DETERMINANTS OF WAGES IN THE ENTERPRISE SECTOR IN VIETNAM

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ABSTRACT

The development of enterprise sector in Vietnam leads to the formation of labor market for this sector with more jobs created and increasingly higher wages for workers. The purpose of this study is to assess the determinants of wages in the enterprise sector and withdraw policy implications for a sustainable increase in workers' income in this sector. The empirical study is conducted at the local level with all 63 provinces nationwide in the period from 2008 to 2015. The results reveal that labor productivity, quality of labor, number of enterprises, the share of large enterprises over total number of enterprises, business profits and economic growth have positive effects on wages as increases in these factors lead to higher wages. Meanwhile, increase in the size of labor force puts downward pressure on wages. The finding also provides strong evidence that the labor market in the enterprise sector in Vietnam is highly competitive when labor wages fluctuate according to the forces of market supply and demand.

Keywords: Wage determinants, competitive labor market. Vietnam's enterprise sector

1. Introduction

Enterprise sector takes an important position in an economy as it is a key sector that creates the economy' output, generates employment and income for workers and is a main source of tax contribution to the government. In Vietnam, the enterprise sector is considered as a leader for economic growth since it is more productive than other sectors especially the informal sector which still takes a large part in the economy. Recognize of this, the government pays a great attention to the development of the enterprise sector. Perfection of law and legal system such as Corporate and Private Enterprise Laws 1990 to Enterprise Laws 2005, together with series of reforms and policies toward creating an open and supportive business environment has opened up a boom period of development for the enterprise sector. Since 2000, Vietnam economy has witnessed a remarkable growth in the enterprise sector in terms of the number of operating enterprises as well as the size of output generated in this sector.

The rise of the enterprise sector leads to the development of labor market for this sector. As the sector grows, more employment is created to meet the pressure of growing demand for jobs from the labor force. Beside, workers in this sector have experienced increasing wages over years and enjoy higher income compared to the national average income. Is the labor market in Vietnam's enterprise sector competitive? What factors determine the workers' income in this sector? These questions are of main interest in this study. We aim to find out factors affecting labor wages in the enterprise sector and withdraw policy implications for a sustainable increase in workers' income in this sector.

The rest of the paper is organized as followed: the next section provides the theoretical views on determination of wages, followed by the facts on development of the enterprise sector, employment and labor wages in Vietnam. The empirical study on

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the determinants of wages in the enterprise sector comes next and finally is the conclusion.

2. Theoretical views on determination of wages

According to classical labor economic theory, in a competitive labor market, the labor wage is determined at the equilibrium of market supply of and demand for labor. Supply of labor is determined mainly by population, the size of the labor force and demographic factors. Demand for labor comes from the business' desires to hire workers for the purpose of producing and trading goods and services. The fluctuations in supply and demand in the labor market have a direct impact on wage rates. As the size of the workforce increases, the number of people seeking for jobs increases which raises labor supply and thus puts pressure downward on the labor market wage. In contrast, the higher the demand for goods and services and the more the business sector grows, the higher the demand for labor and thus having a positive impact on the labor wage.

On the supply side wage determinants theory (Balcar, 2012), worker heterogeneity explains the differences of wages. Workers are different by their level of education, experience, particular skills, psychological traits, beauty and health, individual's household characteristics and social, cultural and economic background. Human capital is considered as one of the most salient features that differentiates workers. Human capital consists of a set of particular knowledge or skills. The formation of human capital is from education prior to entry on the job market as well as on-the-job training or labor market experience. Numerous empirical studies show large returns to education and work experience. For example, returns to a year of schooling are estimated to be positive and large in most countries, ranging from 2% to 20% around the world (Montenegro and Patrinos, 2014). Moreover, the earnings premium associated with college has risen substantially in the last decades. According to a study by the Georgetown University Center on Education and the Workforce, in 1999 an adult with a bachelor's degree earned 75 percent more over a lifetime than a high school graduate and by 2009 the premium had grown to 84 percent (Oreopoulos and Petronijevic, 2013).

