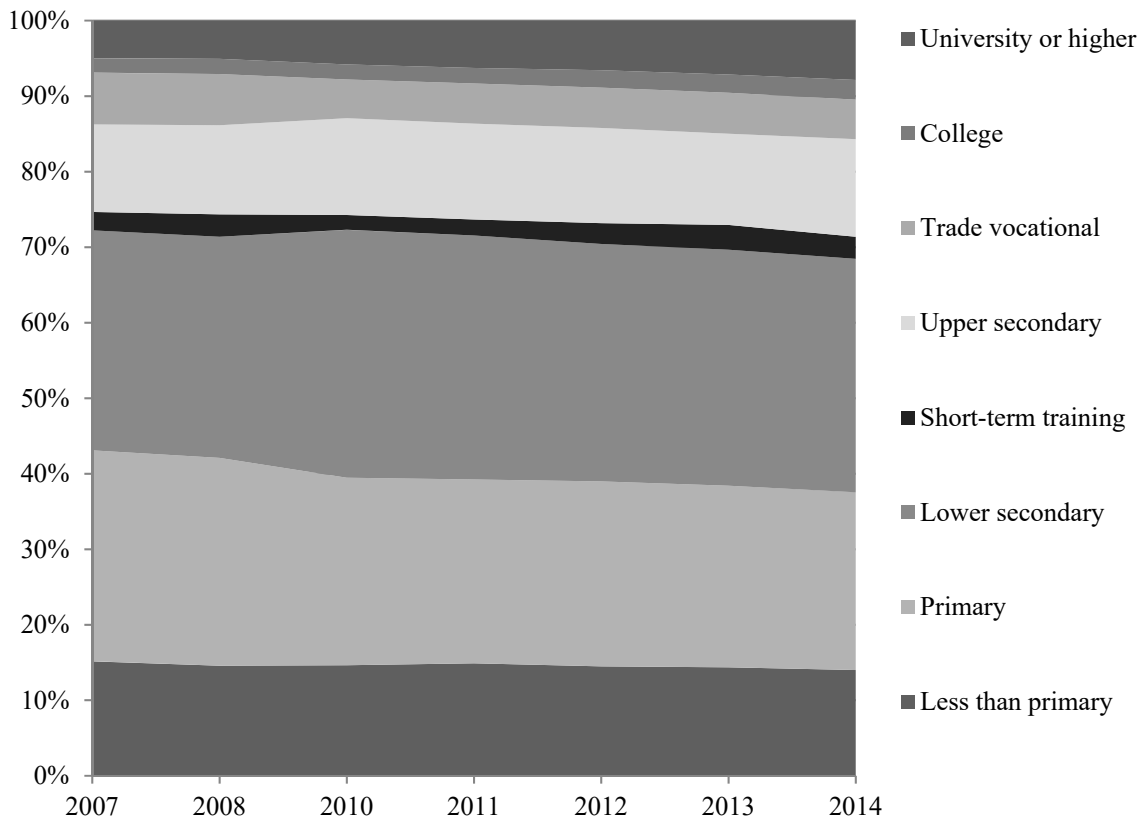
5 Education and Wages

5.1 Education Levels of the Workforce

This section describes the education levels of the Vietnamese workforce and examines various aspects of the returns to education. We consider two aspects of how education is associated with changing job outcomes. First, we analyze how the probability of holding a wage job increases with education level. Second, we examine the returns to education, in terms of higher wage job earnings, among those who have wage jobs.

While the flow of younger workers into the labor force has much higher levels of education than past generations, only modest changes in attainment can be observed over 2007-2014 for the stock of all workers. Over that period, the fraction of the workforce with university education increased from 5 to 8 percent, while the percentage with no more than lower secondary fell from 75 to 71 percent (Figure 12).

Figure 12: Education Distribution of the Workforce

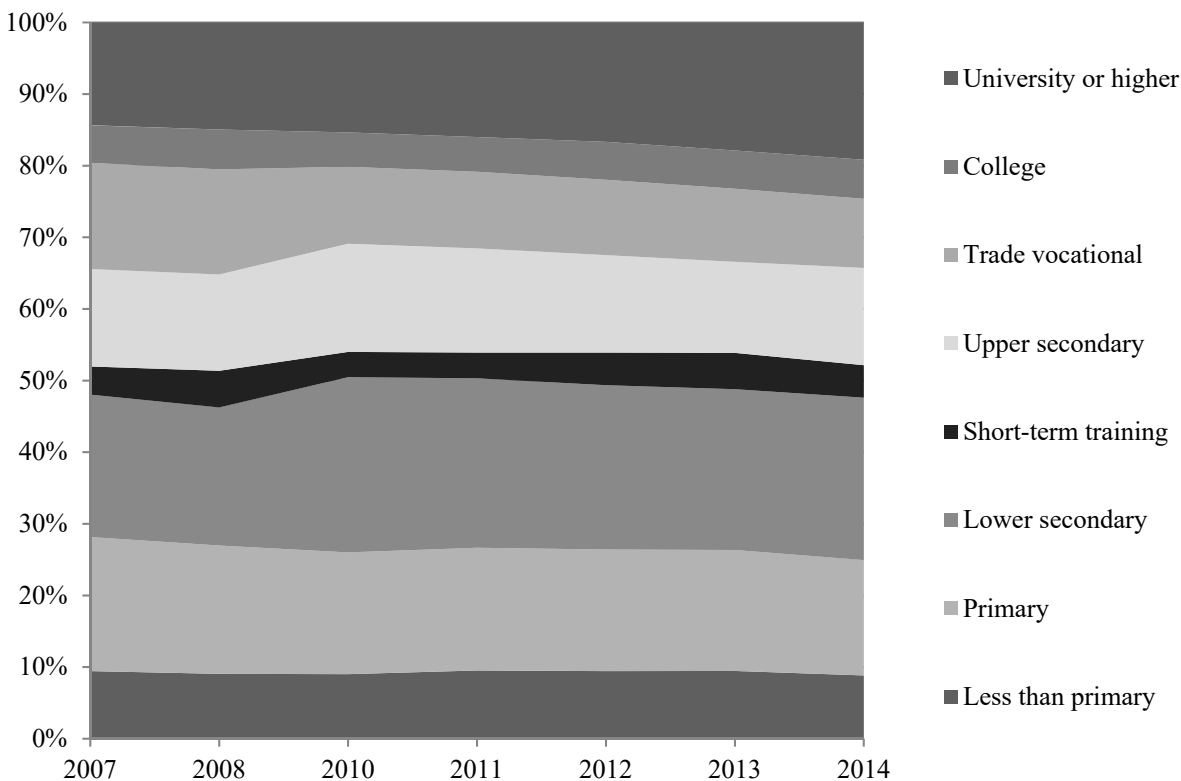


Source: Analysis of 2007- 2014 Labor Force Surveys

Examining the subset of the workforce working in wage jobs, education levels are slightly higher and have also slightly improved over 2007-2014 (Figure 13). In both 2007 and 2014, slightly over half (52%) of the wage workforce had less than upper secondary education. However, within the

lower educated group, the percentage of workers with completed lower secondary education increased, while the share of workers with at most primary education slightly decreased between 2007 and 2014. Among the workers with completed upper secondary education or higher levels, there was a slight shift from workers with vocational and technical education (15% in 2007 and 10% in 2014) to workers with university degrees (14% in 2007 and 19% in 2014).

Figure 13: Education Distribution of the Workforce in the Wage Sector



Source: Analysis of 2007- 2014 Labor Force Surveys

Underlying the distribution of education in the total workforce are large variations by employment type (Table 4). Agricultural workers and others without written contracts typically have low levels of education. Wage workers in the public sector are much more educated than in the private sector. The bulk of workers employed by FDI private firms (57%) have completed only lower secondary or less and few (13%) have college or university education. Household enterprises mainly employ less educated wage workers.

Table 4: Education Distribution of the Workforce by Sector, 2014

	Farming	Non-farm self-employment	Wage without written contract	Wage Government with written contract	Wage SOE with written contract	Wage Private Domestic with written contract	Wage FDI with written contract	Wage HE with written contract
Never attended	1,200,887 6%	152,638 1%	359,833 5%	4,401 0%	2,703 0%	12,565 0%	16,518 1%	2,513 1%
Some primary	3,093,331 15%	930,613 9%	1,067,860 14%	11,755 0%	11,175 1%	81,955 2%	80,255 4%	10,715 4%
Primary	6,262,564 30%	2,549,699 24%	2,160,407 29%	67,034 2%	51,350 4%	373,376 10%	325,028 16%	46,738 17%
Lower secondary	7,644,988 37%	3,619,672 34%	2,356,524 32%	184,366 5%	158,087 12%	824,815 23%	646,153 32%	75,045 28%
Short-term training	108,297 1%	515,299 5%	289,371 4%	64,195 2%	100,022 7%	282,204 8%	77,519 4%	29,743 11%
Upper secondary	1,970,054 9%	1,964,521 18%	801,313 11%	246,673 6%	197,795 15%	712,867 20%	498,426 25%	51,985 19%
Trade vocational school	81,337 0%	193,742 2%	103,046 1%	72,447 2%	133,215 10%	146,563 4%	43,808 2%	13,082 5%
Vocational school	256,133 1%	286,731 3%	92,625 1%	751,123 19%	145,311 11%	214,973 6%	64,405 3%	15,181 6%
College	118,772 1%	161,686 2%	78,429 1%	519,214 13%	83,468 6%	247,474 7%	70,683 4%	13,208 5%
University or higher	92,783 0%	251,402 2%	71,845 1%	2,041,612 52%	478,720 35%	749,464 21%	177,096 9%	9,507 4%
Total	20,829,146 100%	10,626,003 100%	7,381,253 100%	3,962,820 100%	1,361,846 100%	3,646,256 100%	1,999,891 100%	267,717 100%

