

# Informal Employment in Vietnam

## Characteristics, Determinants, and the Impacts of Minimum Wage Policy

Nguyen Thanh Tung

Asian Public Policy Program, IPP, Hitotsubashi University

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# Table of Contents

- Issues and Research Questions
- Literature Review
- Framework and Methodology
- Empirical Results
- Conclusion and Policy Recommendation

# Issues and Research Questions

- Pervasive informal employment in Vietnam

*What are the size and characteristics of informal employment?*

- Huge economic welfare gap between formal and informal workers

*What are the determinants of being informal worker?*

- Concerns about the rapid change in minimum wages recently (average of above 20%/year during the period 2009-2016)

*Has the increases in minimum wage led to “informalization”?*

- International Labour Organization (2003) introduced the comprehensive guidelines for defining and measuring the informal employment.
- In Vietnam, due to the lack of data, there were no literature on measuring informal employment before 2007.
  - *First comprehensive effort was made by Cling, Razafindrakoto, and Roubaud (2010).*
  - *International Labour Organization (2018) has estimated the informal employment in Vietnam recently.*
- Logit and probit models have been used regularly to find the determinants of being informal worker (Aikaeli & Mkenda, 2014; Angel-Urdinola & Tanabe, 2012; Lehmann & Zaiceva, 2013).

# Literature Review (cont.)

- While literature on how minimum wage affects total employment has been studied extensively, studies on labor structure (i.e. formal and informal jobs) is rather limited.
- Many studies have been conducted to find the effects of minimum wage on employment in formal and informal sector in Latin America countries (El-Hamidi & Terrell, 2002; Foguel, Ramos, & Carneiro, 2001; Gindling & Terrell, 2007; Maloney & Mendez, 2004) and in Indonesia recently (Comola & De Mello, 2011).
- Several studies focus on actual wage effects in two sectors and found the “lighthouse effect” - minimum wage hike induces workers in informal sectors to ask for higher wages (Cunningham & Kristensen, 2006; Fajnzylber, 2001; Gindling & Terrell, 2005; Lemos, 2004; Maloney & Mendez, 2004).
- In Vietnam, studies have focused on the effects on employment and investment in the formal sector (Nguyen, 2013, 2014; VEPR, 2017)

## However,

- *First*, the concept “informal employment”, which this paper tries to examine, and the concept “employment in informal sector” refer to different aspects of “informalization” issue (International Labour Office, 2013).
- *Second*, study on informal employment as well as the effects of minimum wage on informal employment is very limited in Vietnam.

- To measure the informal employment: **Guideline provided by the ILO in the 17th ICLS**
- To analyze the determinants of being informal worker: **Logit model**
- To evaluate the impacts of minimum wage change on informal employment: **Fixed effects model at district level**
- Database: **Vietnam's Labor Force Surveys from 2013 to 2016**

# Framework and Methodology: 17th ICLS Guidelines

This framework is based on three dimensions of a worker: (i) job formality status, (ii) employment status (job-based concept), and (iii) sector formality status (enterprise-based concept)

## Conceptual Framework For Informal Employment (17th ICLS Guidelines)

Production units by type	Job by status in employment								
	Own account workers		Employers		Contributing family worker	Employees		Members of producers' cooperatives	
	<i>Informal</i>	<i>Formal</i>	<i>Informal</i>	<i>Formal</i>	<i>Informal</i>	<i>Informal</i>	<i>Formal</i>	<i>Informal</i>	<i>Formal</i>
Formal sector enterprises					1	2			
Informal sector enterprises <sup>(a)</sup>	3		4		5	6	7	8	
Household <sup>(b)</sup>	9					10			

(a) As defined by the Fifteenth International Conference of Labour Statisticians (excluding households employing paid domestic workers).

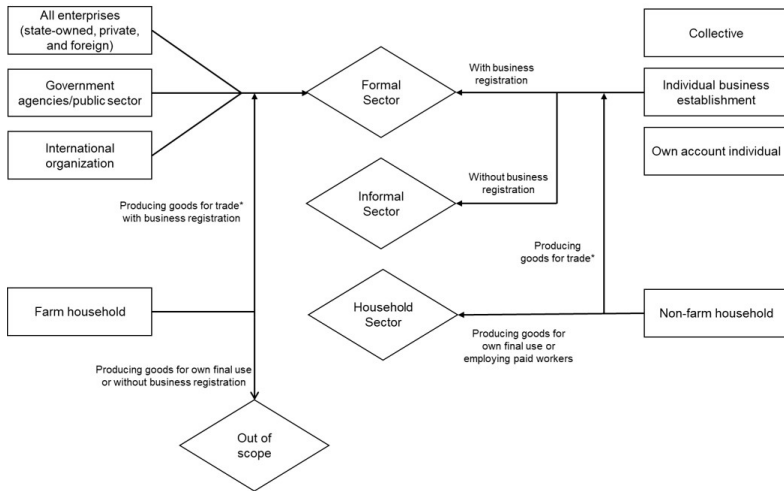
(b) Households producing goods exclusively for their own final use and households employing paid domestic workers.

