



LABOR PRODUCTIVITY AND WAGE GROWTH IN VIET NAM

By

**VIET NAM INSTITUTE FOR ECONOMIC AND POLICY RESEARCH
JAPAN INTERNATIONAL COOPERATION AGENCY**

Hanoi, September 2017



WORKSHOP AGENDA

“Labor Productivity and Wage Growth in Viet Nam”

Time: 08:30 – 12:00, Wednesday, 13 September 2017

Venue: Song Hong Ballroom, Sheraton Hotel, 11 Xuan Dieu Road, Hanoi

Time	Agenda
08:30 – 09:00	Registration
09:00 – 09:05	Introduction
09:05 – 09:15	Opening Remarks <i>Mr. Fujita Yasuo</i> <i>Chief Representative, JICA Viet Nam Office</i>
09:15 – 10:15	Labor Productivity and Wage Growth in Viet Nam - <i>Dr. Nguyen Duc Thanh, President of Viet Nam Institute for Economic and Policy Research (VEPR)</i> - <i>Dr. Futoshi Yamauchi, Senior Economist, World Bank</i> - <i>Dr. Nguyen Tien Dung, Senior Team member</i>
10:15 – 10:30	Tea break
10:30 – 11:00	Comments from the experts - <i>Prof. Kenichi Ohno, National Graduate Institute for Policy Studies (GRIPS), Japan</i> - <i>Dr. Ho Dinh Bao, National Economics University</i> - <i>Dr. Luong Minh Huan, Vice Rector, Enterprise Development Institute under Viet Nam Chamber of Commerce and Industry (VCCI)</i>
11:00 – 11:50	Open discussion with all participants
11:50 – 12:00	Closing remarks <i>Dr. Nguyen Duc Thanh, VEPR</i>
12:00 – 13:30	Lunch at the hotel



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ABOUT VEPR

VIET NAM INSTITUTE FOR ECONOMIC AND POLICY (VEPR), formerly known as Viet Nam Centre for Economic and Policy Research, was established on July 7, 2008 as a research centre under the University of Economics and Business of Viet Nam National University, Ha Noi (VNU). VEPR has legal status and is headquartered at the University of Economics and Business, Xuan Thuy, Cau Giay, Ha Noi.

VEPR considers its primary mission to be carrying out economic and policy research to assist in improving the decision-making quality of policy-making institutions, enterprises, and interest groups by providing insights into the social, political, and economic factors that drive the economic affairs of Viet Nam and the region. The main activities of VEPR include (i) providing quantitative and qualitative analysis of changing economic conditions in Viet Nam and assessing their impacts on various interest groups throughout the country, (ii) organizing policy dialogues among policy-makers, entrepreneurs, and other stakeholders to improve solutions to emerging issues, and (iii) conducting advanced training courses in economics, finance and policy analysis regularly and upon request.

CONTRIBUTORS

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ACKNOWLEDGEMENTS

The report “Labor Productivity and Wage Growth in Viet Nam” is conducted by a team of experts and researchers from Viet Nam Institute for Economic and Policy Research (VEPR), University of Economics and Business, Viet Nam National University (Ha Noi, Viet Nam), the World Bank, National Graduate Institute for Policy Studies (Tokyo, Japan), and Japan International Cooperation Agency (JICA). The project is funded by JICA and is accomplished with the support from many individuals and organizations.

One of the most important contributions is attributed to the advisors and commentators, who have participated in various discussions, workshops, and seminars during different stages of the Report. We would like to thank Dr. Vu Minh Khuong (National University of Singapore), Dr. Ho Dinh Bao (National Economics University), Mr. Pham Minh Thai and Mr. Vu Hoang Dat (Viet Nam Academy of Social Sciences), as well as representatives of various organizations for their insightful comments and precious feedback for the Report.

We would also like to extend our appreciation to JICA Viet Nam for their generous support and cooperation for this Report, especially Mr. Kitamura Shu, Ms. Hoang Thi Tuat.

In addition, we would like to send our sincere thanks to government agencies and organizations at the central and local level, who have provided us great assistance during our field trip, as well as 17 firms participating in the in-depth interviews.

Last but not least, this Report would not be possible without the unwavering support, dedication and persistence of VEPR colleagues and staff.

Despite our efforts, we understand that there may be limitations and even errors in the Report. We sincerely hope to receive comments and contributions from the readers.

Ha Noi, 13 September 2017

On behalf of the Authors

Dr. Nguyen Duc Thanh

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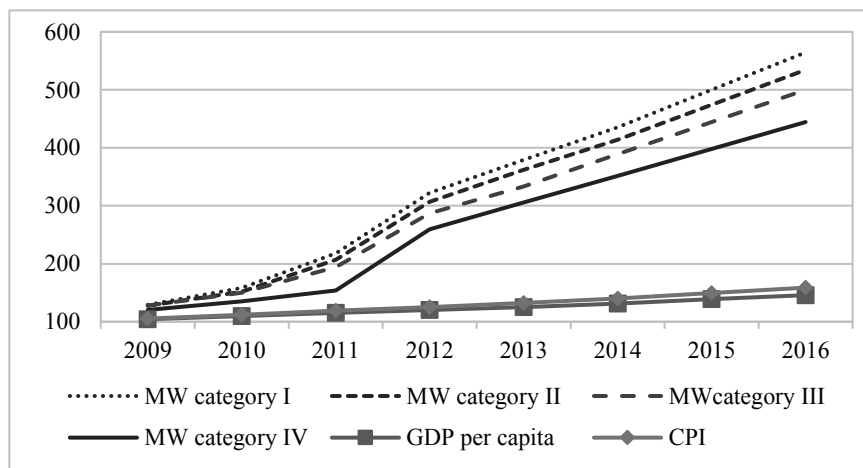
EXECUTIVE SUMMARY

Over the past decade, Viet Nam has witnessed rapid minimum wage increases. While the labor productivity level remains low compared to other neighboring countries, the dramatic increase of minimum wage and wage has posed a concern over the competitiveness of firms in particular and the country in general. This study assesses the current labor market legislations with a focus on minimum wage policy in Viet Nam, the relationship between growth rates of minimum wage, average wage, and labor productivity; as well as the impacts of continuous adjustments in minimum wage on the economy.

RECENT TRENDS OF MINIMUM WAGE, AVERAGE WAGE, AND LABOR PRODUCTIVITY IN VIET NAM

Viet Nam has witnessed rapid increases in minimum wage over the past years. Minimum wage grew at double-digit annual rates during the 2007-2015 period, far exceeding that of per-capita GDP and CPI.

Growth of minimum wage, CPI, and per-capita GDP in Viet Nam, 2008-2016 (2008=100)



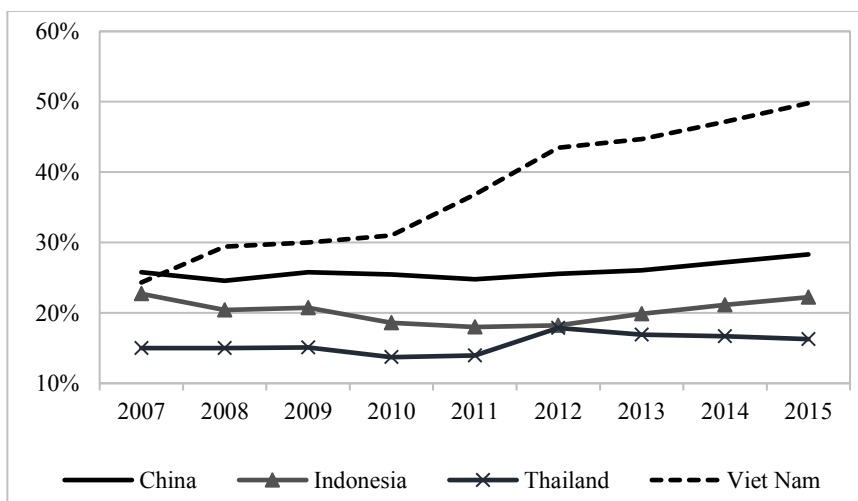
Notes: Before October 2011, only regional minimum wage levels applicable to domestic enterprises are presented.