On the demand side, under basic microeconomic theory, firms maximize their profits. Profit maximizing behavior determines the optimal level of employment at which marginal revenue product of labor is equal to the wage. A right measurement for marginal revenue product of labor is labor productivity which then plays a major role in wage determination. The relationship between labor productivity and wages is clear. When labor productivity increases, marginal revenue product of labor will exceed the existing wage which makes firm's marginal profit to be positive and they sees a chance to increase their total profit by hiring additional workers. As a result, market demand for labor increases and so does the labor wage. Empirical studies support for a positive relationship between productivity and wages. Mortensen (2003) showed that productivity differences between firms are closely linked to wage dispersion. Afrooz et al (2010) observed that there is a positive relation between productivity and real wages. Studies of Lawrence (2016) and Stansbury and Summers (2017) provided compelling evidence that productivity and wages are strong positively related.

Business profitability is considered as one of wage determinants. An "efficiency wage" theory views a positive impact of profit-sharing on wages (Delahaie and Duhautois, 2015). Under this view, profit-sharing has a

positive effect on employees' involvement and the retention of the most qualified workers and thus profit-sharing induces an increase in total compensation. As well presented in Van Biesebroeck (2014), several researches have showed that higher profits at the industry level are systematically related to higher pay for workers. Kalecki (1938) is one of the first studies on the impact of market power in the final goods industry on the distribution of rents and wages. In later work, Kalecki looked for empirical validation of his theory and showed that high-profit industries also tended to be high-wage ones. Krueger and Summers (1988) have presented evidence for a positive association between wages and industry profits for equally-skilled workers. They concluded in favor of a causal explanation that industry rents lead to higher wages. Gibbons and Katz (1992) revisited the same question both theoretically and empirically. These studies suggest that rent sharing is an important contributing factor to explain wage levels.

In their studies, Goschin (2014) and Balcar and Gottvald (2016) claimed that business cycle has impact on wage determination. During economic expansion, higher production allows business firms to demand for more workers and leads to a rise on wages. However, in an economic downturn, contracting production would reduce workload and less demand for workers causes a decline in wages.

3. Facts on the development of the enterprise sector, employment and labor wages in Vietnam

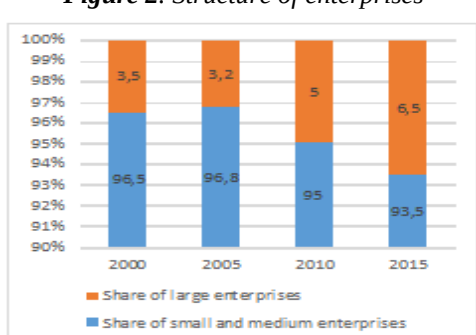
The development of the enterprise sector in the economy is recognized in terms of growth in number of enterprises as well as in the size of business capital and output. During the 2000-2015 period, the number of operating enterprises increases at an annual average rate of 17.2% brought the total number of enterprises in the whole country 10.5 times higher in 2015 than in 2000. Similarly, the sector's output and capital stock (as measured in base year 2010 price level) also increase impressively with an annual rate of 12.6% and 13.9% respectively. In 2015, the business net turnover is 5.7 times and business capital is 6.8 times higher than that of 2000.

***Figure 1**. The development of enterprise sector*

Sources: Author's own calculation from data of the Statistical Yearbook of GSO Vietnam

By type of enterprises, small and medium enterprises dominate large enterprises. In the structure of enterprises, the proportion of small and medium enterprises (by size of capital) on the total number of enterprises is about 90%. However, there has been a shift in the structure of enterprises with the proportion of small and medium enterprises tends to decrease from 96.5% in 2000 to 95% in 2010 and 93.5% in 2015, but these changes are very small and progress slowly.