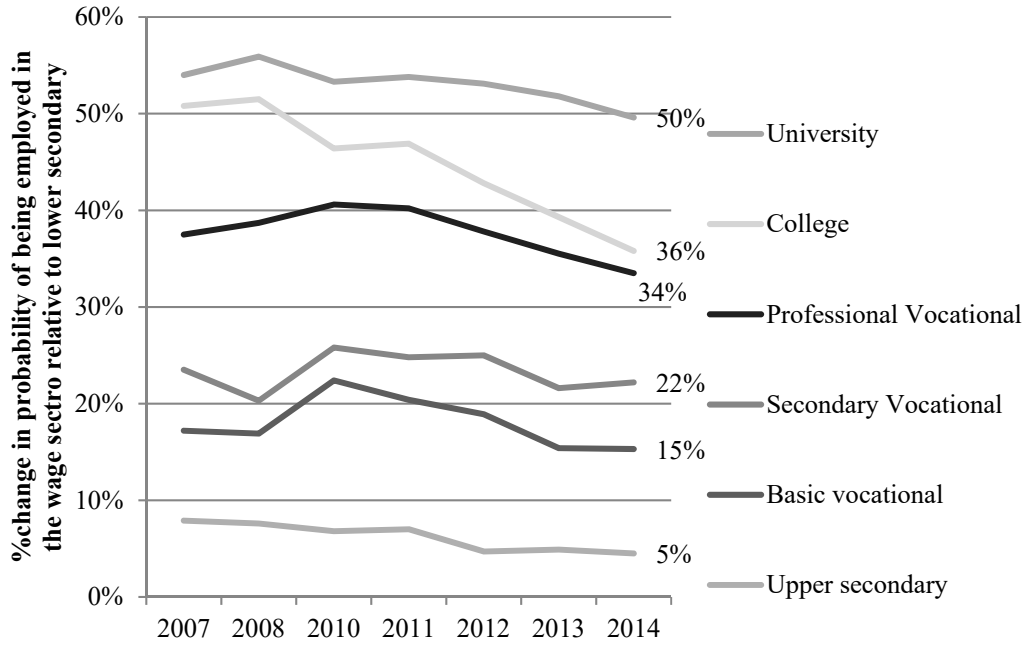
Source: Analysis of 2014 Labor Force Survey
Note: See Annex 2 for detailed definition of employment categories

5.2 Returns to Education in Terms of the Probability of Holding a Wage Job and Earnings

Next, we turn to analyzing how education level is associated with the probability of holding a wage job. We consider a simple analysis of the returns to education by level, estimated separately for each year during 2007-2014. Using a probit model, we regress a binary variable indicating employment in the wage sector on indicator variables for successive education levels as well as cubic in age, urban/rural, region, gender, and ethnic minority status. Summary results from this analysis are shown graphically in Figure 14. The omitted category is completed lower secondary education, and results are not shown in the figure for education levels below lower secondary. The probability of holding a wage job increases with successive levels of education. The wage probability “boost” associated with upper secondary is surprisingly small: a worker who completes the three years upper secondary was only 5% more likely to hold a wage job than someone who had completed lower secondary. This suggests that the labor market benefit of upper secondary is principally the opportunity to pursue a college or university education, which greatly increases the probability of holding a wage job, by 36% and 50%, respectively, in 2014. The wage probability “boost” associated with college and university education has declined over time.¹⁰

¹⁰ The full regression results corresponding to all the figures presented in this sub-section are shown in the Annex.

Figure 14: Increase in the Probability of Being Employed in the Wage Sector by Education Level, Conditional on Employment



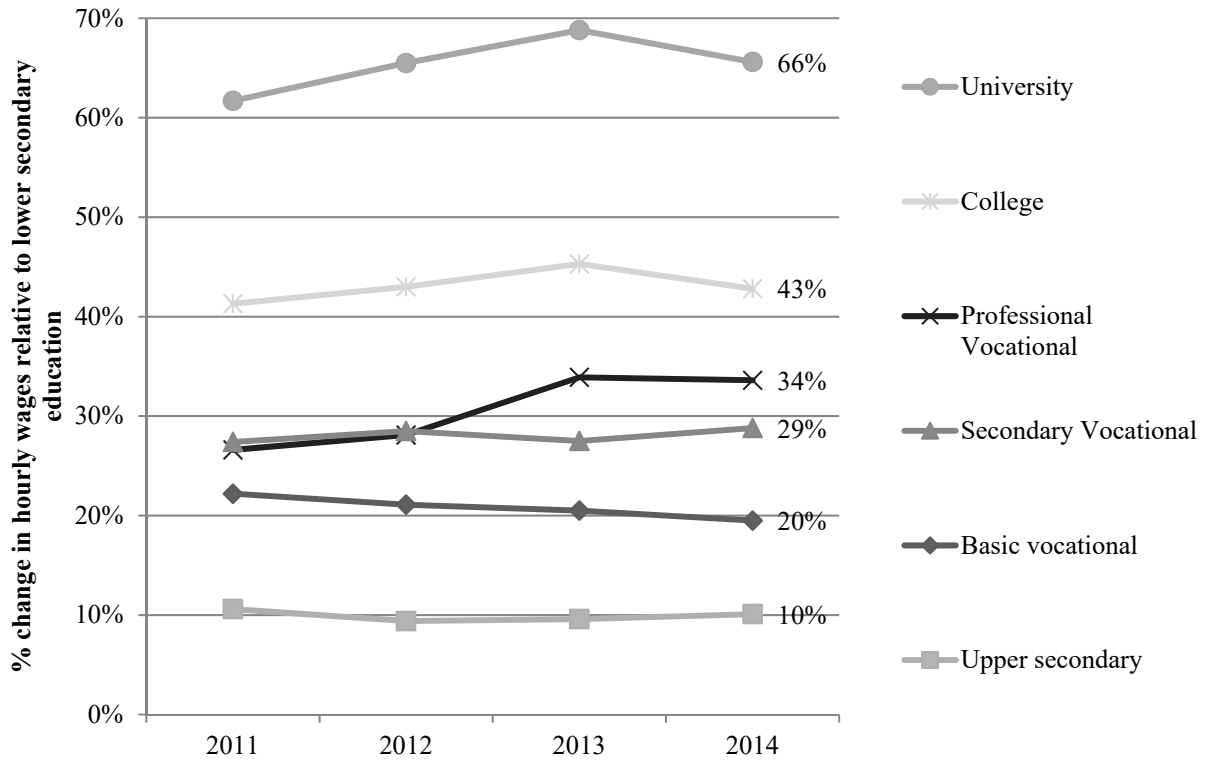
Source: Analysis of 2007- 2014 Labor Force Surveys

Note: The reported coefficients are the marginal effects of probit regressions that focus on the probability of holding a wage job (conditional on being employed) and control for a cubic in age, urban/rural, region, gender, and ethnic minority status.

Next, we consider the returns to education (in terms of wage earning) among those with wage jobs. The returns were estimated using OLS regressions of log wages for year on the same specification used for the wage job probits (indicator variables for successive education levels as well as cubic in age, urban/rural, region, gender, and ethnic minority status). The time series starts with 2011 because comparable wage data were not available for previous years.¹¹ Figure 15 shows a graphical representation of the estimates for each education level. The patterns by education level are similar to those for the wage job probits. The returns to upper secondary alone are only 10%, which reinforces the conclusion that the main benefit of upper secondary education is as a gateway to the higher returns from college (43%) and university (66%) education. Over the period 2011-2014 there are no clear trends in education returns.

¹¹ Please see Table A1 in the Annex for more information on the evolution of key variables in the LFS between 2007 and 2014.