Source: The Authors

During the same period, growth rates of minimum wage were also higher than that of labor productivity. Specifically, the ratio of minimum wage to labor productivity experienced rapid increase, from 25% in 2007 to 50% in 2015. This pattern cannot be observed in such other countries in the region as China, Indonesia, and Thailand. The gap between minimum wage growth and labor productivity growth in Viet Nam has widened faster than in other countries considered.

LABOR PRODUCTIVITY AND WAGE GROWTH IN VIET NAM

Ratio of minimum wage to labor productivity in Viet Nam and other countries, 2007-2015



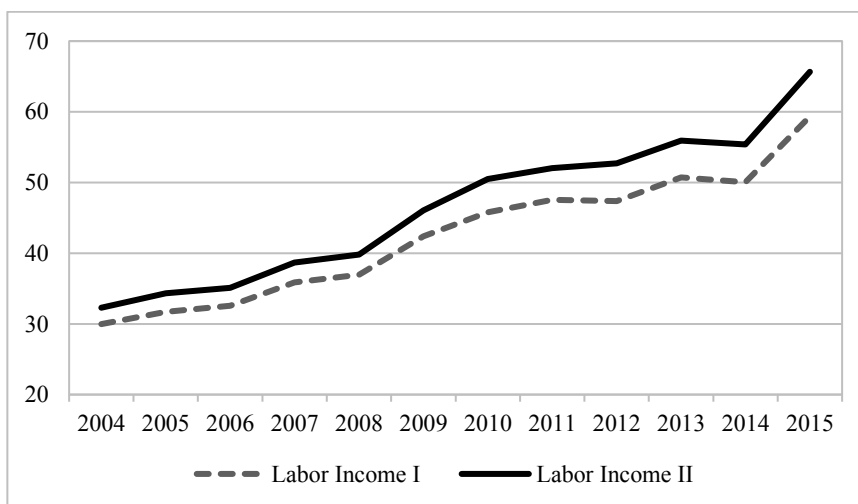
Notes: Minimum wage before 2005 applicable to Beijing (China); Minimum wage rate in Bangkok (Thailand); Average minimum wage rate (Indonesia); Minimum wage rate of category I, for domestic enterprises (Viet Nam). Productivity is calculated as GDP/Labor force.

Source: The Authors' Calculation using Data from WDI and CEIC Database

From 2007 to 2015, Viet Nam has experienced 1.5-fold increase in average wage (2-fold increase for the 2004-2015 period). Average wage increased rapidly until 2010 but significantly slowed down during the 2010-2014 period, partly reflecting the slowdown in economic growth. The payments on social security, which consists of social insurance, health insurance and unemployment insurance have also increased over time.

Annual real wage in Viet Nam, 2004-2015

(Wage deflated by GDP deflator, 2010 as base year, Unit: Mil. VND)



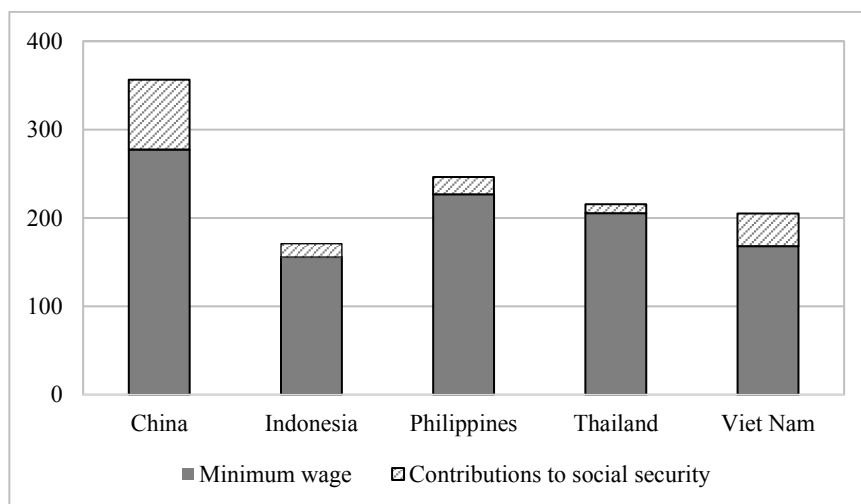
Notes: Labor income I consists of wages, bonus and subsidies. Labor incomes II consists of all components of labor income I and payments on social insurance, health insurance and unemployment insurance

Source: The Authors' Calculation from Viet Nam Enterprise Surveys

LABOR PRODUCTIVITY AND WAGE GROWTH IN VIET NAM

In 2017, the minimum cost per worker, which is measured as total of minimum wage and contributions to social security (including social insurance, health insurance, and unemployment insurance), incurred by enterprises in Viet Nam reached to the level slightly less than Thailand and higher than Indonesia. This rather high level of contributions to social security in Viet Nam, in case little value is assigned to interventions financed by such contributions, tends to create a “tax wedge” between the labor cost to the employer and the take-home pay of employee.

Minimum Wage and Contributions to Social Security in Viet Nam and Other Countries in 2017 (USD)



Notes: Minimum wage rates used are the Beijing's level (China), average level (Indonesia), non-agriculture level (Philippines), Bangkok's level (Thailand), and geographic region category I (Viet Nam). Contributions to social insurance, health insurance, and unemployment insurance incurred by the employer are assumed to calculate based on the minimum wage level. Percentage of contributions can be found in Appendix 5.

Source: The Authors' Calculation using Data from WDI and CEIC Database

Regarding the relationship between average wage and labor productivity, during the 2004-2015 period, labor productivity growth in Viet Nam is significant (4.4%); however, the average wage growth rates (5.8%) outpaced the productivity growth rate. For the first sub-period of 2004-2009, wage grew less than labor productivity but opposite trend has been observed since 2009. In more recent years, for the whole economy, wage growth closely followed productivity growth.

The misalignment between labor productivity growth with minimum wage growth, and average wage growth, if continues, would gradually but seriously break the balance of the economy in many aspects, especially hindering the accumulation of human capital, reducing the motivation of investors, profits of enterprises, and the competitiveness of the economy.

IMPACTS OF MINIMUM WAGE GROWTH

In general, an increase in minimum wage results in increase in average wages and reduction in employment and profits. On average, a 1% increase in minimum wage may result in 0.32% increase in average wage, 0.13% decrease in employment. Regarding profit rates, measured as profits over revenue, 100% increase in minimum wage will be likely to lead to 2.3 percentage point decrease in profit rates. The effects, however, vary considerably across economic sectors, reflecting the differences in the extent of labor market regulations and enterprises' technological and financial abilities to deal with rising labor costs.

In terms of average wages, although an increase in minimum wage has statistical and negative effects on enterprises of all economic sectors, the effects are relatively low in private sector compared to those in state and FDI sectors.