***Figure 2**. Structure of enterprises*

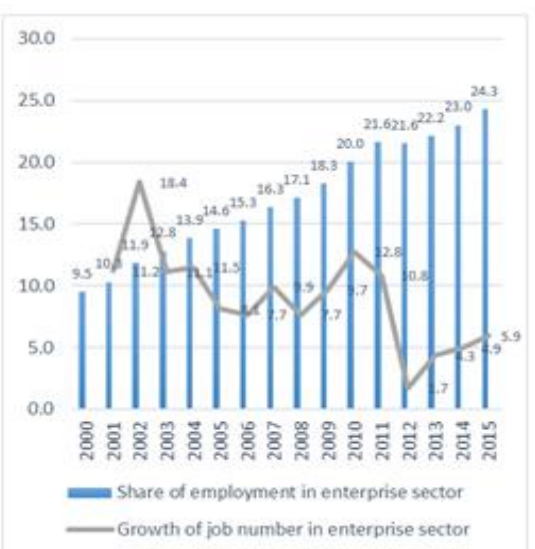


Sources: Author's own calculation from data of the Statistical Yearbook of GSO Vietnam

The development of the enterprise sector has a positive impact on the creation of jobs. During this period, the number of employment in the whole country as calculated by labor with the age of 15 or over are working increases at the average annual rate of 2.4%. Meanwhile, the employment of the enterprise sector increases at the average annual rate of 9.1%, much higher than the growth of employment in the country. In the employment structure of the economy, although the employment share of the enterprise sector is still low, but it has increased steadily over the years, from 9.5% in 2000 to 14.6% in 2005 and 20% in 2010 and reaches at 24.3% in 2015. This shows that enterprises are becoming more and more important in creating jobs for workers in the economy.

Figure 3. *Share and growth of jobs in the enterprise sector*

Unit: %

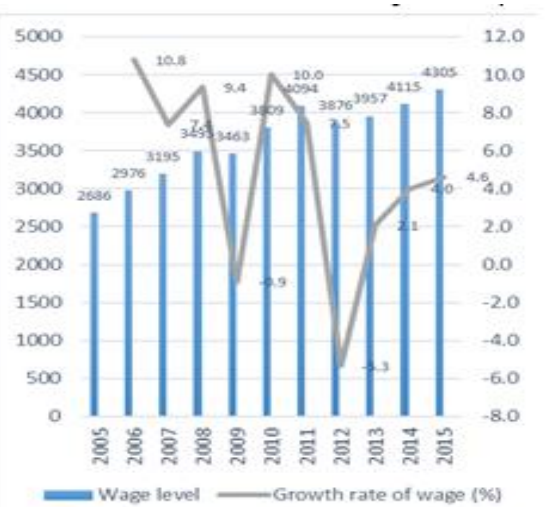


Sources: Author's own calculation from data of the Statistical Yearbook of GSO Vietnam

Along with the increase in employment, the average income of workers in the enterprise sector is continuously increasing. According to the data from General Statistics Office, in the period from 2005 to 2015, the wage level of workers in the enterprise sector in Vietnam experiences growth at the average annual rate of nearly 5%. In 2015, the worker's wage (as measured in base year 2010 price level) is 1.6 times higher than in 2005.

Figure 4*. The labor wage in the enterprise sector*

Unit: thousands of VND/month (in base year 2010 price level)



Sources: Author's own calculation from data of the Statistical Yearbook of GSO Vietnam