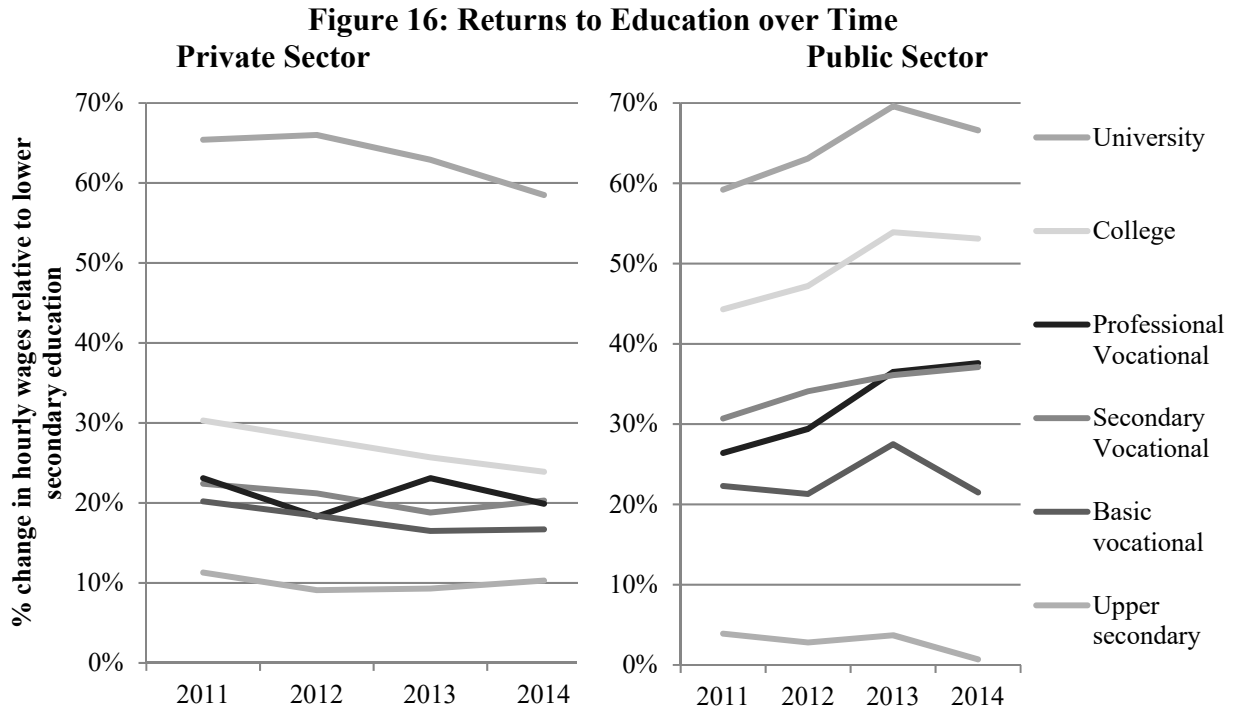
Figure 15: Returns to Education Over Time



Source: Analysis of 2011- 2014 Labor Force Surveys

Note: The reported coefficients are calculated from (hourly) log wage (including bonuses) regressions restricted to all wage workers which control for a cubic in age, urban/rural, region, gender, and ethnic minority status.

Separate estimates of returns to education in the private and public sectors are shown in Figure 16. The returns to education are generally lower in the private sector and over the last years the differences with the public sector at higher levels of education have increased. While in the private sector returns have declined at almost all education levels, in the public sector returns have increased, especially at university level.

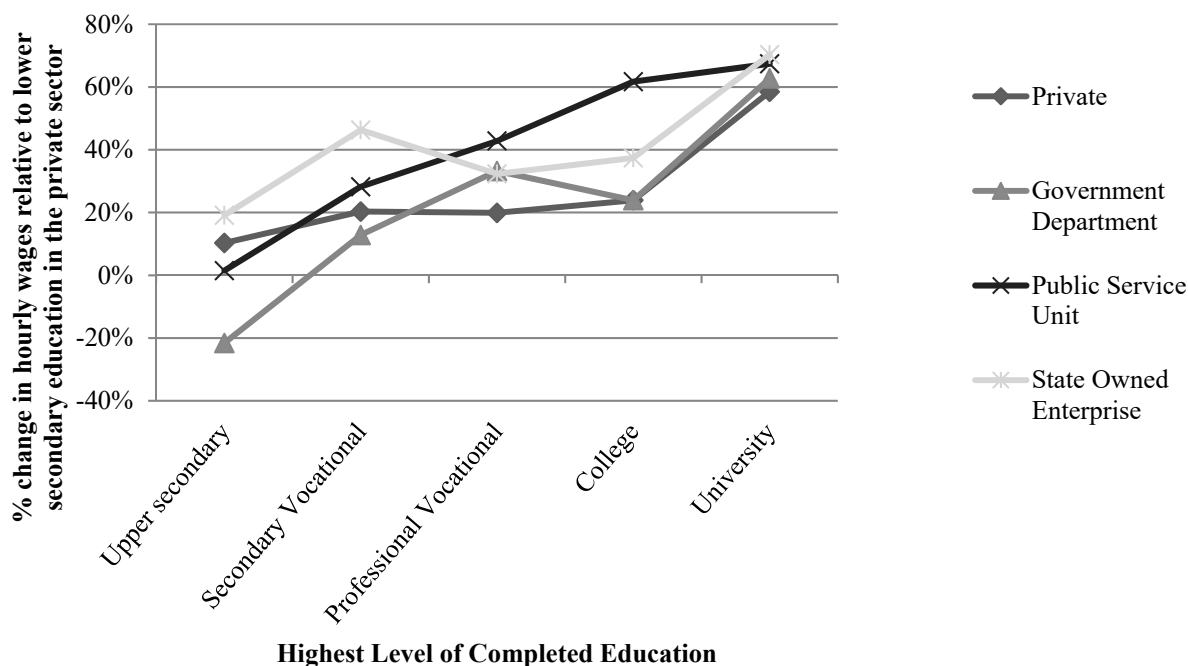


Source: Analysis of 2007- 2014 Labor Force Surveys

Note: The reported coefficients are calculated from (hourly) log wage (including bonuses) regressions restricted to all wage workers which control for a cubic in age, urban/rural, region, gender, and ethnic minority status as well as an interaction term between education levels and a dummy equal to 1 if establishment type is public and 0 if establishment types is private.

A further breakdown of returns in different parts of the public sector shows that private employees are paid less than workers in SOEs and public service units at all post-upper secondary educational levels. At college and university levels, returns in the private sector and in government departments are very similar.

Figure 17: Returns to Education in the Private and Public (Disaggregated) Sectors, 2014



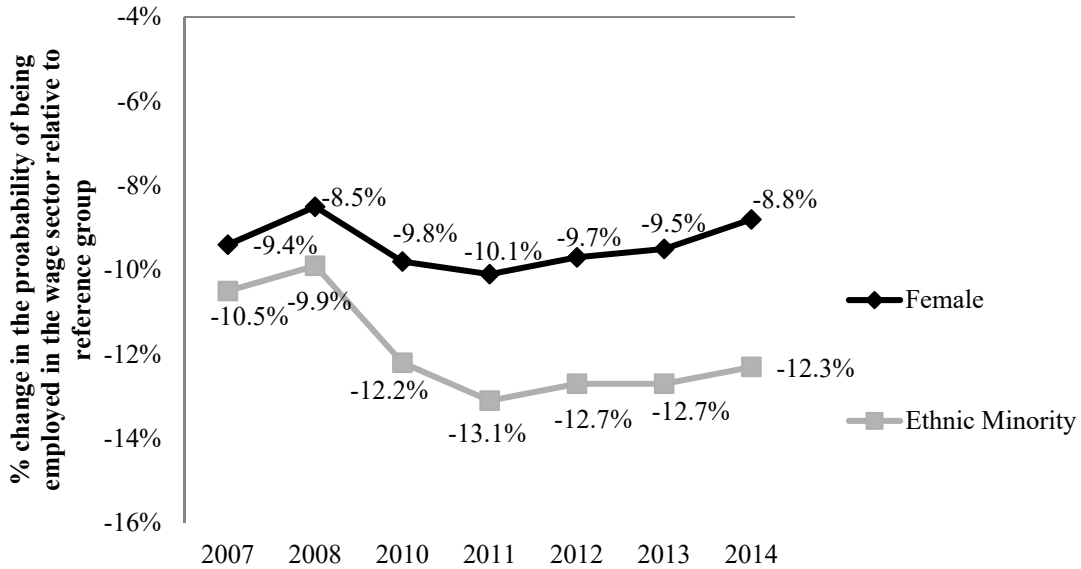
Source: Analysis of 2014 Labor Force Survey

Note: The reported coefficients are calculated from (hourly) log wage (including bonuses) regressions restricted to all wage workers which control for a cubic in age, urban/rural, region, gender, and ethnic minority status as well as an interaction term between education levels and type of employer.

5.3 Women and Ethnic Minorities in the Wage Sector

We consider the differences in the likelihood of holding a wage job and in wages among those holding wage jobs by gender and ethnic group. Figure 18 shows marginal effects for the female indicator variable and an ethnic minority indicator variable from the wage job probits presented in the previous section. Controlling for other characteristics, including age, education level, and region, women were 8.8% less likely to hold wage jobs in 2014, and this figure has been fairly constant over time. Ethnic minorities are also less likely than Kinh to be in the wage sector and this difference appears to have increased slightly between 2007 and 2014.

Figure 18: Probability of Holding a Wage Job Relative to Men (for Women) and to Kinh (for Ethnic Minorities)

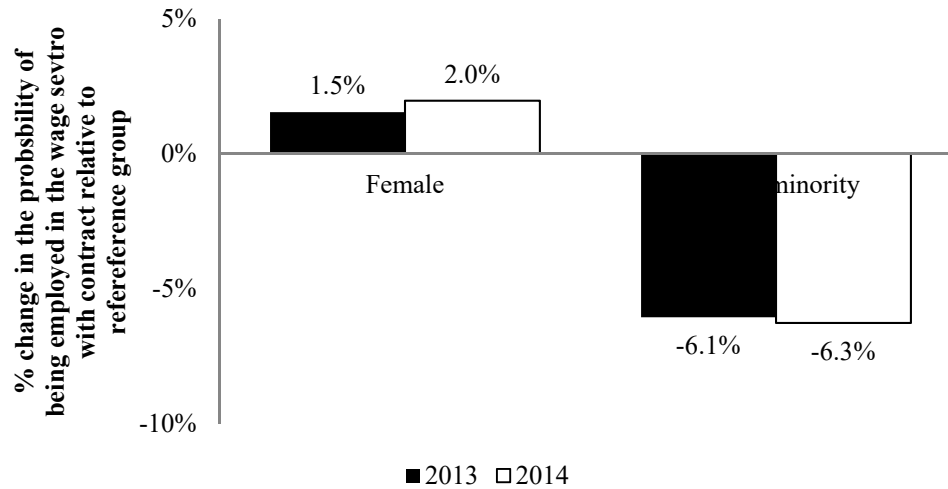


Source: Analysis of 2007- 2014 Labor Force Surveys

Note: The reported coefficients are the marginal effects of probit regressions that focus on the probability of holding a wage job (conditional on being employed) and control for a cubic in age, urban/rural, region, education level, gender, and ethnic minority status.