Note: Cells shaded in dark grey refer to jobs, which, by definition, do not exist in the type of production unit in question. Cells shaded in light grey refer to formal jobs. Un-shaded cells represent the various types of informal jobs

Source: International Labour Organization (2003)



## Categorization of Sector by Type of Production Unit: The Case of Vietnam



Note: \* as defined by the Fifteenth International Conference of Labour Statisticians (excluding households employing paid domestic workers).

Source: Author using ILO framework

- Logit model is employed to investigate the determinants of being an informal worker.

$$P(\text{infemp} = 1|X) = G(\beta_0 + X \times \beta + D \times \delta) \quad (1)$$

- *infemp* is the binary variable that takes value 1 if worker is informal and zero otherwise
- *X* is a set of control variables, including age, education level, region, etc. of worker
- *D* is vector of other dummy variables such as industry, province, and month of interview

- Panel data at district level is used to evaluate the impact of an increase in minimum wage on informal employment
- Model specification:

$$inf_{it} = \beta_1 \times \log(mwage)_{it} + X_{it} \times \delta + a_i + u_{it} \quad (2)$$

- $\log(mwage)_{it}$  is the natural log of minimum wage at district  $i$  in year  $t$ ,
  - $X_{it}$  is a set of control variables, including demographic factors of labor force, at district  $i$  in year  $t$ ,
  - $a_i$  is the district fixed effect, and  $u_{it}$  is the unobserved random error term.
- Choose the appropriate regressor between FE and RE by the Hausman test
  - Test the endogeneity of  $\log(mwage)_{it}$  by using `xtivreg2` package constructed by Baum, Schaffer, and Stillman (2007)

## Vietnam Labor Force Surveys, 2013-2016

	LFS 2013	LFS 2014	LFS 2015	LFS 2016
Number of observation	438,984	437,465	478,276	473,963
Number of farm household worker	204,887	203,260	207,860	200,502
Number of non-farm worker, of which:	234,097	234,205	270,416	273,461
By Type of Production Unit, % (unweighted)				
<i>Formal Sector</i>	61.11	62.58	62.93	63.55
<i>Informal Sector</i>	31.83	30.14	33.78	33.43
<i>Household Sector</i>	7.06	7.29	3.29	3.02
By Job Status, % (unweighted)				
<i>Own account workers</i>	30.60	30.26	26.07	25.52
<i>Employers</i>	4.08	3.70	4.68	4.48
<i>Contributing family worker</i>	7.64	7.59	7.51	7.32
<i>Employees</i>	57.63	58.43	61.70	62.64
<i>Members of producers' cooperatives</i>	0.05	0.02	0.04	0.04

Source: Author's calculation

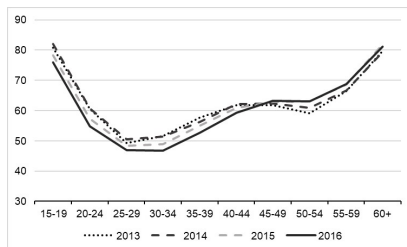
# Empirical Results: Informal Employment in Vietnam

## Informal employment, 2013-2016 (%)

	2013	2014	2015	2016
<b>Total</b>	<b>59.25</b>	<b>59.55</b>	<b>58.34</b>	<b>57.09</b>
<i>By gender</i>				
Male	61.60	61.91	61.61	60.43
Female	56.54	56.81	54.57	53.28
<i>Household head/member</i>				
Household head	59.74	60.24	60.20	59.43
Household member	58.94	59.13	57.19	55.67
<i>Rural/Urban area</i>				
Rural	67.45	67.97	66.62	65.00
Urban	50.07	50.03	49.00	48.17
<i>By marital status</i>				
Single	61.61	62.43	59.59	57.26
Married	57.91	58.02	57.13	56.10
Widowed	74.27	75.84	75.47	76.02
Divorced/Separated	63.98	66.20	66.24	64.16
<i>By general education level</i>				
No qualification	92.29	91.22	90.38	91.94
Primary school or less	81.33	81.45	79.89	79.05
Secondary school	69.76	70.29	71.61	70.54
High school	54.42	56.08	54.65	53.96
2-year college	26.78	28.31	30.86	31.72
3-year college	23.73	28.09	28.99	27.86
Undergraduate and Postgraduate	13.45	15.66	14.28	13.49