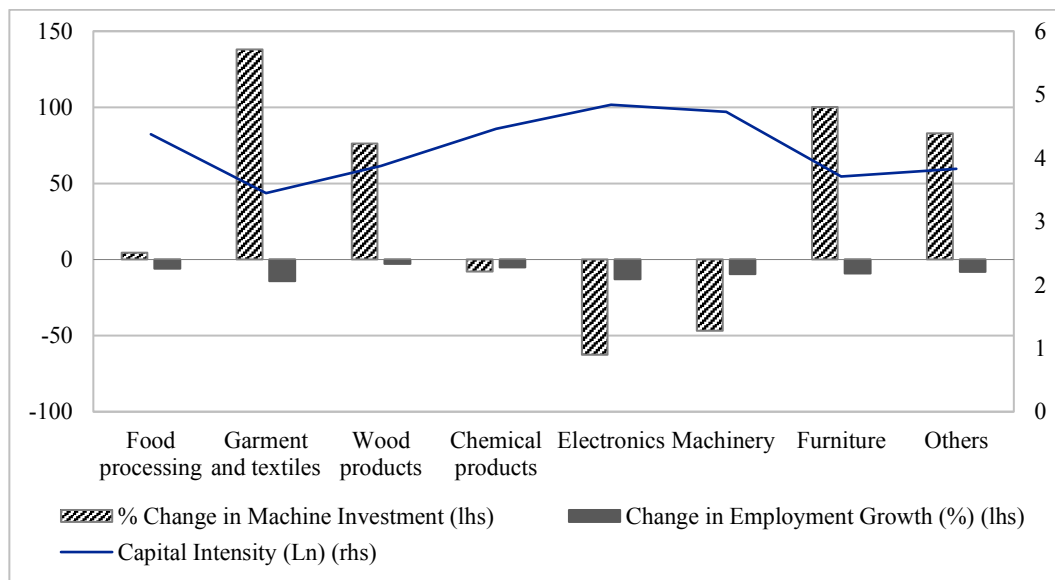
In terms of employment, significant effects are found in state sector (1% increase in minimum wage results in 0.25% decrease in employment) but modest, insignificant effects are found in private and FDI sectors. It should be noted that, in private sector, significant employment effects is found among firms with higher level of compliance with labor regulations (in this case, contribution to social insurance), whereas firms not paying insurance experienced insignificant impacts . This implies that those enterprises which strictly obey the regulations on wage and social security contributions tend to suffer more from minimum wage increase, laying off employment. On the other hand, those enterprises that less comply with the regulations are also less likely to comply with minimum wage policies, and hence not resulting in employment reduction.

In terms of profits, negative and significant impacts are found in private sector. Specifically, 100% increase in minimum wage tends to lower the profit rates by 3.25 percentage points. A rapid and continuous increase in minimum wage, therefore, might slow down the capital accumulation of private sector, thereby slowing down its growth.

In addition to the aggregate-level analysis, analysis at the firm level with a focus on private and FDI firms in manufacturing industries has shown consistent findings. Specifically, an increase in minimum wage reduces employment growth in all industries. The reduction of employment growth is larger among relatively large enterprises (number of workers). Moreover, when minimum wage increases, labor-intensive industries such as garment and textiles, wood products and furniture producers tend to introduce machines to replace labor, whereas such capital-intensive industries as electronics and machinery manufacturing reduce machine investments. This shows that firms are more likely to expand their production and investment in machinery (instead of labor) in the Vietnamese industries that have static comparative advantage; whereas for some other important industries, firms tend not to do so because of concerns over the possible rise of labor costs in the coming time, thus losing comparative advantage.

Impacts on Employment Growth and Machine Investments by Manufacturing Industries

Assumption: 30% change in minimum wage



Note: Capital intensity measured as book value of fixed assets divided by number of workers.

Source: The Authors' Estimation from Viet Nam Enterprise Surveys

MINIMUM WAGE AND EARNING DISTRIBUTION IN VIET NAM

There are a large number of individuals (around half of the total sample) who do not have labor contracts, hence are not covered by minimum wage regulations.

Examining all wage workers (not government officials or workers at state non-productive organizations) aged 15 and above, who have worked and been paid in the last 30 days prior to the time of each survey (Vietnam Household Living Standards Survey and Labor Force Survey), research has shown that a large number of workers classified as working in “Household and individual sector” and “Household of individual production and trade sector” earn less than minimum wage level in 2014.

Proportion of workers earning more than minimum wage appears to be high at least among workers under labor contract in the private, state and FDI sectors (formal sector). This proportion is even higher among firms in private, state, FDI sectors in manufacturing industries. In addition, the proportion to be paid less than minimum wage level tends to increase over time, most probably due to hike in minimum wage in 2012 and afterwards.

LABOR PRODUCTIVITY AND WAGE GROWTH IN VIET NAM

Proportion of wage workers earning less than minimum wage level, 2010-2014 (%)

	2010 (VHLSS)	2012 (VHLSS)	2014 (VHLSS)	2014 (LFS)
<i>By type of ownership</i>				
Household and individual	21	28	33	25
Household of individual production and trade	9	15	18	15
Collective and cooperative	15	38	35	30
Private-owned	3	5	7	4
Without contract	7	12	18	11
With contract	2	3	3	3
State-owned enterprise				4
Foreign-owned	3	3	2	1
Without contract	12	9	13	11
With contract	2	3	2	1

Notes: All wage workers aged 15 and above, who have worked and been paid in the last 30 days prior to the time of each survey are the samples. Government officials, workers in state non-productive organizations and those who are paid with state budget are excluded. In Viet Nam Household Living Standard Surveys (VHLSS), workers in state-run sector are excluded from the sample since the survey does not distinguish between state-owned non-productive organization and state-owned enterprise.

Source: The Authors' Estimation from Viet Nam Household Living Standards Survey 2010-2012-2014, and Labor Force Survey 2014

Further analysis on the probability of an individual to earn less than minimum wage level indicates that in general, younger (or older), relatively less educated, out of contract and/or social insurance workers are likely to be paid below the minimum wage. Moreover, the current minimum wage system does not adequately cover disadvantaged and vulnerable groups of the society. Therefore, using minimum wage as a social protection policy (assuring the minimum living standards for workers and reducing poverty) may not work effectively.

MINIMUM WAGE POLICY TARGET AND ADJUSTMENT MECHANISM

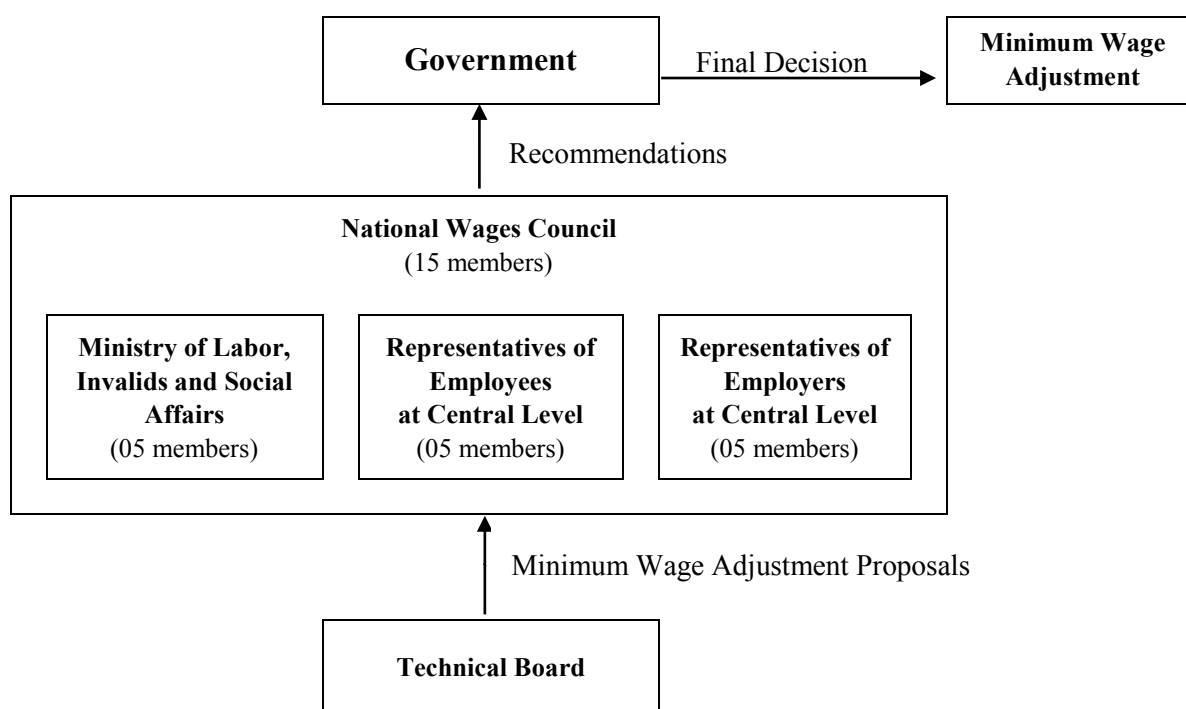
Minimum wage satisfies the lowest level to be paid to worker who performs the simplest task under normal condition, ensuring the minimum needs of the workers and their families (Article 91, Labor Code 2012). The minimum wage is applied to employees working in enterprises, cooperatives, farms, households, individuals and institutions and organizations that use workers under labor contract in accordance with the provisions of the Labor Code. Also stated in Article 91, minimum wage is determined on the monthly, daily, or hourly basis. In practice, however,

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monthly minimum wage has been almost exclusively focused. The nonexistence of daily and hourly minimum wage levels makes it difficult to ensure the compliance of minimum wage, especially for part-time and underemployed workers.