Figure 19 shows results from similar specifications where the dependent variable is holding a wage job *with a contract*. (These results are shown only for 2013 and 2014, because data on whether employees have a contract were only collected in that year.) Although women are less likely to hold wage jobs generally, they are slightly more likely to hold wage jobs with a contract. Compared to men with similar characteristics, women are 2% more likely to have a contract than men. Ethnic minorities are 6% point less likely than Kinh to be employed in the wage sector and have a contract.

Figure 19: Probability of Holding a Wage Job with Contract Relative to Men (for Women) and to Kinh (for Ethnic Minorities)

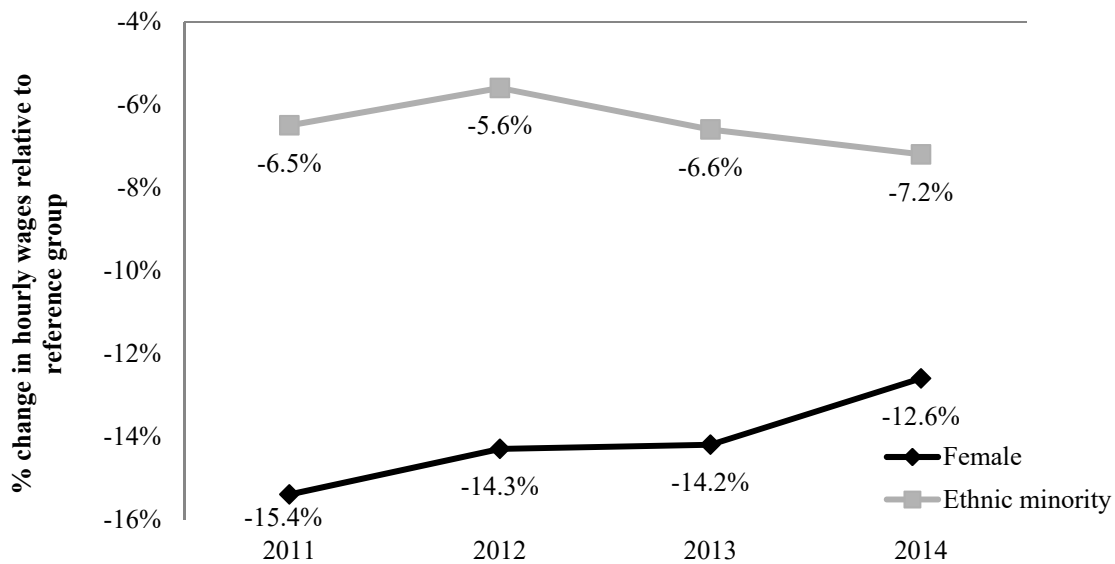


Source: Analysis of 2013- 2014 Labor Force Surveys

Note: The reported coefficients are the marginal effects of probit regressions that focus on the probability of holding a wage job with contract (conditional on being employed) and control for a cubic in age, urban/rural, region, education level, gender, and ethnic minority status.

Finally, we briefly examine wage premia/penalties for women and ethnic minorities, among those holding wage jobs. Among those employed in the wage sector, women and ethnic minorities earn lower wages than comparable male and Kinh workers. The gender wage gap has shrunk (from 15.4% to 12.6%) between 2007 and 2014. The ethnic minority wage gap, however, has been fairly stable.

Figure 20: Wage Premia by Gender and Ethnic Minority Status



Source: Analysis of 2011- 2014 Labor Force Surveys

Note: The reported coefficients are calculated from (hourly) log wage (including bonuses) regressions restricted to all wage workers which control for a cubic in age, urban/rural, region, gender, and ethnic minority status as well as an interaction term between education levels and type of establishment.

6 Conclusions

Vietnam's economic trajectory since liberalization in the 1990s and its continued development successes make its labor market a continuing topic of interest to researchers. This paper traces out some basic characteristics of jobs in Vietnam using largely unexploited data from the annual labor market surveys. The analysis produces a number of salient findings.

First, although the country's recent economic development story has in large part focused on growth in jobs and incomes in foreign firms, employees in such firms remain a tiny fraction of overall employees—just 2 million out of 50.6 million employed workers in 2014. The labor force remains quite diverse, with 20.9 million still working in agriculture (largely family farming), 10.7 million self-employed in non-farm work, and substantial employment in state owned enterprises (1.4 million).

Second, high unemployment rates among recent university graduates appear to reflect the short-term transition from school to work rather than limited long-term prospects for new graduates. Following cohorts of young university graduates over time, we see that their unemployment rates drop rapidly as they age.

Third, unsurprisingly, more education is associated with both a higher probability of holding a wage job and higher wages among those who hold wage jobs. For most young Vietnamese, the critical marginal education choice is whether to pursue additional education—most typically in the form of an upper secondary degree—after completing lower secondary. We find that the returns to an upper secondary degree alone are modest, both in terms of the probability of finding a wage job and in wages for those with such jobs. The key economic benefit from attending upper secondary is due to the opportunity it creates to attend college or university.

Fourth, controlling for other characteristics, women and ethnic minorities are less likely to hold wage jobs. Among those who do hold wage jobs, they also earn less than comparable men and members of the Kinh ethnic majority.

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Annex 1 Standardization of the 2007-2014 Labor Force Survey time series

Implemented by the Ministry of Labor, Invalids and Social Affairs (MOLISA) between 1996 and 2007, the Labor Force Survey was conducted by the General Statistical Office (GSO) for the first time in 2007. In 2008, the LFS was combined with the Population Change Survey, which resulted in the inclusion of fewer questions related to employment and the labor market. In 2009, only a smaller sample was collected, because of the concurrent data collection for the 2009 Population and Housing Census. In 2010, the LFS was conducted in two rounds, while since 2011 the survey has been collected throughout the year using a 2-2-2 rotation, under which most households are interviewed more than once in two adjacent quarters, then excluded in the next two quarters and re-included in the following two quarters. For the 2007 and 2008 rounds, the master sampling frame was taken from the 3% sampling frame of the 1999 Population and Housing Census, while for years 2009 to 2014 the sampling frame was taken from the 15% sampling frame of the 2009 Population and Housing Census (Oudin et al, 2014).

Over the period 2007-2014, several changes were introduced in the LFS questionnaire, together with updates in concepts and definitions used. While the LFS questionnaire included 58 questions, this number evolved to 61 (combined with the Population Change and Family Planning Survey) in 2008, 80 in 2009, 41 in 2010, 78 in 2011, 81 in 2012, 82 in 2013 and 85 in 2014. In addition to changes in the number and type of questions asked, in some cases the same types of information were collected using different questions and/or different categories to record the respondent's answers. As a result of this, a careful standardization process was needed in order to be able to compare labor market outcomes during the 2007-2014 period. The standardization work included different types of data elaborations, including: i) combination of information collected via more than one question in certain years but via a single question in other years; ii) within the same question, combination of different categories of answers to create a new category that could be compared over time. While the standardization was possible for most of the variables of interest, for specific variables in certain years this was not possible. Examples include:

- 1) The inability to create separate “Government”, “Public Service Units” and “SOE” categories for the variable “Establishment type” before 2011.
- 2) The inability to create a variable that consistently presents information about the type of work contract held by a worker because of the lack of this information in 2008 and 2010 and the fact that this question was only asked in certain months in 2011 and 2012.

The table below shows the changes in the classification used for some key variables between 2007 and 2014.