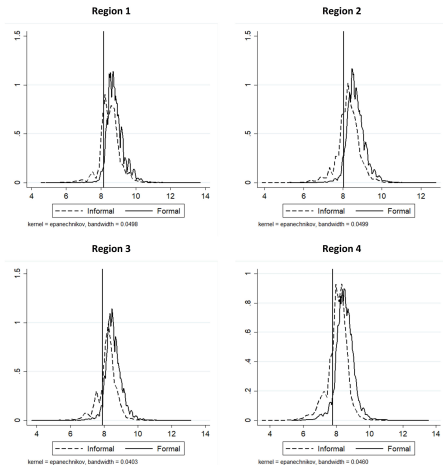
- Declines but still accounts for a large portion in total employment, especially among very young workers
- Differs by workers' characteristics
- Education has contributed markedly to the decline in informal employment

## Worker's Age and Informal Employment (%)



# Empirical Results: Economic Welfare Discrimination

## Average Monthly Wage Kernel Distribution by Region



Note: Vertical line indicates the minimum wage level

- Economic welfare of informal workers is well below their formal counterparts
- Formal workers usually receive wage at least as equal to minimum wage
- More formal worker receive occupational allowances and other welfare payments than informal workers

## Economic Welfare of Workers

Variables are expressed in natural logarithm	T-test			Estimated difference, controlling other variables
	Formal workers	Informal workers	Estimated difference	
Monthly Wage	8.669	8.209	-0.451***	-0.346***
Number of observations	119,429	134,240	-	253,605
Monthly compensation other than wage	6.962	6.242	-0.720***	-0.404***
Number of observations	53,213	15,193	-	68,385

Notes: Robust standard errors for OLS regression.

Statistical significance at the 1%, 5%, and 10% levels indicated by \*\*\*, \*\*, and \*, respectively

## Reference Points in Logit Specification

Variable	Omitted case
Gender	Male
Household member or household head	Household member
Marital status	Single
Rural/Urban area	Rural
General education level	Primary school
Age	25-29 years old
Type of ownership	Private sector
Type of industry	Agriculture, forestry, and fishery
Province/City	Hanoi
Time of survey	January

# Empirical Results: Determinants of Being an Informal Employment (cont.)

## Average Marginal Effects, Logit Model

	2013	2014	2015	2016
Female	-0.022***	-0.020***	-0.0101***	-0.006***
Household head	-0.052***	-0.051***	-0.048***	-0.051***
Urban Area	-0.039***	-0.041***	-0.044***	-0.044***
<i>Marital status</i>				
Married	-0.042***	-0.047***	-0.051***	-0.048***
Widowed	-0.031***	-0.026***	-0.030***	-0.028***
Divorced/Separated	-0.011**	-0.006	-0.016***	-0.012***
<i>Highest general education</i>				
No qualification	0.190***	0.181***	0.169***	0.196***
Primary school or less	0.062***	0.065***	0.064***	0.061***
Secondary school	-	-	-	-
High school	-0.050***	-0.045***	-0.071***	-0.071***
2-year college	-0.116***	-0.123***	-0.157***	-0.151***
3-year college	-0.134***	-0.121***	-0.158***	-0.160***
Undergraduate	-0.184***	-0.197***	-0.245***	-0.247***
Graduate	-	-	-0.304***	-0.320***
<b>Control for province</b>	Yes	Yes	Yes	Yes
<b>Control for industry type</b>	Yes	Yes	Yes	Yes
<b>Control for time of survey</b>	Yes	Yes	Yes	Yes
<b>Observations</b>	233,641	233,633	270,275	273,445

Note: Statistical significance at the 1%, 5%, and 10% levels indicated by \*\*\*, \*\*, and \*, respectively. Robust standard errors are used.