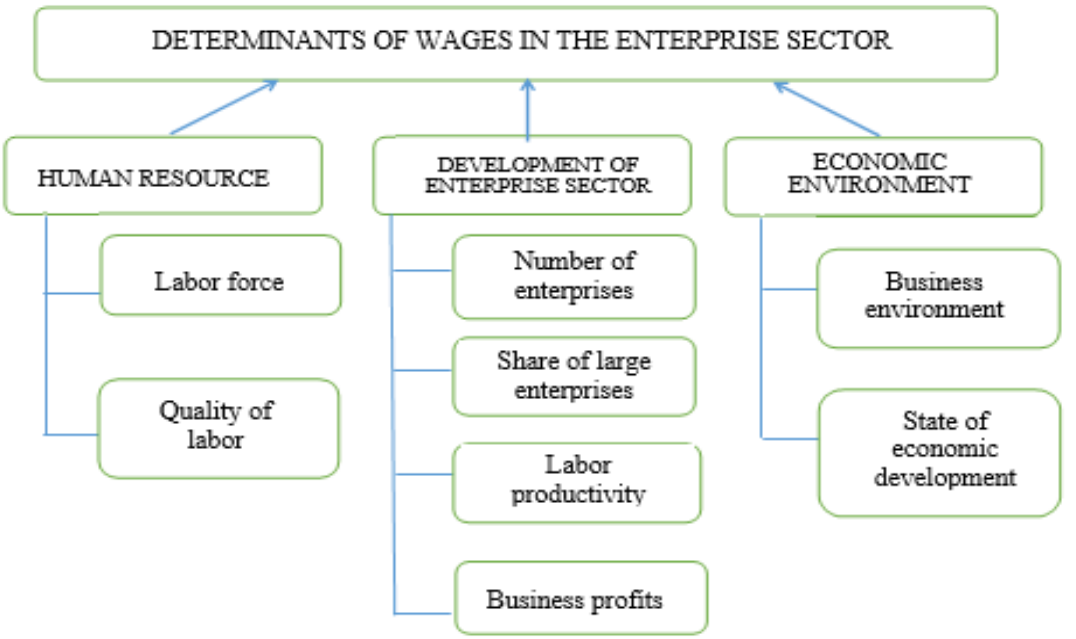
4. Empirical study on determinants of wages in the enterprise sector in Vietnam

The study assessing the determinants of wages in the enterprise sector in Vietnam is conducted at the local level with all 63 provinces nationwide.

4.1. Model specification, data and methodology

The research model identifies three groups of economic factors that determine the level of wages, including human resources (comprise of the size of the labor force as well as the quality of labor), the development of enterprise sector (include the number of active operating enterprises, the proportion of large enterprises over the total number of enterprises, labor productivity and business profits) and economic environment (include business environment and state of economic development).

Figure 5. *Conceptual framework on determinants of wages*



Source: Author's own view on determinants of wages

Dependent variable: Labor wages

LNW indicates the natural logarithm of worker's average income per month in each year.

Explanatory variables

Size of the labor force (LNLF): the natural logarithm of the total number of people who are in the labor force each year.

Quality of labor (QL): reflects human capital or the knowledge and skills of workers. It is measured as the ratio of total employees who are trained workers. According to the General Statistics Office, trained workers are those who have studied and graduated from a technical and professional training school or facility of the national education system from 3 months or more (diploma or certificate of recognition of training results).

Number of enterprises (LNNE): the natural logarithm of the number of operating enterprises each year.

Share of large enterprises (SLE): the proportion of large enterprises over the total number of enterprises, where total number of enterprises refers to all small, medium and large enterprises.

Labor productivity (LNLP): the natural logarithm of the average labor output where the average labor output is calculated by the production and business net turnover of enterprises divided by the total number of employees.

Business profits (PRF): the profit rate per net turnover as measured by the ratio of total profit before tax and total net turnover. It reflects how much profit generated by an enterprise from its revenue.

Business environment (PCI): is measured by the Provincial Competitiveness Index. PCI is designed to assess the quality of governance, capacity and willingness of provincial governments to develop business-friendly regulatory environment for business sector development. Essentially, PCI is built on a weighting of 10 sub-indexes, including entry cost for new firms, land access and security of tenure, transparency, time costs of

regulatory compliance, informal charges, proactivity of provincial leadership, policy bias toward state owned enterprises, business support services, labor training and legal institutions. Each sub-index is constructed with the maximum score of 100 and a higher score reflects a better quality of local economic governance in creating a healthy and favorable business environment.