Table A1: Evolution of Key variable in the LFS

Variables	LFS (Classifications of variables and comments)							
	2007	2008	2009	2010	2011	2012	2013	2014
Gender	Male/Female	Male/Female	Male/Female	Male/Female	Male/Female	Male/Female	Male/Female	Male/Female
Age	Years	Month and Year of birth	Years	Years	Years	Years	Years	Years
Ethnicity	Kinh/Others	Kinh/Others	Kinh/Others	Kinh/Others	Kinh/Others	Kinh/Others	Kinh/Others	Kinh/Others
Province	64 provinces	63 provinces	6 Regions and 2 Cities	63 provinces	63 provinces	63 provinces	63 provinces	63 provinces
Urban/Rural	Urban/Rural	Urban/Rural	Urban/Rural	Urban/Rural	Urban/Rural	Urban/Rural	Urban/Rural	Urban/Rural
Education	Q10=Highest grade of general education attained (0 to 12) Q11=Highest level of technical qualification attained (from none to graduate, 7 levels)	Q12=Highest grade of general education attained (0 to 12) Q16=Highest level of technical qualification attained (from none to university, 7 levels)	No variable on general education Q14=Highest level of technical qualification attained (from none to university, 8 levels)	Q9= HIGHEST GRADE OF EDUCATION/TRAINING ATTENDED (from never attended to university, 11 levels)	C11= HIGHEST GRADE OF EDUCATION /TRAINING ATTENDED (from never attended to university, 11 levels)	Q13= HIGHEST GRADE OF EDUCATION /TRAINING ATTENDED (from never attended to university, 11 levels)	Q15= HIGHEST GRADE OF EDUCATION /TRAINING ATTENDED (from never attended to university, 11 levels)	C15= HIGHEST GRADE OF EDUCATION /TRAINING ATTENDED (from never attended to university, 11 levels)
Employment/Unemployment/OLF	Employed/Unemployed/Inactive	Employed/Unemployed/Inactive	Not in the dataset, but it is possible to construct this variable based on instructions in the questionnaire	Employed/Unemployed/Inactive	Not in the dataset, but it is possible to construct this variable based on instructions in the questionnaire	Not in the dataset, but it is possible to construct this variable based on instructions in the questionnaire	Not in the dataset, but it is possible to construct this variable based on instructions in the questionnaire	Not in the dataset, but it is possible to construct this variable based on instructions in the questionnaire: the same as LFS 2013.
Occupation (Occupational code)	2-digit classification	2-digit classification	3-digit classification	3-digit classification	4-digit classification	4-digit classification	4-digit classification	4-digit classification
Type of Activity (Industry)	2-digit industrial code	5-digit industrial code	3-digit industrial code	3-digit industrial code	4-digit classification	4-digit classification	4-digit industrial code	4-digit classification
Establishment Type (State, FDI, etc)	7 categories (only one for state and one "other" category)	7 categories (only one for state and one "other" category)	6 categories (only one for state, no "other")	6 categories (only one for state but now the 2 household's categories are defined in terms of ag/non-ag)	8 categories (3 for state but now the 2 household's categories are defined in terms of ag/non-ag)	8 categories (3 for state but now the 2 household's categories are defined in terms of ag/non-ag)	8 categories (3 for state but now the 2 household's categories are defined in terms of ag/non-ag)	8 categories (3 for state but now the 2 household's categories are defined in terms of ag/non-ag)

Type of Job (Employer, Wage, etc)	6 categories	6 categories	6 categories	6 categories	5 categories (no more apprentice)	5 categories (no more apprentice)	5 categories (no more apprentice)	5 categories (no more apprentice)
Contract	4 categories	Info not collected	5 categories (two types of short term)	Info not collected	5 categories (two types of short term)	5 categories (two types of short term)	5 categories (two types of short term)	6 categories (1). Unlimited term; (2). 1-3 year term; (3) 3 month to 1 year term; (4) under 3 month term; (5) verbal agreement; (6) None
Work Location (Home, Fixed, Market)	4 categories	Info not collected	4 categories	Info not collected	5 categories (added "Market")	5 categories (added "Market")	5 categories (added "Market")	5 categories (added "Market")
Benefits (health, holidays, etc)	Social Insurance, Pay Slip, Public Holidays Leaves	Info not collected	Pay Slip, Public Holidays Leaves, Social Insurance	Public Holidays Leaves, Health Insurance, Social Insurance	Public Holidays Leaves, Health Insurance, Social Insurance	Public Holidays Leaves, Health Insurance, Social Insurance	Public Holidays and Personal Leaves, Health Insurance, Social Insurance	One more option (32A. Holiday/leave; 32B. Health card; 32C. Unemployment insurance; 32D. Social Insurance)
Payment Type (Fixed salary, per piece, commission, etc.)	7 categories	Info not collected	7 categories	Info not collected	7 categories	7 categories	7 categories	7 categories
Wage/Salary ('000s VND)	Average monthly salary (main job) including bonuses - all workers	Info not collected	How much did you receive (main job) in the last 7 days - all workers (does not specify if bonus, etc. are included)	Average Monthly salary (main job) before paying taxes - Only wage workers (does not specify if bonus, etc. are included)	Salary/Wage (main job) in the last month excluding bonuses - Only wage workers	Salary/Wage (main job) in the last month excluding bonuses - Only wage workers	Salary/Wage (main job) in the last month excluding bonuses - Only wage workers	Salary/Wage (main job) in the last month excluding bonuses - Only wage workers
Bonus ('000s VND)	Included in the item above	Info not collected	Info not collected	Info not collected	Overtime premium, occupation allowance and other welfare	Overtime premium, occupation allowance and other welfare	Overtime premium, occupation allowance and other welfare	Overtime premium, occupation allowance and other welfare

Hours worked	Last Week hours (main job) including extra time (not clear if usually or last week)	Last 7 days/7days before temporary break including extra time for ALL JOBS	Number of hours usually worked (main job) in a week/ Q54.Number of hours worked (main job) last week including extra time	Last 7 days including extra time for ALL JOBS	C51. Number of hours usually worked (main job) in a week/ C.52 Number of hours worked (main job) last week including extra time	Q53. Number of hours worked (main job) last week including extra time/ Q54. Number of hours usually worked (main job) in a week	Q39. Number of hours worked (main job) last week including extra time/ Q40. Number of hours usually worked (main job) in a week	C41. Number of hours worked (main job) last week including extra time/ C42. Number of hours usually worked (main job) in a week
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Annex 2 Data Definitions

Farming sector. The farming sector includes all individuals who report their primary employment to be in a household/individual or household of individual production and trade type of establishment (question 23 in the 2014 LF) and whose main industry in this job is Agriculture, Forestry and Fishery according to *Viet Nam Standard Industrial Classification 2007* (question 23 in the 2014 LFS).

Non-farm self-employment sector. The non-farm self-employment sector includes all individuals who report their primary employment to be in a household/individual or household of individual production and trade type of establishment (question 23 in the 2014 LFS) and whose main industry in this job is any sector except agriculture (question 23 in the 2014 LFS). The non-farm self-employment sector also includes workers that report to be employed in their primary job in a collective or state type of establishment (question 23 in the 2014 LFS) as non-wage workers (question 28 in the 2014 LFS).

Wage sector. The wage sector includes all workers who report to be wage workers in the primary job (question 28 in the 2014 LFS) as well as non-wage workers employed by domestic private and foreign investment types of establishments (question 23 in the 2014 LFS).

Wage worker with contract. Wage workers with contract are employed in the wage sector and hold an unlimited or limited time written contract (question 29 in the 2014 LFS).

Wage worker without contract. Wage workers without contract are employed in the wage sector and hold a verbal agreement type of contract or no contract (question 29 in the 2014 LFS).

Wage worker with contract in the household enterprise sector. Wage workers with contract in the household enterprise sector are wage workers with contract employed in agriculture and non-agriculture household enterprise (question 23 in the 2014 LFS).

Wage worker with contract in the government sector. Wage workers with contract in the government sector are wage workers with contract employed in the government or in public service units (question 23 in the 2014 LFS).

Wage worker with contract in an SOE company. Wage workers with contract in an SOE company are wage workers with contract employed in SOE companies (question 23 in the 2014 LFS).

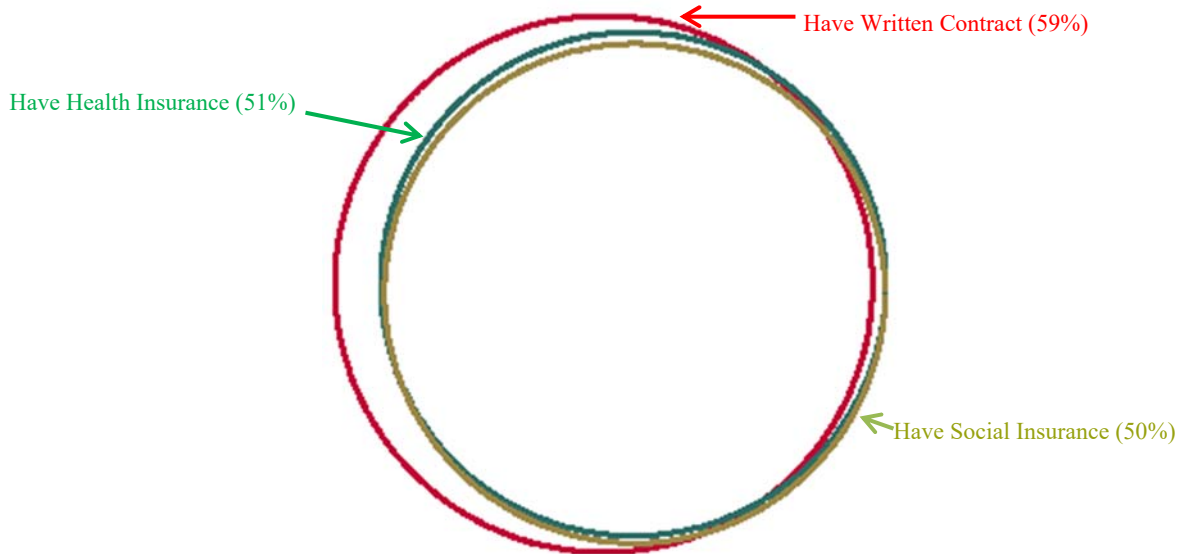
Wage worker with contract in an FDI company. Wage workers with contract in an FDI company are wage workers with contract employed in FDI companies (question 23 in the 2014 LFS).

Wage worker with contract in a domestic private company. Wage workers with contract in a domestic private company are wage workers with contract employed in private domestic companies (question 23 in the 2014 LFS).