# Empirical Results: Determinants of Being an Informal Employment (cont.)

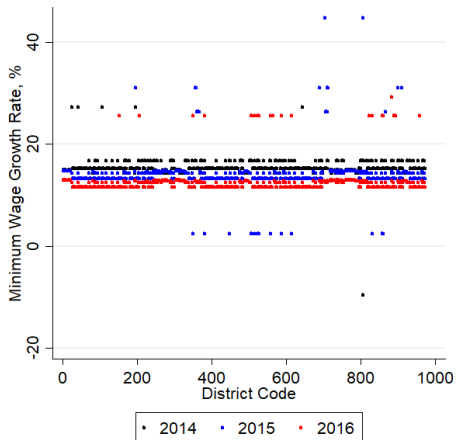
## Average Marginal Effects, Logit Model (cont.)

	2013	2014	2015	2016
<i>Age group</i>				
15 to 19 years old	0.105***	0.119***	0.076***	0.071***
20 to 24 years old	0.048***	0.050***	0.043***	0.036***
25 to 29 years old	-	-	-	-
30 to 34 years old	-0.024***	-0.027***	-0.029***	-0.032***
35 to 39 years old	-0.038***	-0.041***	-0.047***	-0.042***
40 to 44 years old	-0.038***	-0.042***	-0.044***	-0.048***
45 to 49 years old	-0.038***	-0.040***	-0.038***	-0.043***
50 to 54 years old	-0.037***	-0.040***	-0.027***	-0.028***
55 to 59 years old	-0.014***	-0.015***	-0.001	-0.003
60 years old and above	0.035***	0.027***	0.045***	0.037***
<i>Type of ownership</i>				
Farm HH and own account individual	0.547***	0.488***	0.490***	0.491***
Collective	0.118***	0.157***	0.200***	0.240***
Individual Business	0.174***	0.131***	0.297***	0.318***
Private Sector	-	-	-	-
Public Sector	-0.210***	-0.236***	-0.193***	-0.171***
FDI Sector	-0.275***	-0.283***	-0.288***	-0.283***
Others	-	-	0.107***	0.153***
<b>Control for province</b>	Yes	Yes	Yes	Yes
<b>Control for industry type</b>	Yes	Yes	Yes	Yes
<b>Control for time of survey</b>	Yes	Yes	Yes	Yes
<b>Observations</b>	<b>233,641</b>	<b>233,633</b>	<b>270,275</b>	<b>273,445</b>

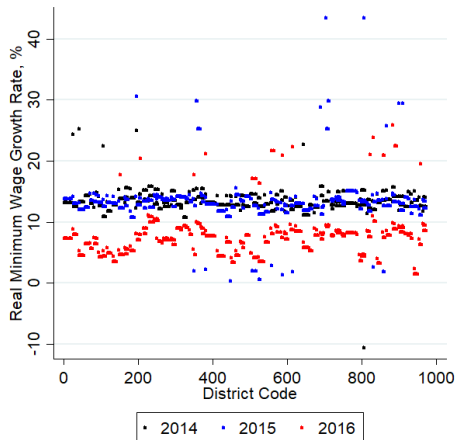
Note: Statistical significance at the 1%, 5%, and 10% levels indicated by \*\*\*, \*\*, and \*, respectively. Robust standard errors are used.

# Empirical Results: Minimum Wage Growth

Nominal Minimum Wage Growth, 2014-2016



Real Minimum Wage Growth, 2014-2016



# Empirical Results: Tests for Endogeneity and IVs' Validity

IVs: Provincial Consumer Price Index (PCI); and Spatial Cost of Living Index (SCLI). Source: GSO

## Tests for Endogeneity and IVs' Validity

<b>Weak identification test (Cragg-Donald Wald F statistic):</b>		<b>1467.663</b>
Stock-Yogo weak ID test critical values:	10% maximal IV size	19.93
	15% maximal IV size	11.59
	20% maximal IV size	8.75
	25% maximal IV size	7.25
<b>Sargan statistic (overidentification test of all instruments):</b>		<b>0.707</b>
	Chi-sq (1) P-value	0.4003
<b>Endogeneity test of endogenous regressors:</b>		<b>1.954</b>
	Chi-sq (1) P-value	0.1621