State of economic development (EGR) is measured by the annual economic growth rate of the country which reflects how well the economy is performing.

Mathematically, the regression model is presented as follows

$$LNW_{i,t} = c + \beta_1 LNLF_{i,t} + \beta_2 QL_{i,t} + \beta_3 LNNE_{i,t} + \beta_4 SLE_{i,t} + \beta_5 LNLP_{i,t} + \beta_6 PRF_{i,t} + \beta_7 PCI_{i,t} + \beta_8 EGR_t + e_{i,t} \quad (1)$$

where subscript i denotes province and t denotes time in year.

The study is conducted at the local level with all 63 provinces nationwide in the period from 2008 to 2015. Data availability determined the chosen period of study. All data for the dependent and explanatory variables are taken from the General Statistics Office of Vietnam's publications. In particular, data for the labor wages as measured by the average compensation per month of employees, size of the labor force as measured by the total number of people at 15 years of age and above, quality of labor as measured by the percentage of trained employed population at 15 years of age and above, number of enterprises, labor productivity as measured by the ratio of net turnover from business and number of employees, business profits as measured by the profit rate per net turnover and state of economic development as measured by the annual growth rate of real GDP are taken from Statistical Yearbook of Vietnam. To adjust for the effect of inflation in each year, data on wages and labor productivity is taken in base year price level 2010. To do it, data in each year is divided by that year's GDP deflator, with GDP deflator in 2010 equals 100. Data for share of large enterprises as measured by the proportion of large enterprises over the number of large, medium and small enterprises by size of capital resources is taken from Development of Vietnam Enterprises in the period of 2006-2011 and 2010-2014 and Vietnam Enterprises: the first 15 years of the century (2000-2014). Data for business environment as measured by the scores of PCI is taken from the Provincial Competitiveness Index published by the Vietnam Chamber of Commerce and Industry (VCCI).

The data for 63 provinces is collected in the same period of time that provides a strongly balanced panel data. Panel data analysis requires controlling for time invariant and unobserved factors affecting the independent variables. Since each province is specific on its own then the unobserved factors are referred to as province heterogeneity. Regression analysis on panel data is conducted with STATA statistical software program. A fixed effect model and a random effect model are tried and the Hausman test reveals that the fixed effect model is more useful. Diagnostic tests show that the panel data has a contemporaneous correlation, heteroskedasticity, and serial correlation. With the presence of these problems in data, Torres-Reyna (2007) suggests to use the generalized least square method. Test for multicollinearity shows there is no correlation between explanatory variables.

4.2. Results and discussion

The regression results are presented in Table 1.

***Table 1**. Determinants of wages in the enterprise sector in Vietnam*

Dependent variable: *LNW*: *Labor wages*

Explanatory variables	Coefficient	P-value
LNLF: Size of labor force	-0.119	0.000
QL: Quality of labor	0.009	0.000
LNNE: Number of enterprises	0.077	0.000
SLE: Share of large enterprises	0.039	0.000
LNLP: Labor productivity	0.110	0.000
PRF: Business profits	0.012	0.000
PCI: Business environment	-0.0006	0.687
EGR: State of economic development	0.049	0.000
CONSTANT	7.704	0.000

Number of observations: 504

Source: Author's own calculation (see Appendix)

As can be seen from Table 1, except for business environment, all economic factors in the study have an impact on labor wages with the statistical significance level of 1%. The size of the labor force has a negative impact on wages. In another hand, quality of labor, the number of enterprises, the share of large enterprises, labor productivity, business profits and state of economic development have positive effects on wages.

Firstly, for the group of human resources, quantity and quality of labor have different effects on wages. Increase in the size of labor force decreases wages while improvement in quality of labor force has a positive effect on wages. As workers become more skills, their earnings increase.