Regarding the minimum wage adjustment, government make decisions on adjusting minimum wage level based on the basic needs of workers and their families, socio-economic conditions, wage on labor market, and the recommendation made by the National Wages Council. The current Council consists of three parties: the Ministry of Labor, Invalids and Social Affairs, the Representatives of Employees and the Representatives of Employers at central level, with no participation of independent academia or scholar in the Council.

Minimum Wage Adjustment Procedure in Viet Nam



Source: The Authors' Compilation from Decree No. 49/2013/NĐ-CP

In reality, minimum wage adjustment rate is calculated by technical members of the Council based on different factors, including CPI, GDP growth rate, “basic needs” of workers, and other factors (e.g. labor productivity, firms’ ability to pay, unemployment, number of companies which have dissolved, etc.) as well as an “extra increase”. It is, however, questionable to determine the basic needs of workers as well as identify the essential criteria for minimum wage adjustment. For a worker who does the most basic work in normal working conditions, the basic needs consist of demand for food and foodstuff, demand for non-food, and demand for supporting child.

The current method of calculating basic needs based on a basket of 45 commodities remain controversial because many so-called temptation goods such as alcohol, coffee are

included. In reality, a qualitative approach, which is mainly to compensate for inflation, is often used by technical board members to adjust the minimum wage level every year.

POLICY IMPLICATIONS

First and foremost, minimum wage adjustments should be in line with labor productivity growth. Minimum wage has been increasing at such a high level over the past decade. The increase of minimum wage will be likely to have greater negative effect on employment, and more importantly, to erode the Vietnamese firms' competitiveness if minimum wage increase continues in such a manner decided being apart from increase in productivity.

Second, minimum wage does not appear to be effective if it is constructed as a social protection policy. As the current minimum wage system does not adequately cover those without labor contracts, and those are more vulnerable and disadvantaged, it is worth considering complementary policies to function as social security for those who are not covered by minimum wage policy.

Third, as the minimum wages is currently regulated on the monthly basis, it is suggested to shift to hourly minimum wage system. This is to ensure that those people working on hourly or daily basis can fully enjoy their benefits, while allowing employers more flexible in employing workers.

Fourth, minimum wage should be adjusted on a rule-based approach and therefore more transparently and predictably. Criteria for setting and adjusting minimum wage should be clearly specified (including the basket of commodities on which basic needs is calculated); and the adjustments should be properly scheduled in accordance with economic growth, inflation, and business situations. The rule-based approach will help increase the predictability and transparency, helping avoid discretionary adjustment of minimum wage, which makes investors and workers concerned.

Fifth, independent academia should also participate in the National Wage Council. Independent members should have strong knowledge of macroeconomics, labor economics and are able to examine the impact of minimum wages on employment, earnings and income before/after the adjustment. The inclusion of academia in the wage council can be observed in many other countries in the region, for example, Japan, Indonesia, and Malaysia.

Sixth, estimation of minimum wage impacts should be conducted more frequently with more availability of updated data. It is important to monitor the impact of minimum wage increase on the economy to prevent minimum wage increase resulting in undesirable consequences such as shift of workers from formal to informal sector. The availability of the updated data (labor force surveys and enterprise surveys) are important for setting minimum

LABOR PRODUCTIVITY AND WAGE GROWTH IN VIET NAM

wage and monitoring the effect of minimum wage. The government can also develop more tool to effectively monitor the productivity in different industries and sectors.

In a nutshell, we believe that it is now the time for Viet Nam to have a body that monitors and ensures boosting the productivity of the whole economy. Minimum wage is a tool to support less advantageous workers, but the fundamental problem indeed lies in labor productivity in general. Without a steady improvement in productivity, the effort of increasing minimum wage will be more likely to gradually diminish the competitiveness of the economy, causing greater unemployment. Therefore, it is essential for the Government to give top priority in promoting productivity in the medium and long term. It might be necessary to set up a special agency dedicating to this mission, from changing the mindset to studying, developing and implementing productivity-boosting model of Japan, Singapore, Israel, etc. This should be done in both the public and private sectors. For the public sector, speeding up the productivity improvement is also in tandem with the reform of government administration in particular and the building of facilitating government in general.

Labor Productivity and Wage Growth in Viet Nam

Ha Noi, September 13, 2017

What motivates us?

1. Rapid minimum wage growth: 2-digit annual rates

- During last 10 years between 2007-2016, minimum wage increased 11-70% every year (varying across regions), 20% on average.

2. Nominal wage growth is faster than labor productivity growth

- 2004-2015: 4.90-fold increase in nominal wage;
- 2004-2015: 4.05-fold increase in nominal labor productivity.

⇒ Key Questions:

- What are the impacts of recent wage increases on Vietnamese economy, especially for employment and investment of enterprises?
- Is minimum wage setting mechanism relevant and predictable?
- Is policy target of minimum wage well achieved ?



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1. Recent Trends of Minimum Wages, Average Wage and Labor Productivity in Viet Nam
2. Impacts of Minimum Wage Adjustments on the Economy
 - 2.1 Aggregate-Level Analysis
 - 2.2 Firm-Level Analysis
3. Minimum Wage and Earning Distribution in Viet Nam
4. Minimum Wage Policy Target and Adjustment Mechanism
5. Policy Recommendations
6. Appendices



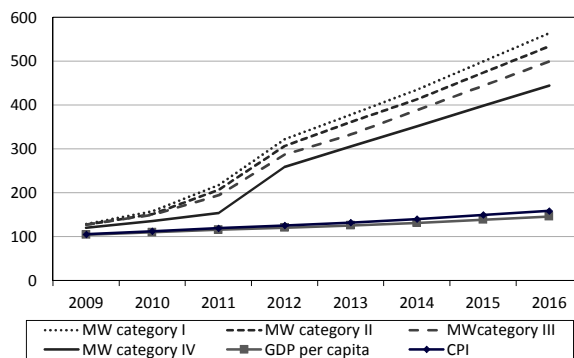
1. Recent Trends of Minimum Wages, Average Wage, and Labor Productivity

Minimum Wage Growth Trend

Regional Minimum Wage Growth

- Growth rate of minimum wage was much higher than that of CPI and GDP per capita.

Growth Pattern of Regional Minimum Wages, CPI, and per-capita GDP, 2009-2016 (2008=100)

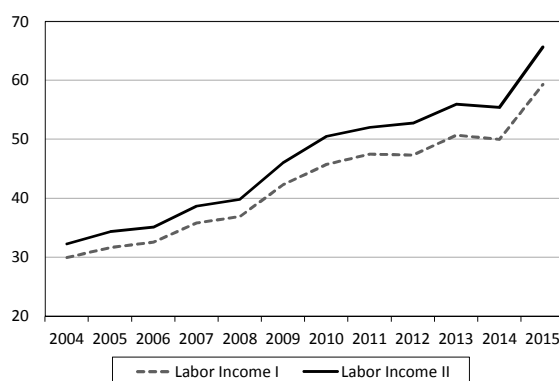


Notes: Before October 2011, regional minimum wage applicable to domestic enterprises.

Average Real Wage Increase

- Average real wage doubled during the 2004-2015 period.
- Increasing payments on social insurance, health insurance, and unemployment insurance.