Source: Author's estimation using Baum et al (2007)'s package

# Empirical Results: Impacts of Minimum Wage on Informal Employment

## Fixed Effects and Random Effects Results

	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Log (minimum wage)	0.051***	0.051***	-	-
Log (real minimum wage)	-	-	0.064***	0.058***
Female	-0.036	-0.020	-0.036	-0.017
Urban	-0.039***	-0.046***	-0.036***	-0.046***
Household head	-0.047	-0.065	-0.048	-0.063
<i>General education level</i>				
No qualification	0.466***	0.396***	0.465***	0.392***
Primary school or less	0.087**	0.037	0.086**	0.036
Secondary school	-	-	-	-
High school	-0.119**	-0.089**	-0.119**	-0.090**
2-year college	-0.293***	-0.315***	-0.293***	-0.309***
3-year college	-0.282***	-0.335***	-0.282***	-0.330***
Undergraduate & Graduate	-0.416***	-0.377***	-0.416***	-0.374***
Control for marital status	Yes	Yes	Yes	Yes
Control for ownership type	Yes	Yes	Yes	Yes
Control for province	Yes	Yes	Yes	Yes
Control for industry type	Yes	Yes	Yes	Yes
Control for time of survey	Yes	Yes	Yes	Yes
<b>Hausman test</b>	<b>237.90***</b>		<b>235.69***</b>	
<b>Observations</b>	<b>2,676</b>	<b>2,676</b>	<b>2,676</b>	<b>2,676</b>
<b>Number of district</b>	<b>669</b>	<b>669</b>	<b>669</b>	<b>669</b>

Note: Statistical significance at the 1%, 5%, and 10% levels indicated by \*\*\*, \*\*, and \*, respectively.

Robust standard errors are used.

# Empirical Results: Impacts of Minimum Wage on Informal Employment

- Both RE and FE estimations show the significantly positive effect of minimum wage on informal employment ratio

*If minimum wage increases by 10%, informal employment will increase by 0.52 percentage point*

- The effect of minimum wage could completely wipe out the educational effect since the minimum wage has been adjusted rapidly while there is only small change educational level.
- Urbanization also contributes to the formalization of employment in the labor market. However, the change is not significant in economic terms.
- Demographic factors of worker such as gender or household member status do not affect the formalization process

# Empirical Results: Impacts of Minimum Wage on Actual Average Wage

## Impacts of Minimum Wage on Actual Average Wage (log form): FE regressors

	Formal	Formal	Informal	Informal
Log (minimum wage)	0.765***	-	0.666***	-
Log (real minimum wage)	-	1.087***	-	0.787***
Female	-0.230**	-0.209	-0.662***	-0.667***
Urban	0.031	0.054	0.028	0.025
Household head	0.034	0.042	0.032	0.024
<i>General education level</i>				
No qualification	0.549**	0.522	-0.204	-0.215
Primary school or less	-0.015	-0.070	-0.210**	-0.216**
Secondary school	-	-	-	-
High school	0.119	0.065	0.046	0.050
2-year college	0.296**	0.238	0.327*	0.340*
3-year college	0.280*	0.208	0.488**	0.512**
Undergraduate & Graduate	0.830***	0.720***	0.716***	0.747***
Control for marital status	Yes	Yes	Yes	Yes
Control for ownership type	Yes	Yes	Yes	Yes
Control for province	Yes	Yes	Yes	Yes
Control for industry type	Yes	Yes	Yes	Yes
Control for time of survey	Yes	Yes	Yes	Yes
IVs	Yes	No	No	No
<b>Hausman test</b>	<b>174.80***</b>	<b>244.63***</b>	<b>164.10***</b>	<b>190.11***</b>
<b>Observations</b>	<b>2,662</b>	<b>2,662</b>	<b>2,664</b>	<b>2,664</b>
<b>Number of district</b>	<b>669</b>	<b>669</b>	<b>669</b>	<b>669</b>

Note: Statistical significance at the 1%, 5%, and 10% levels indicated by \*\*\*, \*\*, and \*, respectively.

Robust standard errors are used.

# Conclusion and Policy Recommendation

- *First*, although it has been formalized gradually, more than half of total employment is still working as informal worker.
- *Second*, there is a huge gap in economic welfare between informal and formal workers.
- *Third*, education contributes largely to the probability of being employed formally.
- *Fourth*, MW hikes negatively affect the employment formalization process.
- *Final*, "lighthouse effect" has been found in Vietnam but wage in formal sector increases more rapidly than informal sector.

***Our main findings suggest that the government should raise minimum wage moderately and improve the compliance of this policy, rather than imposing rapid changes.***

***Further study:*** impacts of minimum wage (and other regulations on the labor market) on labor market outcomes (informal and formal employment, unemployment, workers' welfare, etc.)

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# Thank You!