Annex 3 Different Dimensions of Formality in the Wage Sector

In the wage sector, there is a large overlap in the characteristics usually associated with formal jobs. Out of all workers in the wage sector, 59% have a written contract, 51% have health insurance and 50.2% have social insurance. Almost 50% of the total wage workforce reports to have a written contract and be covered by both health and social insurance, while 38.3% of the workforce in this sector reports to be employed in a job with none of these characteristics.¹²

Figure A1: Overlap Between Different Dimensions of Formality in the Wage Sector



Source: Analysis of 2014 Labor Force Surveys

¹² Pairwise correlations between these variables in 2014 are very high, as shown in the table below:

	Have Written Contract	Have Health Insurance	Have Social Insurance
Have Written Contract	1		
Have Health Insurance	0.84	1	
Have Social Insurance	0.82	0.97	1

Annex 4 Results

Table A2: Age of Difference Year of Birth Cohorts in 2010 and 2014

	Born 1987-1990	Born 1983-1986	Born 1979-1982	Born 1975-1978
In 2010	20-23	24-27	28-31	32-35
In 2014	24-27	28-31	32-35	36-39

Source: Authors' elaboration

Table A3: Unemployment Rates by Year of Birth Cohorts in 2010 and 2014

	Born 1987-1990	Born 1983-1986	Born 1979-1982	Born 1975-1978
In 2010	7%	4%	3%	2%
In 2014	4%	2%	1%	1%

Source: Analysis of 2010 and 2014 Labor Force Surveys

Table A4: Unemployment Rates by Year of Birth Cohorts in 2010 and 2014

	Born 1987-1990	Born 1983-1986	Born 1979-1982	Born 1975-1978
In 2010	20%	6%	2%	1%
In 2014	9%	2%	1%	1%

Source: Analysis of 2010 and 2014 Labor Force Surveys

Table A5: Employment Distribution in 2014 (%)

	Farming	Non-farm Self-Employment	Wage with contract	Wage without contract
Total	20,886,018 41.6%	10,655,283 21.2%	11,314,066 22.5%	7,402,117 14.7%
<i>15-19</i>	55.0%	9.4%	12.3%	23.2%
<i>20-24</i>	35.5%	11.9%	32.2%	20.4%
<i>25-29</i>	30.9%	15.2%	37.8%	16.1%
<i>30-34</i>	31.7%	20.1%	32.7%	15.5%
<i>35-39</i>	35.6%	24.0%	24.1%	16.4%
<i>40-44</i>	38.5%	27.2%	18.5%	15.8%
<i>45-49</i>	44.1%	26.1%	16.1%	13.7%
<i>50-54</i>	49.7%	24.3%	15.7%	10.3%
<i>55-59</i>	57.6%	24.0%	10.8%	7.7%
<i>60-64</i>	68.2%	21.5%	4.1%	6.3%
<i>Never attended</i>	68.5%	8.7%	2.2%	20.5%
<i>Some primary</i>	58.5%	17.6%	3.7%	20.2%
<i>Primary</i>	52.9%	21.5%	7.3%	18.2%
<i>Lower secondary</i>	49.3%	23.3%	12.2%	15.2%
<i>Short-term training</i>	7.4%	35.1%	37.9%	19.7%
<i>Upper secondary</i>	30.5%	30.4%	26.6%	12.4%
<i>Trade vocational school</i>	10.3%	24.5%	52.1%	13.0%
<i>Vocational school</i>	14.0%	15.7%	65.3%	5.1%
<i>College</i>	9.2%	12.5%	72.3%	6.0%
<i>University or higher</i>	2.4%	6.5%	89.3%	1.8%

Source: Analysis of 2014 Labor Force Survey

Table A6: Characteristics of Jobs in Four Major Sectors, 2014

	Farming	Non-farm Self-Employment	Wage with written contract	Wage without written contract
<i>Median hours worked normal week</i>	35	48	48	48
<i>% working in this job for less than 1 year</i>	2.0	4.4	7.5	13.2
<i>% working in this job between 1 and less than 5 years</i>	18.7	33.8	44.9	47.3
<i>% working in this job between 5 and less than 10 years</i>	20.8	29.3	22.6	21.5
<i>% working in this job for 10 years and more</i>	58.5	32.6	25.0	17.9
<i>Only with verbal agreement (%)</i>	0.2	0.8	0.0	79.2
<i>Without any contract (%)</i>	99.6	97.5	0.0	20.8
<i>Underemployed (Working less than 40 hours per week and willing to work more) (% of total employed)</i>	3.6	1.4	0.2	3.5
<i>Without Health Insurance (%)</i>	99.9	99.7	14.3	99.0
<i>Without Social Insurance (%)</i>	99.9	99.6	16.0	99.3

Source: Analysis of 2014 Labor Force Survey

Table A7: Number and Percentage of Jobs in the Wage Sector by Selected Characteristics

Have Written Contract	Have Health Insurance	Have Social Insurance	#	%
No	No	No	7,261,841	38.3
No	No	Yes	11,100	0.1
No	Yes	No	28,636	0.2
No	Yes	Yes	42,950	0.2
Yes	No	No	1,542,468	8.1
Yes	No	Yes	56,727	0.3
Yes	Yes	No	260,187	1.4
Yes	Yes	Yes	9,398,338	49.6

Source: Analysis of 2014 Labor Force Survey

Table A8: Distribution of 1-digit Level of Occupations and Top Growing Occupations between 2011 and 2014

Occupations	2011	2012	2013	2014	% growth 2014 to 2011
	2,682,9	2,810,9	2,959,4	3,213,3	
Professionals	93	81	62	78	20%
Clerks	747,170	812,147	783,044	877,530	17%
	7,376,3	7,973,3	8,202,3	8,219,6	
Sales/Personal Service workers	23	59	52	61	11%
Plant and Machine	3,520,7	3,716,1	3,621,3	3,875,5	
Operators/Assemblers	34	82	46	12	10%
Leader/Manager	533,783	521,306	539,971	561,770	5%
Army Force	107,214	106,366	119,075	111,144	4%
	6,017,1	5,969,0	6,180,0	6,223,0	
Craft and related trade workers	37	45	88	03	3%
	19,455,	19,770,	20,154,	19,917,	
Elementary occupations	888	045	406	615	2%
Technicians and Associate	1,771,4	1,729,3	1,678,2	1,619,3	
professionals	22	66	07	59	-9%
Skilled agricultural, forestry and	6,643,2	6,078,2	5,848,0	5,977,4	
fishing workers	18	72	46	05	-10%
	48,855,	49,487,	50,085,	50,596,	
Total	882	069	997	377	4%

Table A9: Education Distribution of the Workforce by Year

	2007	2008	2010	2011	2012	2013	2014
<i>Never attended</i>	1,587,479 4%	1,679,011 4%	1,874,547 4%	1,829,629 4%	1,805,323 4%	1,776,439 4%	1,758,806 3%
<i>Some primary</i>	5,147,838 12%	4,913,985 11%	5,103,033 11%	5,434,345 11%	5,354,697 11%	5,408,620 11%	5,309,200 11%
<i>Primary</i>	12,415,794 28%	12,465,920 28%	11,829,236 25%	11,885,174 24%	12,102,737 24%	12,033,805 24%	11,889,561 24%
<i>Lower secondary</i>	12,943,471 29%	13,258,969 29%	15,655,724 33%	15,766,999 32%	15,542,402 31%	15,643,809 31%	15,597,367 31%
<i>Short-term training</i>	1,084,760 2%	1,339,786 3%	931,041 2%	1,033,232 2%	1,356,738 3%	1,651,569 3%	1,480,318 3%
<i>Upper secondary</i>	5,144,652 12%	5,348,476 12%	6,111,572 13%	6,194,876 13%	6,235,748 13%	6,043,456 12%	6,519,240 13%
<i>Trade vocational school</i>	614,308 1%	758,845 2%	794,035 2%	794,966 2%	829,419 2%	853,250 2%	797,646 2%
<i>Vocational school</i>	2,438,733 5%	2,306,882 5%	1,651,064 3%	1,801,560 4%	1,803,169 4%	1,853,950 4%	1,847,536 4%
<i>College</i>	856,294 2%	912,495 2%	947,916 2%	1,005,288 2%	1,147,398 2%	1,213,846 2%	1,312,932 3%
<i>University or higher</i>	2,208,079 5%	2,298,410 5%	2,768,142 6%	3,062,710 6%	3,248,151 7%	3,577,242 7%	3,970,988 8%
<i>Total</i>	44,441,408 100%	45,282,779 100%	47,666,310 100%	48,808,779 100%	49,425,782 100%	50,055,986 100%	50,483,594 100%