Annual Real Wage, 2004-2015
(deflated by GDP deflator, 2010 as base year, million VND)



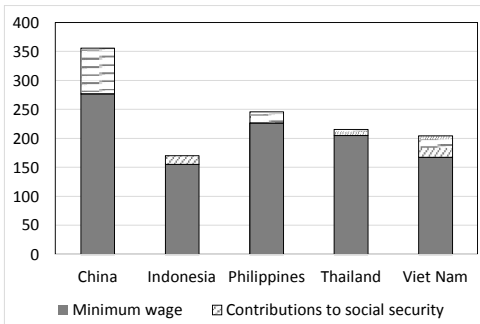
Labor income I consists of wages, bonus and subsidies.
Labor incomes II consists of all components of labor income I and payments on social insurance, health insurance and unemployment insurance.



Minimum Wage and Contributions to Social Security in Viet Nam and neighboring countries

- Minimum cost per worker (total minimum wage and contributions to social security) incurred by enterprises reached to the level slightly less than Thailand and higher than Indonesia.
- Contributions to Social Security (social, health, unemployment insurance) in Viet Nam is rather big, which tends to create “tax wedge” between employers and employees.

Minimum Wage and Contributions to Social Security in Viet Nam and Other Countries in 2017 (USD)



Notes: Minimum wage rates used are the Beijing's level (China), average level (Indonesia), non-agriculture level (Philippines), Bangkok's level (Thailand), and geographic region category I (Viet Nam). Contributions to social insurance, health insurance, and unemployment insurance incurred by the employer are assumed to calculate based on the minimum wage level. Percentage of contributions can be found in Appendix 5.

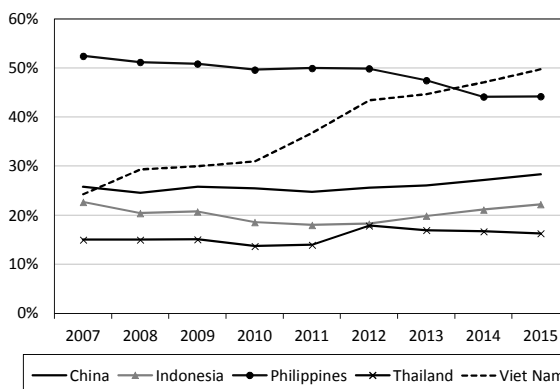
Source: The Authors' Calculation using Data from WDI and CEIC Database 7



Minimum Wage and Productivity Growth International Comparison

- Rapid increase in ratio of minimum wage to labor productivity: from 25% in 2007 to 50% in 2015.
- Labor productivity in this comparison is measured as GDP/total number of workers.

Ratio of Minimum Wage to Labor Productivity, 2007-2015



Notes: ^a Minimum wage before 2005 applicable to Beijing. ^b Monthly minimum wage computed from hourly minimum wage (8 hours x 23 days); ^c Minimum wage rate applicable to Non-Agricultural; ^d Minimum wage rate in Bangkok; ^e Minimum wage rate of category I, for domestic firms. Productivity is calculated as GDP/Labor force.

Source: The Authors' Calculation using Data from WDI and CEIC Database 8

Average Wage and Productivity Growth International Comparison

- Productivity growth in Vietnam is significant (4.4%).
- However, the average wage growth rates (5.8%) outpaced the productivity growth rate.
- Calculation using Vietnam Enterprise Surveys show that during the 2004-2009 period, wage grew less than labor productivity but wage growth exceeded productivity growth since 2009.

**Wage and Productivity Growth
in Viet Nam and Asian Countries 2004-2015**
(Average annual real wage growth deflated by the CPI, %)

Country	Productivity Growth Rates	Average Wage Growth Rates
China	9.1	8.8
Indonesia	3.6	2.6
Malaysia	2.1	2.5
Philippines	2.6	0.4
Singapore	1.8	1.2
Thailand	2.7	3.5
Viet Nam	4.4	5.8

Notes: Monthly earning is in 2014 for Thailand and 2015 for other countries.

Source: The Authors' Calculation from International Labor Organization (ILO) Database

2.1 Impacts of Minimum Wage: Aggregate-Level Analysis



Impacts of Minimum Wage Increase Aggregate-Level

- **Analysis:** This section analyzes impacts of minimum wage increase on average wage, employment and profit. The analysis includes impacts on overall economy as well as impacts on each economic sector (ownership of enterprises).
- **Data:** Viet Nam Enterprise Surveys 2004-2015.
 - Aggregated firm-level data by districts, industries, and economic sectors in accordance with the minimum wage setting rules.
 - ✓ 10 industries and 3 economic sectors are classified.
 - ✓ Only firms with no less than 10 employees are included in the sample.
 - Data aggregation helps mitigate the measurement problems in micro dataset and enables us to set up a comprehensive multi-year data for the 2004-2015 period.
- **Estimation Model:** See Appendix 2.



Results on Average Wage, Employment, and Profits

○ Estimation Results:

Generally, minimum wage increases result in:

- **Increase in average wages**
 - 1% increase in minimum wage
 - ⇒ 0.32% increase in Average Wages.
- **Reduction in employment**
 - 1% increase in minimum wage
 - ⇒ 0.13% decrease in Employment.
- **Reduction in profit rates**
 - 100% increase in minimum wage
 - ⇒ 2.3 percentage-point decrease in Profit rates (Profits/Revenue).

Impacts of Minimum Wage (GMM Estimations)

	All Enterprises
Impacts on Average Wages	0.32*** (0.04)
Impacts on Employment	-0.13*** (0.04)
Impacts on Profits	-2.30*** (0.74)
Number of observations	31905

Notes: (i) Statistical significance at the 1%, 5%, and 10% levels indicated by ***, **, and *, respectively;
(ii) Robust standard errors in parentheses;
(iii) Year fixed effects and time trends are included in all estimations, but not reported

Source: The Authors' Estimation from Enterprise Surveys



Results by Economic Sectors (Ownership)

○ Estimation Results:

- The impacts vary considerably between economic sectors.
- ✓ **Average wage:** All statistically significant and negative. Relatively low impacts on firms in private sector compared to state and FDI sectors.
- ✓ **Employment:** Significant negative impacts in state sector (1% increase in MW ⇒ 0.25% decrease in Employment), but minimal and insignificant impacts in FDI and private sector.
- ✓ **Profits:** Negative, significant impact in private sector (100% increase in MW ⇒ 3.25 percentage points decrease in Profit rates (Profits/Revenue))

Impacts of Minimum Wage by Economic Sectors (GMM Estimations)

	State Enterprises	Private Enterprises	FDI Enterprises
Average Wages	0.41*** (0.10)	0.32*** (0.05)	0.44** (0.22)
Employment	-0.25*** (0.09)	-0.06 (0.05)	0.04 (0.16)
Profits	-1.43 (1.52)	-3.25*** (0.92)	-3.55 (3.69)

Notes: (i) Statistical significance at the 1%, 5%, and 10% levels indicated by ***, **, and *, respectively;
(ii) Robust standard errors in parentheses;
(iii) Year fixed effects and time trends are included in all estimations, but not reported

Source: The Authors' Estimation from Enterprise Surveys

Different Results on Private Firms
Complied firms are more negatively affected

○ Estimation Results:

In private sector:

- **Average wage:**
 - ✓ For Impact on firms that pay social insurance (higher level of compliance with labor regulations), 1% increase in minimum wage ⇒ 0.4% increase in Average Wage. The impact is as large as firms in State (0.41%) and FDI sector (0.44%).
 - ✓ Smaller impact on firms that do not pay social insurance (0.18%).
- **Employments:**
 - ✓ Negative, significant impacts on firms paying social insurance in private sector.
 - 1% increase in minimum wage ⇒ 0.18% decrease in employment.
 - ✓ Insignificant impacts on firms NOT paying insurance.
 - ⇒ Employments of enterprises with high compliance tend to shrink.