Secondly, for the group of enterprise sector development, among the factors which have a positive effect on wages, labor productivity shows to have the strongest impact. This suggests the rise of labor wages in the enterprise sector is largely due to the increase in labor productivity. Next, a positive relationship between business profits and wages implies that an increase in profits leads to a higher wage. When businesses are more profitable, benefits are also shared to employees. This is an evidence of profit-sharing on wages. Profit-sharing would induce higher employee cooperation and worker efforts which in turns results in a better performance outcome for business firms.

One interesting result is the positive effect of the share of large enterprises on wages. Wages tend to increase when the percentage of large enterprises over the total number of enterprises increases. In Vietnam, in the structure of enterprises, small and medium enterprises occupy a majority while large enterprises have a modest proportion. However, the structure of enterprises is slowly shifting in the direction of increasing the proportion of large enterprises and thus in favor of wage rising.

Thirdly, state of economic development shows to have a direct impact on the labor market. High economic growth means an increase in the size of production in the economy and thus encourages business firms to hire more workers. Increases in demand for labor lead to higher wages for workers. Interestingly, when observing the growth of wages in the period from 2005 to 2015 (Figure 4) one can see that there are 2 years in 2009 and 2012 which have negative growth rates of wages causing the real wage in the year to be lower than in the previous year. These are also the two years the economy experienced a lower economic growth rate compared to the previous year. In 2009, the economic growth rate is 5.4%, down from 5.66% in 2008 and again in 2012 the economic growth rate is 5.25%, which is lower than 6.24% in 2011. For the rest time in this period, in each year the economy enjoys a higher growth rate than the previous

year and correspondingly the real wages in those years have increased.

The finding of this study also provides strong evidence that the labor market in the enterprise sector in Vietnam is highly competitive when labor wages fluctuate according to the forces of market supply and demand. On the supply side, an increase in the size of the workforce increases the supply of labor and puts downward pressure on the market wage. On the demand side, the development of the business sector in terms of increase in the number of enterprises induces firms to hire more labor. In addition, increase in labor productivity and improvement in labor quality raise marginal revenue product of labor which in turns increases demand for labor and has a positive effect on the market wage.

5. Conclusion

To assess the determinants of wages in the enterprise sector in Vietnam, the empirical study is conducted at the local level with all 63 provinces nationwide in the period from 2008 to 2015. We find that labor productivity, quality of labor, number of enterprises, the share of large enterprises over total number of enterprises, business profits and economic growth are factors that have positive effects on wages whereas the size of labor force has a negative effect. Several policy implications can be withdrawn from these findings. First, it is the important role of labor productivity since increases in labor productivity largely account for rises in wages. Supportive policies toward labor productivity such as increase in the employment of physical capital that workers work with or the use of advanced technology not only increase the profitability opportunity for enterprises but also have a good impact on labor wages. Second, more skilled workers earn higher wages. This calls for the need of workers to get higher education and training to acquire better skills and earn higher lifetime income. Beside the application of new technology would make some skills be obsolescent and thus require workers to constantly update their skills and knowledge. On the worker side, higher workers' skills increase labor productivity. A sustainable increase in wages can be achieved when labor productivity is continuously rising.

Third, profit-sharing on wages indicates a close link or a win-win situation for enterprises and workers. Since workers see when the company they work with is more profitable they can get a share of it in the form of higher wages, they become more bounded with the company. In this case, as workers are more concerned with the company' performance they put more working efforts and are more responsible for their work task which results in much better outcome. Indeed, enterprises would consider profit-sharing on wages as an effective way to achieve their efficient economic performance.

Fourth, a positive relation between the share of large enterprises and wages would suggest that the more number of large enterprises in the economy, the higher the labor wages or large enterprises tend to pay higher wages than small and medium enterprises do. The rising emergence of large enterprises in this sector is clearly a good sign for worker's wages. Supportive government policies for the development of large enterprises are thus preferred.

Finally, economic growth has a positive effect on wages. To increase the people's living standard, middle income countries like Vietnam need to achieve high and sustainable economic growth and set it a major economic goal for the nation.

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