Source: Analysis of 2007- 2014 Labor Force Surveys

Table A10: Education Distribution of the Workforce in the Wage Sector by Year

	2007	2008	2010	2011	2012	2013	2014
<i>Never attended</i>	299,589 2%	307,703 2%	349,032 2%	368,655 2%	395,461 2%	379,058 2%	399,190 2%
<i>Some primary</i>	1,034,328 7%	983,693 7%	1,163,548 7%	1,317,817 7%	1,300,526 7%	1,348,840 7%	1,268,358 7%
<i>Primary</i>	2,650,741 19%	2,556,193 18%	2,856,008 17%	3,033,510 17%	3,058,340 17%	3,088,138 17%	3,044,353 16%
<i>Lower secondary</i>	2,816,064 20%	2,754,423 19%	4,110,121 24%	4,189,993 24%	4,132,477 23%	4,109,440 22%	4,283,688 23%
<i>Short-term training</i>	554,472 4%	727,588 5%	592,396 4%	639,782 4%	820,498 5%	924,215 5%	855,784 5%
<i>Upper secondary</i>	1,926,945 14%	1,920,685 13%	2,534,502 15%	2,573,765 15%	2,450,312 14%	2,326,939 13%	2,565,402 14%
<i>Trade vocational school</i>	368,219 3%	433,283 3%	548,249 3%	535,116 3%	560,770 3%	548,412 3%	522,136 3%
<i>Vocational school</i>	1,732,312 12%	1,658,974 12%	1,258,912 7%	1,359,778 8%	1,331,578 7%	1,320,446 7%	1,301,945 7%
<i>College</i>	742,224 5%	795,142 6%	807,398 5%	861,159 5%	952,792 5%	975,711 5%	1,030,852 5%
<i>University or higher</i>	2,032,785 14%	2,134,692 15%	2,579,321 15%	2,835,295 16%	3,004,977 17%	3,270,828 18%	3,622,624 19%
<i>Total</i>	14,157,679 100%	14,272,376 100%	16,799,487 100%	17,714,870 100%	18,007,731 100%	18,292,027 100%	18,894,332 100%

Source: Analysis of 2007- 2014 Labor Force Surveys

Table A11: Mean and Median Hourly Wages (Including Bonus) in the Wage Sector by Selected Characteristics

	Mean	Median
<i>50-54</i>	38.4	31.2
<i>45-49</i>	36.5	28.8
<i>55-59</i>	35.9	28.8
<i>40-44</i>	34.1	27.1
<i>35-39</i>	34.5	26.9
<i>30-34</i>	31.0	24.0
<i>25-29</i>	27.2	21.6
<i>20-24</i>	22.4	19.2
<i>15-19</i>	19.2	16.7
<i>60-64</i>	25.9	15.9
<i>Male</i>	32.5	25.0
<i>Female</i>	29.1	22.1
<i>Kinh</i>	30.9	23.6
<i>Ethnic Minority</i>	29.3	23.7
<i>Urban</i>	34.6	26.5
<i>Rural</i>	25.7	20.2
<i>Central Highland</i>	30.7	26.0
<i>Northern midland & mountainous areas</i>	31.8	26.0
<i>South Eastern</i>	32.9	24.0
<i>Red River delta</i>	30.6	23.5
<i>Northern and Coastal Central</i>	28.6	22.2
<i>Mekong delta</i>	27.7	20.9
<i>High Skill Services</i>	39.7	31.5
<i>Public Services</i>	35.0	28.8
<i>Construction</i>	33.8	26.7
<i>Utilities & Transportation</i>	32.0	25.4
<i>Agriculture & Mining</i>	30.5	23.7
<i>Trade & Hospitality</i>	28.9	23.1
<i>Other services</i>	27.8	21.6
<i>Manufacturing</i>	25.0	20.0

Source: Analysis of 2014 Labor Force Survey

Table A12: Probit for Holding Wage Job (Conditional on Working) on Cubic in Age, Education Dummies, Gender, Ethnic Minority, Urban-Rural, Regional Dummy (Marginal Effects)

	(1) 2007	(2) 2008	(3) 2010	(4) 2011	(5) 2012	(6) 2013	(7) 2014
No Schooling	0.039***	0.037***	0.030***	0.041***	0.049***	0.047***	0.042***
Primary	-0.003***	-0.012***	-0.012***	-0.004**	-0.005**	-0.001	-0.007***
Basic vocational	0.172***	0.169***	0.224***	0.204***	0.189***	0.154***	0.153***
Upper secondary	0.079***	0.076***	0.068***	0.070***	0.047***	0.049***	0.045***
Secondary Vocational	0.235***	0.203***	0.258***	0.248***	0.250***	0.216***	0.222***
Professional Vocational	0.375***	0.387***	0.406***	0.402***	0.378***	0.355***	0.335***
College	0.508***	0.515***	0.464***	0.469***	0.428***	0.393***	0.358***
University	0.540***	0.559***	0.533***	0.538***	0.531***	0.518***	0.496***
Female	-0.094***	-0.085***	-0.098***	-0.101***	-0.097***	-0.095***	-0.088***
Ethnicity	-0.105***	-0.099***	-0.122***	-0.131***	-0.127***	-0.127***	-0.123***

Source: Analysis of 2007- 2014 Labor Force Surveys

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A13: Probit for Holding Wage Job with Contract (Conditional on Working) on Cubic in Age, Education Dummies, Gender, Ethnic Minority, Urban-Rural, Regional Dummy (Marginal Effects)

	(1) 2013	(2) 2014
No Schooling	-0.088***	-0.097***
Primary	-0.048***	-0.055***
Basic vocational	0.130***	0.132***
Upper secondary	0.076***	0.074***
Secondary Vocational	0.206***	0.205***
Professional Vocational	0.295***	0.288***
College	0.313***	0.296***
University	0.403***	0.401***
Female	0.015***	0.020***
Ethnicity	-0.061***	-0.063***

Source: Analysis of 2013 and 2014 Labor Force Surveys

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A14: Simple Mincer: Log Hourly Wage on Cubic in Age, Education Dummies, Gender, Ethnic Minority, Urban/Rural, Regional Dummies, 2007-2014

	(1) 2011	(2) 2012	(3) 2013	(4) 2014
No Schooling	-0.135*** (0.005)	-0.154*** (0.007)	-0.151*** (0.007)	-0.178*** (0.007)
Primary	-0.053*** (0.004)	-0.046*** (0.005)	-0.057*** (0.005)	-0.069*** (0.006)
Basic vocational	0.222*** (0.007)	0.211*** (0.008)	0.205*** (0.007)	0.195*** (0.008)
Upper secondary	0.106*** (0.005)	0.094*** (0.006)	0.096*** (0.006)	0.101*** (0.006)
Secondary Vocational	0.274*** (0.009)	0.285*** (0.010)	0.275*** (0.009)	0.288*** -0.011
Professional Vocational	0.266*** (0.006)	0.281*** (0.008)	0.339*** (0.007)	0.336*** (0.007)
College	0.413*** (0.007)	0.430*** (0.009)	0.453*** (0.008)	0.428*** (0.008)
University	0.617*** (0.004)	0.655*** (0.006)	0.688*** (0.005)	0.656*** (0.006)
Female	-0.143*** (0.003)	-0.133*** (0.004)	-0.128*** (0.003)	-0.111*** (0.004)
Rural	-0.068*** (0.003)	-0.084*** (0.003)	-0.086*** (0.003)	-0.098*** (0.003)
Ethnic minority	-0.078*** (0.005)	-0.066*** (0.007)	-0.068*** (0.006)	-0.070*** (0.006)
Northern midland & mountainous areas	-0.064*** (0.005)	-0.049*** (0.006)	0.015*** (0.005)	0.014** (0.006)
Northern and Coastal Central	-0.076*** (0.005)	-0.092*** (0.005)	-0.068*** (0.005)	-0.079*** (0.005)
Central Highland	0.009* (0.005)	-0.004 (0.008)	-0.001 (0.008)	-0.058*** (0.008)
South Eastern	0.126*** (0.003)	0.179*** (0.005)	0.151*** (0.004)	0.153*** (0.005)
Mekong delta	-0.091*** (0.004)	-0.069*** (0.006)	-0.078*** (0.006)	-0.088*** (0.006)

Age	0.007** (0.004)	-0.011** (0.005)	-0.011** (0.005)	-0.003 (0.005)
Age2	0.041*** (0.010)	0.095*** (0.014)	0.099*** (0.013)	0.072*** (0.013)
Age3	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Constant	2.246*** (0.004)	2.617*** (0.054)	2.660*** (0.052)	2.713*** (0.056)
N	229,920	143,110	144,061	144,580
R-sq	0.32	0.34	0.39	0.35
adj. R-sq	0.32	0.34	0.39	0.35
AIC	273,259	179,691	162,178	187,002
BIC	273,465	179,888	162,375	187,200
F	2952.53	1787.10	2236.59	1968.74

Source: Analysis of 2011-2014 Labor Force Surveys

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A15: Detailed Mincer: Log Hourly Wage on Cubic in Age, Education Dummies, Gender, Ethnic Minority, Urban/Rural, Regional Dummies and Interaction of Education Levels with Dummy Equal to 1 if Establishment Type is Public

	(1) 2011	(2) 2012	(3) 2013	(4) 2014
No Schooling	-0.153*** (0.005)	-0.175*** (0.007)	-0.165*** (0.007)	-0.190*** (0.008)
Primary	-0.065*** (0.004)	-0.062*** (0.005)	-0.066*** (0.005)	-0.079*** (0.006)
Basic vocational	0.202*** (0.007)	0.183*** (0.008)	0.166*** (0.007)	0.168*** (0.008)
Upper secondary	0.109*** (0.005)	0.089*** (0.006)	0.092*** (0.006)	0.101*** (0.006)
Secondary Vocational	0.222*** (0.011)	0.211*** (0.011)	0.188*** (0.010)	0.204*** (0.013)
Professional Vocational	0.226*** (0.007)	0.180*** (0.014)	0.229*** (0.011)	0.196*** (0.011)
College	0.297*** (0.011)	0.276*** (0.014)	0.255*** (0.011)	0.237*** (0.012)
University	0.646*** (0.007)	0.655*** (0.010)	0.625*** (0.009)	0.582*** (0.009)
Public Institutional Sector	-0.137*** (0.012)	-0.178*** (0.015)	-0.142*** (0.015)	-0.169*** (0.014)
Public*No Schooling	0.164*** (0.042)	0.194*** (0.036)	0.221*** (0.037)	0.104** (0.046)
Public*Primary	0.075*** (0.022)	0.124*** (0.026)	0.057** (0.025)	0.051* (0.028)
Public*Basic vocational	0.158*** (0.021)	0.207*** (0.023)	0.252*** (0.021)	0.217*** (0.025)
Public*Upper secondary	0.063*** (0.015)	0.115*** (0.020)	0.086*** (0.020)	0.073*** (0.020)
Public*Secondary Vocational	0.220*** (0.021)	0.307*** (0.024)	0.315*** (0.022)	0.337*** (0.025)