Impacts of Minimum Wage on Private Enterprises with Different Degrees of Compliance with Labor Regulations (GMM Estimations)

	Firms that pay social insurance	Firms that do not pay social insurance
Average Wages	0.40*** (0.07)	0.18*** (0.06)
Employment	-0.18** (0.07)	0.11 (0.08)
Observations	13921	15116

Notes: (i) Statistical significance at the 1%, 5%, and 10% levels indicated by ***, **, and *, respectively;
(ii) Robust standard errors in parentheses;
(iii) Year fixed effects and time trends are included in all estimations, but not reported

Source: The Authors' Estimation for Enterprise Surveys

2.2 Impacts of Minimum Wage: Firm-Level Analysis

Data Description (1) of Firm-Level Analysis

- **Focus:** This section analyzes impact of minimum wage increase on (i) employment growth and (ii) machine investments (mechanization) at firm level.
- **Data:** multiple-year data of domestic private and FDI firms in manufacturing industries from Enterprise Surveys 2008-2015.
- Firms are different by firm size and capital (labor) intensity.

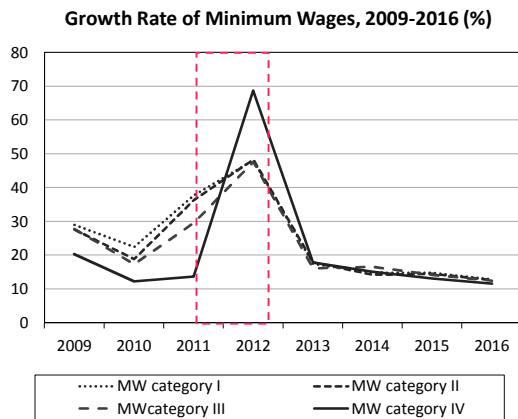
- **Simulations by industry.**

Size Distribution, 2008-2015 (%)

	Firm size	2008	2009	2010	2011	2012	2013	2014	2015
• The enterprise surveys cover all size of the firms. A large proportion of the sample is small and medium firms.	Less than 5	8.5	8.7	10.2	12.9	15.7	16.6	17.5	18.1
	5 to 9	22.7	24.2	21.7	19.8	19.1	18.1	17.7	16.6
	10 to 24	24.6	24.0	22.8	23.1	22.2	21.8	21.3	20.8
	25 to 49	13.0	12.8	13.1	13.1	12.9	12.1	12.6	12.3
• Firms with less than 50 workers account for 60% of the sample.	50 to 99	10.2	9.8	10.1	10.1	9.5	9.8	9.4	9.9
	100 to 300	11.8	11.6	12.3	11.7	11.2	11.7	11.2	11.6
	300 to 999	6.3	6.3	6.9	6.4	6.4	6.5	6.9	7.2
	1000 and above	2.8	2.6	2.9	3.0	3.0	3.4	3.5	3.6

Minimum Wage Hike in 2012

- MW drastically increased in the end of 2011 (October).
 - Unification of two minimum wage systems for domestic and FDI firms.
 - Rate of change was significantly larger than those experienced before and after the period.
- The MW hike experienced in 2011-2012 provides a good empirical setting to estimate the impact of minimum wage changes on firm decisions.



Notes: Before October 2011, only regional minimum wage levels applicable to domestic enterprises are presented.

Source: The Authors

Results on Employment by Firm Size

○ Empirical Results

- The reduction of employment growth (%) is larger among relatively large firms in terms of number of workers.
- Given firm of 100 workers
 - 1% increase in minimum wage ⇒ 0.2% decrease in employment growth.
- Given firms of 50 workers
 - 1% increase in minimum wage ⇒ 0.1% decrease in employment growth.

	Impacts on Employment Growth		
	2011-12		
	(1)	(2)	(3)
Minimum wage growth (A)	-0.008 (0.117)	0.028 (0.118)	0.436** (0.219)
Log of initial number of workers (B)		-0.094*** (0.007)	-0.038 (0.025)
Interaction (A*B)			-0.142** (0.060)
Constant	-0.039 (0.058)	0.174*** (0.058)	0.013 (0.094)
Province dummies	Yes	Yes	Yes
Ownership type dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	16,321	16,321	16,321
R-squared	0.013	0.049	0.049

Notes: (1) Statistical significance at the 1%, 5%, and 10% levels indicated by ***, **, and *, respectively

Source: The Authors' Estimation from Enterprise Surveys



Results on Machine Investment by Firm's Labor Intensity

o Empirical Results

- Labor intensive companies invest more than capital intensive companies in case of MW increase.
- Given a garment firm with capital intensity of 50 (e.g. book value of fixed assets is 6,300 mil. VND, number of workers is 125)
 - 1% increase in minimum wage
 - ⇒ 2.4% increase in investment.
- Given an electronics firm with capital intensity of 125 (e.g. book value of fixed assets is 22,000 mil. VND, number of workers is 175)
 - 1% increase in minimum wage
 - ⇒ 2% decrease in investment.

Impacts on Machine Investment (log values)

	2011-12		
	(1)	(2)	(3)
Minimum wage growth (A)	1.70 (3.63)	1.41 (3.62)	21.14*** (5.89)
Log of Initial Capital/Labor (C)		0.48*** (0.10)	2.38*** (0.47)
Interaction (A*C)			-4.80*** (1.17)
Province dummies	Yes	Yes	Yes
Ownership type dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	14,238	14,238	14,238
Uncensored Observations	2432	2432	2432

Notes: (i) Statistical significance at the 1%, 5%, and 10% levels indicated by ***, **, and *, respectively

Source: The Authors' Estimation from Enterprise Surveys

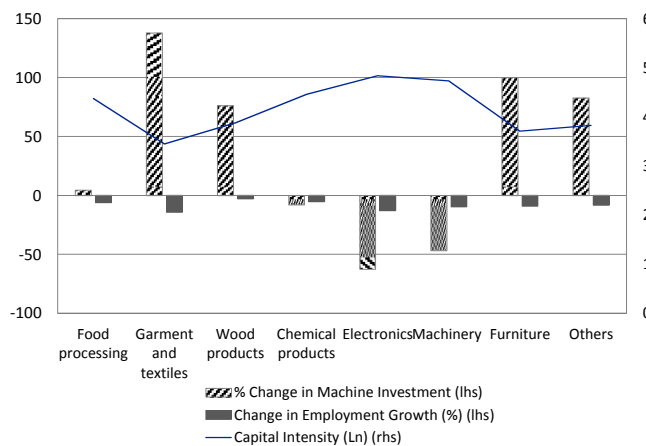


Labor Intensity of Industries and Impact on Employment and Machine Investment (by Sector)

When MW increases:

- Labor intensive industries tend to introduce machines to replace labor.
 - ✓ garment and textile, wood products, and furniture producers.
- Capital intensive industries tend to reduce machine investments.
 - ✓ electronics (including computer) and machinery.

Impacts on Employment Growth and Machine Investments
Assumption: 30% change in minimum wage



Note: Capital intensity measured as book value of fixed assets divided by number of workers.

Source: The Authors' Estimation from Enterprise Surveys

3. Minimum Wage and Earning Distribution in Viet Nam

Minimum Wage Coverage

- This Chapter examined the actual coverage of minimum wage and earning distribution.
- **Data:** Vietnam Household Living Standards Survey (VHLSS) and Labor Force Survey (LFS)
- There are a large number of individuals, around a half of total sample, who do not have labor contracts. Those are not covered by minimum wage regulations.
- **Note:**
 - All wage workers aged 15 and above, who have worked and been paid in the last 30 days prior to the time of each survey are the samples
 - Government officials, workers in state non-productive organizations are excluded.
 - In Viet Nam Household Living Standard Surveys (VHLSS), workers in state-run sector are excluded from the sample since the survey does not distinguish between state-owned non-productive organization and state-owned enterprise.

Distribution of Ownership Types in the Total Sample, 2014 (%)

	2014 (VHLSS)	2014 (LFS)
Total	100	100
Household and individual	24	28
Without contract	24	28
With contract	0	0
Household of individual production	29	19
Without contract	28	18
With contract	1	1
Collective and cooperative	1	1
Without contract	1	0
With contract	1	0
Private-owned	33	30
Without contract	8	5
With contract	24	25
State-owned		9
Without contract		0
With contract		9
Foreign-owned	13	14
Without contract	1	0
With contract	12	13

Source: The Authors' calculation **22**



Proportion of Workers Earning less than Minimum Wage

- Large number of workers classified as “Household and Individual” and “Household of individual production and trade” earn less than minimum wage level (33% and 18% respectively in 2014).
- Proportion of workers earning more than minimum wage is high among workers under labor contract in the private, state and FDI sectors (formal sector).
- This proportion is even higher among firms in private, state, FDI sectors in manufacturing industries.
- The proportion to be paid less than minimum wage level tends to increase over time, most probably due to hike in minimum wage in 2012 and afterwards.

	Proportion of workers earning less than minimum wage level, 2010-2014 (%)			
	2010 (VHLSS)	2012 (VHLSS)	2014 (VHLSS)	2014 (LFS)
By type of ownership				
Household and individual	21	28	33	25
Household of individual production and trade	9	15	18	15
Collective and cooperative	15	38	35	30
Private-owned	3	5	7	4
Without contract	7	12	18	11
With contract	2	3	3	3
State-owned enterprise				4
Foreign-owned	3	3	2	1
Without contract	12	9	13	11
With contract	2	3	2	1

Source: The Authors' Estimation from VHLSS 2010-2012-2014, and LFS 2014



Minimum Wage Coverage and Earning Distributions

- In general, younger (or older), relatively less educated, out of contract and/or social insurance workers are likely to be paid below the minimum wage. (See Appendix 4)
- Moreover, current minimum wage system does not adequately cover the more disadvantaged and vulnerable groups of the society.
- Most of private companies, FDI companies, and SOE comply with the regulation.
- Therefore, using minimum wage as a social protection policy (assuring the minimum living standards for workers and reducing poverty) may not work effectively (Chapter 3) while impacting negatively the employment and profit of complied companies in formal sector (Chapter 2).

4. Minimum Wage Policy Target and Adjustment Mechanism

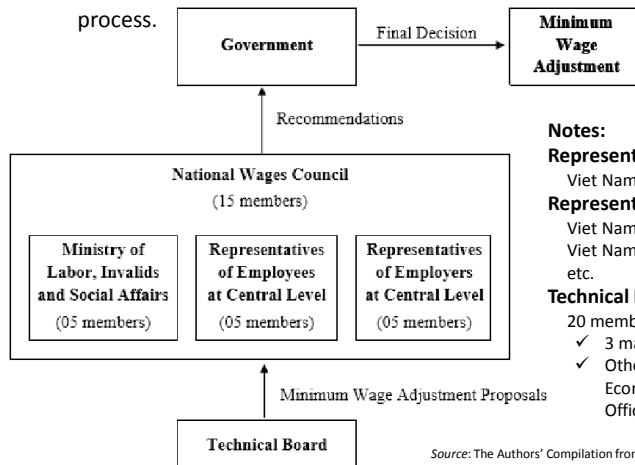
Minimum Wage System in Viet Nam

- Minimum wage:
 - Policy Target:
 - ✓ (Minimum wage satisfies) the lowest level to be paid to worker who performs the simplest task under normal condition, ensuring the minimum needs of the workers and their families (Labor Code 2012).
 - ✓ The minimum wage was set according to the cost of living, ensuring that workers who do the most basic work in normal working conditions can compensate their working capacity, and partly reproducing the labor power, and are used as a basis for calculating the salaries for different types of labor (Labor Code 1994).
 - Coverage:
 - ✓ Contracted workers
 - Should be determined on monthly, daily, hourly basis (Article 91, Labor Code 2012)
 - ✓ In fact, only monthly minimum wage is focused.

Minimum Wage Setting Mechanism in Viet Nam

o Regional minimum wage adjustment:

- Government decides after consultation of National Wages Council (tripartite)
- Absence of Academia which provides the view of third party in high decision making process.



Notes:

Representatives of Employees:

Viet Nam General Confederation of Labor

Representatives of Employers:

Viet Nam Chamber of Commerce and Industry

Viet Nam Cooperative Alliance

etc.

Technical Board:

20 members: representatives of:

✓ 3 main stakeholders in the Wages Council

✓ Other bodies (Central Institute of Economic Management, General Statistics Office of Viet Nam, etc.)

Source: The Authors' Compilation from Decree No. 49/2013/NĐ-CP

Minimum Wage Adjustment Criteria in Viet Nam

o Regional minimum wage adjustment criteria:

Labor Code 2012	In fact	Problems
<p>According to Article 91, minimum wage is adjusted based on:</p> <ul style="list-style-type: none"> - Basic needs of workers and their families - Socio-economic conditions - Wage on labor market - Recommendation made by National Wage Council 	<p>Members of technical board (Wage Council) propose minimum wage levels based on:</p> <ul style="list-style-type: none"> - Basic needs of workers and their families - CPI, GDP growth rate - Others (labor productivity, firms' ability to pay, unemployment, number of companies dissolving, etc.) - Extra increase 	<p>How to measure basic needs?</p> <ul style="list-style-type: none"> - Food and foodstuff (Basket of 45 commodities including temptation goods) - Non-food - Supporting child <p>Which are the essential criteria?</p>

5. Policy Recommendations

Policy Recommendations

- Minimum wage adjustments should be in line with labor productivity growth.
 - Minimum wage has been increasing at such a high level over the past decade. The increase of minimum wage will be likely to have greater negative effect on employment, and more importantly, to erode the Vietnamese firms' competitiveness if minimum wage increase continues in such a manner decided being apart from increase in productivity.
- Minimum wage does not appear to be effective if it is constructed as a social protection policy. Complementary policy should be considered.
 - As the current minimum wage system does not cover those without labor contracts, and those are more vulnerable and disadvantaged. It is worth considering complementary policies to function as social security for those who are not covered by minimum wage policy.



Policy Recommendations

- **Minimum wage should shift to hourly minimum wage system**
 - Minimum wage should shift to hourly minimum wage system. This is to ensure that those people working on hourly or daily basis can fully enjoy their benefits, while allowing employers more flexible in employing workers.
- **Minimum wage should be adjusted on a rule-based approach and therefore more transparently and predictably.**
 - Criteria for setting/adjusting minimum wage should be clearly specified (including the basket of commodities on which basic needs is calculated); the adjustments should be properly scheduled in accordance with the economic growth, inflation, and business situations.
 - The rule-based approach will help increase the predictability and transparency.
- **Independent academia should also participate in the Wage Council.**
 - Independent members should have strong knowledge of macroeconomics, labor economics and are able to examine the impact of minimum wages on employment, earnings and income before/after the adjustment.



Policy Recommendations

- **Estimation of minimum wage impacts should be conducted more frequently with more availability of updated data.**
 - It is important to monitor the impact of minimum wage increase on the economy to prevent minimum wage increase resulting in undesirable consequences such as shift of workers from formal to informal sector.
 - The availability of the updated data (labor force surveys and enterprise surveys) are important for setting minimum wage and monitoring the effect of minimum wage. The government can also develop more tool to effectively monitor the productivity in different industries and sectors.
- **It is essential for the Government to give top priority in promoting productivity in the medium and long term.**
 - Minimum wage is a tool to support less advantageous workers, but the fundamental problem indeed lies in labor productivity in general. Without a steady improvement in productivity, the effort of increasing minimum wage will be more likely to gradually diminish the competitiveness of the economy, causing greater unemployment.

Appendix 1 Labor Productivity Calculation

Labor Productivity

- Definition of Labor Productivity
- Labor productivity is defined as value added per worker. The value added in each industry and economic sector is calculated using the information from the enterprise surveys.
- More specifically, we approximated the value added using the following formula:

$$VA = YL + INS + PRF + DEP_1 - DEP_0$$

VA is value added;

YL is the labor income, consisting of salary, bonus, and subsidies;

INS is the payments on social and health insurance, and unemployment insurance;

PRF is the firms' profits;

DEP₁ and *DEP₀* are the values of accumulated capital depreciation at the end of the period and at the beginning of the period respectively.