Public*Professional Vocational	0.170*** (0.015)	0.289*** (0.022)	0.276*** (0.020)	0.346*** (0.019)
Public*College	0.277*** (0.018)	0.370*** (0.022)	0.424*** (0.020)	0.461*** (0.021)
Public*University	0.075*** (0.014)	0.149*** (0.018)	0.209*** (0.018)	0.250*** (0.017)
Female	-0.145*** (0.003)	-0.136*** (0.004)	-0.133*** (0.003)	-0.116*** (0.004)
Rural	-0.070*** (0.003)	-0.086*** (0.003)	-0.090*** (0.003)	-0.101*** (0.003)
Ethnic minority	-0.077*** (0.005)	-0.067*** (0.007)	-0.072*** (0.006)	-0.076*** (0.006)
Northern midland & mountainous areas	-0.064*** (0.005)	-0.052*** (0.006)	0.004 (0.005)	-0.001 (0.006)
Northern and Coastal Central	-0.073*** (0.005)	-0.092*** (0.005)	-0.072*** (0.005)	-0.083*** (0.005)
Central Highland	0.016*** (0.005)	-0.003 (0.008)	-0.008 (0.008)	-0.064*** (0.008)
South Eastern	0.127*** (0.003)	0.181*** (0.005)	0.155*** (0.004)	0.158*** (0.005)
Mekong delta	-0.090*** (0.004)	-0.069*** (0.006)	-0.082*** (0.006)	-0.091*** (0.006)
Age	0.009*** (0.004)	-0.007 (0.005)	-0.005 (0.005)	0.004 (0.005)
Age2	0.035*** (0.010)	0.082*** (0.014)	0.079*** (0.013)	0.051*** (0.013)
Age3	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Constant	2.232*** (0.040)	2.590*** (0.054)	2.623*** (0.052)	2.671*** (0.055)
N	228,665	142,709	143,660	144,069
R-sq	0.33	0.34	0.40	0.36
adj. R-sq	0.33	0.34	0.40	0.36

AIC	270,580	178,173	160,024	184,387
BIC	270,880	178,459	160,310	184,674
F	2,028	1,238	1,555	1,385

Source: Analysis of 2011-2014 Labor Force Surveys

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A16: Detailed Mincer: Log Hourly Wage on Cubic in Age, Education Dummies, Gender, Ethnic Minority, Urban/Rural, Regional Dummies and Interaction of Education Levels and Type of Establishment

	(1)	(2)	(3)	(4)
	2011	2012	2013	2014
No Schooling	-0.163*** (0.005)	-0.183*** (0.007)	-0.169*** (0.007)	-0.194*** (0.008)
Primary	-0.069*** (0.004)	-0.065*** (0.005)	-0.067*** (0.005)	-0.080*** (0.006)
Basic vocational	0.202*** (0.007)	0.184*** (0.008)	0.165*** (0.007)	0.167*** (0.008)
Upper secondary	0.113*** (0.005)	0.091*** (0.006)	0.093*** (0.006)	0.103*** (0.006)
Secondary Vocational	0.224*** (0.011)	0.212*** (0.011)	0.188*** (0.010)	0.203*** (0.013)
Professional Vocational	0.231*** (0.007)	0.183*** (0.014)	0.231*** (0.011)	0.199*** (0.011)
College	0.303*** (0.011)	0.280*** (0.014)	0.257*** (0.011)	0.239*** (0.012)
University	0.654*** (0.007)	0.660*** (0.010)	0.629*** (0.009)	0.585*** (0.009)
Government Department	-0.510*** (0.019)	-0.526*** (0.027)	-0.424*** (0.027)	-0.464*** (0.024)
Public Service Unit	-0.241*** (0.026)	-0.213*** (0.029)	-0.235*** (0.027)	-0.206*** (0.030)
SOE	0.145*** (0.012)	0.067*** (0.018)	0.099*** (0.018)	0.051*** (0.016)
Government*No Schooling	0.283*** (0.074)	0.198** (0.087)	0.170** (0.086)	0.182* (0.105)
Government*Primary	0.079**	0.08	0.029	0.034

	(0.037)	(0.050)	(0.048)	(0.054)
Government*Basic vocational	0.275***	0.305***	0.436***	0.357***
	-0.046	-0.047	-0.046	-0.061
Government*Upper secondary	0.197***	0.245***	0.192***	0.145***
	(0.024)	(0.034)	(0.034)	(0.034)
Government*Secondary Vocational	0.342***	0.383***	0.504***	0.389***
	(0.040)	(0.053)	(0.053)	(0.058)
Government*Professional Vocational	0.417***	0.531***	0.457***	0.597***
	(0.022)	(0.033)	(0.032)	(0.029)
Government*College	0.481***	0.562***	0.515***	0.464***
	(0.029)	(0.041)	(0.041)	(0.037)
Government*University	0.353***	0.441***	0.454***	0.506***
	(0.021)	(0.029)	(0.029)	(0.026)
PSU*No Schooling	0.117*	0.102**	0.117*	0.184**
	(0.066)	(0.050)	(0.061)	(0.087)
PSU*Primary	0.05	-0.036	0.086**	0.021
	(0.044)	(0.051)	(0.038)	(0.050)
PSU*Basic vocational	0.145***	0.221***	0.324***	0.327***
	(0.049)	(0.051)	(0.044)	(0.055)
PSU*Upper secondary	0.171***	0.165***	0.163***	0.118***
	(0.032)	(0.040)	(0.042)	(0.042)
PSU*Secondary Vocational	0.266***	0.300***	0.309***	0.285***
	(0.035)	(0.042)	(0.044)	(0.050)
PSU*Professional Vocational	0.349***	0.384***	0.448***	0.435***
	(0.028)	(0.034)	(0.031)	(0.033)

PSU*College	0.415*** (0.029)	0.430*** (0.033)	0.581*** (0.031)	0.584*** (0.033)
PSU*University	0.173*** (0.027)	0.160*** (0.031)	0.298*** (0.029)	0.295*** (0.031)
SOE*No Schooling	0.053 (0.062)	0.110*** (0.042)	0.121*** (0.042)	-0.035 (0.058)
SOE*Primary	0.000 (0.027)	0.090*** (0.029)	0.004 (0.032)	0.059* (0.032)
SOE*Basic vocational	-0.015 (0.022)	0.049* (0.025)	0.048** (0.024)	0.03 (0.025)
SOE*Upper secondary	-0.025 (0.017)	0.023 (0.023)	0.005 (0.024)	0.037 (0.023)
SOE*Secondary Vocational	0.037 (0.023)	0.145*** (0.027)	0.126*** (0.025)	0.209*** (0.026)
SOE*Professional Vocational	-0.052** (0.021)	0.107*** (0.028)	0.057** (0.026)	0.073*** (0.024)
SOE*College	-0.041 (0.029)	0.141*** (0.035)	0.021 (0.029)	0.084** (0.033)
SOE*University	-0.062*** (0.016)	0.029 (0.023)	0.031 (0.022)	0.067*** (0.021)
Female	-0.154*** (0.003)	-0.143*** (0.004)	-0.142*** (0.003)	-0.126*** (0.004)
Rural	-0.063*** (0.003)	-0.081*** (0.003)	-0.086*** (0.003)	-0.098*** (0.003)
Ethnic minority	-0.065*** (0.005)	-0.056*** (0.007)	-0.066*** (0.006)	-0.072*** (0.006)
Northern midland & mountainous areas	-0.055*** (0.005)	-0.045*** (0.006)	0.003 (0.005)	-0.001 (0.006)

Northern and Coastal				
Central	-0.062*** (0.004)	-0.085*** (0.005)	-0.068*** (0.005)	-0.079*** (0.005)
Central Highland	0.017*** (0.005)	0.005 (0.008)	-0.003 (0.008)	-0.063*** (0.008)
South Eastern	0.131*** (0.003)	0.186*** (0.005)	0.157*** (0.004)	0.160*** (0.005)
Mekong delta	-0.073*** (0.004)	-0.057*** (0.006)	-0.075*** (0.006)	-0.084*** (0.006)
Age	0.012*** (0.003)	-0.002 (0.005)	0.000 (0.005)	0.007 (0.005)
Age2	0.024** (0.010)	0.065*** (0.013)	0.063*** (0.013)	0.039*** (0.013)
Age3	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Constant	2.198*** (0.039)	2.533*** (0.054)	2.577*** (0.052)	2.638*** (0.055)
N	228,665	142,709	143,660	144,069
R-sq	0.35	0.36	0.41	0.37
adj. R-sq	0.35	0.36	0.41	0.37
AIC	262,989	174,836	157,372	181,971
BIC	263,475	175,300	157,837	182,436
F	1,321	792	980	874

Source: Analysis of 2011-2014 Labor Force Surveys

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1