Labor Productivity

○ Definition of Labor Productivity

- Two measures of value added are computed using different definitions of profits.
 - ✓ The first measure is the sum of wage incomes, insurance payments, capital depreciation, and the net profits from the sale of goods and services.
 - ✓ The second measure of value added takes into account financial profits and other profits in addition to the net profit from sales.
- The second measure of value added and labor productivity are only used for the purpose of references.
- In a different version, capital depreciation are excluded and value added and labor productivity are estimated using only wage incomes and profits.
 - ✓ Because the exclusion of capital depreciation does not affect the growth of labor productivity in any significant way, we do not report the estimation results with capital depreciation excluded.



Appendix 2 Estimation Models of Minimum Wage Effects



VEPR

Impacts of Minimum Wage Increase

Aggregate-Level

- Data: Viet Nam Enterprise Surveys 2004-2015.
- Estimation Specification:

$$Y_{rit} = \beta_0 + \beta_1 \ln(MW_{rit}) + \gamma \ln(VA_{rit}) + \theta_t + \delta_r + \lambda_i + \mu_{rit}$$

Here:

Y_{rit} is the dependent variable: ln of employment, ln of average wage, and profit rate (measured as profit over revenue)

MW_{rit} is the minimum wage rates applied to regions and economic sectors

VA_{rit} is the value added specified by district, industries, and economic sectors

θ_t , δ_r , and λ_i are the year, district and industry fixed effects

μ_{rit} is the error term

- The equation is estimated under static and dynamic specifications.
- Two techniques: fixed-effects estimator and Arellano-Bond two-step first differenced estimator. (Arellano and Bond, 1991)



VEPR

Appendix 3

Interview Results (Brief Summary)



In-depth Interview Interviewees

- 17 medium and large enterprises (private and FDI) in Ha Noi, Ha Nam, Binh Duong, and Ba Ria – Vung Tau.
- Except for one engineering enterprise, all other firms are exporting labor-intensive firms operating in garment and textiles, and electronic industries.
- These (especially garment and textiles) are often considered to be the most vulnerable to the increase in labor costs.



In-depth Interview Wage Mechanism

- Basic salaries are increased in response to minimum wage adjustments, but transportation and accommodation allowances (as well as other subsidies) remain the same.
- Low-wage workers, who are paid near minimum wage, tend to receive greater wage increases in terms of percentage changes.
- Firms are largely involved in assembling activities and labor costs account for a large proportion in production costs.
- Rising labor costs significantly affect profits in the interviewed firms.



In-depth Interview Response to Minimum Wage Increase

- Firms did not replace contracted workers with non-contracted or seasonal workers to reduce labor costs.
- Investing in machinery and equipment to raise labor productivity.
- Increasing workers' efforts through improved management and rationalization of production lines.
- Reducing non-wage production costs.
- Changing locations, but it is more of a response to the shortage of workers.
- Changing the product composition and moving toward high-value products.



Appendix 4 Logit Analysis on Probability of Earning less than Minimum Wage

Probability of Earning less than Minimum Wage

o Logit Model:

- Dependent variable takes the value of one if wage is below the minimum wage and zero otherwise.
- The sample consists of all laborers who work for wage or salary

Reference Points in Logit Specification

Variable	Omitted case
Gender	Male
Age	30-34 years old
Household member or household head	Household member
Marital status	Single
General education level	No qualification
Vocational training level	No qualification
Employment contract	Having employment contract
Social insurance	Having social insurance
Type of ownership	Private enterprise
Type of industry	Agriculture, forestry, and fishery
Province/City	Ha Noi
Time of survey	January

Probability of Earning less than Minimum Wage

o Logit Model:

	VHLS Year 2010 (1)	VHLS Year 2012 (2)	VHLS Year 2014 (3)	LFS Year 2014 (4)		VHLS Year 2010 (1)	VHLS Year 2012 (2)	VHLS Year 2014 (3)	LFS Year 2014 (4)
Female	0.069***	0.105***	0.097***	0.084***	Vocational training				
Household head	-0.008	-0.002	-0.028**	-0.003	Elementary vocational	-0.052***	-0.040*	-0.063***	-0.085***
Rural area	-0.012	0.009	-0.005	0.007***	Middle vocational	-0.030	-0.021	-0.065*	-0.077***
Employment contract	-0.047***	-0.076***	-0.095***	-0.023***	Professional vocational	-0.015	-0.046	-0.006	-0.077***
Social insurance	-0.095***	-0.092***	-0.146***	-0.098***	College vocational		-0.104***	-0.050	-0.081***
Marital status					Type of ownership				
Married	-0.013	-0.010	-0.053***	-0.019***	Household or individual	0.056***	0.085***	0.072***	0.093***
Widowed	-0.032	-0.010	0.012	-0.021***	Individual production	0.027***	0.053***	0.045***	0.053***
Divorced or Separated	-0.007	0.010	-0.036	-0.014**	Collective/cooperative	0.018	0.305***	0.224***	0.187***
Age group					State-owned				0.057***
15-19 years	0.029*	0.077***	0.049**	0.074***	Foreign-invested	0.029	-0.023	-0.029	-0.017***
20-24 years	0.012	0.013	0.025	0.032***	Control for province	Yes	Yes	Yes	Yes
25-29 years	0.009	-0.012	-0.019	0.007**	Control for industry type	Yes	Yes	Yes	Yes
35-39 years	0.027*	-0.008	0.000	0.006*	Control for survey time	No	No	No	Yes
40-44 years	0.038**	-0.008	0.002	0.006*	Observations	4,356	5,739	5,810	101,771
45-49 years	0.046***	0.012	0.062***	0.028***					
50-54 years	0.054**	0.057***	0.075***	0.035***					
55-59 years	0.100***	0.091***	0.095***	0.058***					
60 years and above	0.120***	0.117***	0.195***	0.110***					
General education level									
Primary school	-0.028**	-0.042***	-0.031**	-0.041***					
Lower-secondary school	-0.029**	-0.041***	-0.072***	-0.065***					
Upper-secondary school	-0.013	-0.038**	-0.059***	-0.071**					
3-year college	-	-0.079**	-0.073**	-0.089***					
4-year college and above	-0.056**	-0.124***	-0.147***	-0.137***					

Notes: Marginal effects reported. Robust standard errors. Statistical significance at the 1%, 5%, and 10% levels indicated by ***, **, and *, respectively.

Source: The Authors' Calculations using VHLS 2010-2012-2014, LFS 2014

Appendix 5

Contributions to Social Security in Vietnam and other countries

Contribution to Social Security in Vietnam and other countries

		Social insurance	Sickness and Maternity	Unemployment	Total
China	Insured person	8%	2%	Up to 0.5%	Up to 10.5%
	Employer	Up to 20%	Up to 7%	1-1.5%	Up to 28.5%
	Total	Up to 28%	Up to 9%	Up to 2%	Up to 39%
Indonesia	Insured person	3%	1%	n/a	4%
	Employer	5.7%	4%	n/a	9.7%
	Total	8.7%	5%	n/a	13.7%
Japan	Insured person	8.9%	5%	0.4%	14.3%
	Employer	8.9%	5%	0.7%	14.6%
	Total	17.8%	10%	1.1%	28.9%
Philippines	Insured person	3.63%	1.25%	n/a	4.88%
	Employer	7.37%	1.25%	n/a	8.62%
	Total	11%	2.5%	n/a	13.5%
Thailand	Insured person	3%	1.5%	0.5%	5%
	Employer	3%	1.5%	0.5%	5%
	Government	1%	1.5%	0.25%	2.75%
	Total	7%	4.5%	1.25%	12.75%
Viet Nam	Insured person	8%	1.5%	1%	10.5%
	Employer	18%	3%	1%	22%
	Total	26%	4.5%	2%	32.5%



THANK YOU

Q&A

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