

# The Impact of Economic Factors on the Intention to Participate in Voluntary Social Insurance in Hanoi, Vietnam

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**Abstract**— *The objective of this study is to evaluate the impact of economic factors on the intention to participate in voluntary social insurance among informal workers in Hanoi. The authors employ a quantitative research approach using 285 valid survey responses collected from self-employed workers who have not yet participated or have temporarily discontinued their participation in voluntary social insurance. The data are analyzed using PLS-SEM to assess measurement reliability, evaluate the structural model, and test the proposed hypotheses. The results indicate that income, awareness of voluntary social insurance, and government support policies positively influence participation intention, whereas inflation and economic risk reduce such intention. The findings confirm that financial factors and policy trust play a critical role in shaping workers' intention to participate in voluntary social insurance.*

**Keywords**— *Voluntary social insurance; Informal workers; Participation intention; Economic factors; PLS-SEM.*

## I. INTRODUCTION

In recent years, social insurance has been recognized as a key pillar of Vietnam's social security system, helping stabilize workers' livelihoods against income-related risks such as sickness, maternity, occupational accidents, reduced work capacity, retirement, and survivorship. However, the current compulsory social insurance scheme does not fully cover the entire labor force, particularly informal workers such as farmers, small traders, and freelancers, whose employment is typically unstable and income highly volatile. To address this limitation, the government has implemented the voluntary social insurance scheme to create opportunities for these groups to participate in and benefit from social protection programs. Despite these efforts, the actual participation rate in voluntary social insurance remains relatively low compared with the size of the informal workforce.

Empirical observations suggest that during periods of economic volatility, unstable income tends to lead workers to prioritize short-term expenditures, thereby delaying or discontinuing participation in long-term insurance programs such as voluntary social insurance. Conversely, prolonged economic uncertainty may increase some workers' interest in future income protection instruments. These mixed behavioral responses indicate that economic factors are closely associated with participation intention in voluntary social insurance; however, this relationship has not been examined systematically. Therefore, analyzing the impact of economic determinants on workers' intention to participate in voluntary social insurance in Hanoi is necessary to clarify economic barriers and support evidence-based policy formulation.

From a theoretical perspective, the intention to participate in voluntary social insurance is the outcome of a decision-making process influenced not only by perceived benefits but also by economic conditions, future expectations, and

environmental uncertainty. Nevertheless, most prior studies on voluntary social insurance have primarily focused on factors such as awareness, income, and service accessibility. In contrast, economic factors have rarely been modeled as an independent construct.

Addressing this research gap, the present study aims to identify and quantify the effects of economic determinants on workers' intention to participate in voluntary social insurance in Hanoi. The analysis is based on 285 valid observations collected from October 2025 to December 2025.

By extending existing behavioral frameworks and incorporating a dynamic economic context, the study is expected to contribute both theoretically and practically, thereby supporting the development of effective policy solutions to expand voluntary social insurance coverage and advance the goal of universal social insurance in Vietnam.

## II. LITERATURE REVIEW

### 2.1. Explanation of some terms and concepts

#### 2.1.1. Personal income

Personal income reflects workers' financial capacity and economic stability. According to the Life-cycle theory, individuals tend to allocate income between current consumption and future security. In this context, voluntary social insurance functions as a long-term accumulation instrument and is therefore influenced by current income levels. However, the magnitude of this effect may vary across income groups due to the availability of alternative investment options.

#### 2.1.2. Awareness and understanding of voluntary social insurance

Awareness and understanding represent the extent to which individuals comprehend the benefits, obligations, and operational mechanisms of voluntary social insurance. Under the Theory of Planned Behavior, awareness forms the foundation for attitude formation and behavioral intention.

Higher levels of understanding are associated with more favorable evaluations and reduced uncertainty in participation decisions.

### 2.1.3. Government Support Policies

Government support policies, particularly contribution subsidies, help reduce participation costs and improve the perceived cost-benefit ratio of voluntary social insurance. In addition, policy flexibility and effective communication mechanisms contribute to strengthening public trust in the social security system. Consequently, this institutional factor plays a critical role in promoting participation decisions.

### 2.1.4. Affordability

Affordability reflects the portion of financial resources that can be allocated to long-term contributions after essential consumption needs have been met. When affordability is high, individuals are more willing to accept periodic contribution obligations; conversely, financial constraints may delay or hinder participation decisions.

### 2.1.5. Inflation

Inflation erodes real income and increases economic uncertainty. In a high-inflation environment, individuals tend to prioritize present consumption over long-term accumulation. Moreover, concerns about the real value of future benefits may weaken the motivation to participate in voluntary social insurance.

### 2.1.6. Interest Rate

Interest rates represent the opportunity cost of capital and influence individuals' choices among alternative saving and investment channels. When market interest rates are attractive, competing financial instruments may reduce the incentive to participate in voluntary social insurance. Conversely, in low or volatile interest rate environments, voluntary social insurance may be perceived as a more stable long-term accumulation mechanism.

## 2.2. Foundational theories

### 2.2.1. Theory of Reasoned Action (TRA)

Developed by Fishbein and Ajzen (1975), the Theory of Reasoned Action (TRA) posits that human behavior is directly driven by behavioral intention. This intention is jointly determined by two core components: attitude toward the behavior and subjective norms. In the present study, TRA provides a theoretical basis for explaining how individual cognition and social influences shape workers' intention to participate in voluntary social insurance.

### 2.2.2. Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) extends TRA by incorporating perceived behavioral control. Ajzen (1991) introduced this additional construct to account for situations in which behavior is constrained by limited resources or capability. TPB suggests that the intention to participate in voluntary social insurance is not solely derived from personal willingness or social pressure but also depends on workers' self-assessment of whether they possess sufficient financial capacity and information to perform the behavior.

### 2.2.3. Life-cycle hypothesis

The Life-cycle hypothesis, developed by Franco Modigliani and Richard Brumberg (1954), assumes that individuals plan

their consumption and savings to optimize lifetime utility. The relationship is commonly formalized through the standard consumption function:

$$C = \alpha W + \beta Y$$

Where:

$W$  denotes wealth;

$Y$  denotes income;

$\alpha = \frac{1}{T}$  represents the marginal propensity to consume out of wealth;

$\beta = \frac{R}{T}$  represents the marginal propensity to consume out of income.

Accordingly, individuals tend to accumulate assets during high-income working periods to smooth consumption in low-income phases or during retirement. This theoretical perspective provides an essential foundation for explaining how informal workers allocate current income and affordability when making long-term voluntary social insurance contribution decisions.

### 2.2.4. Expectancy theory

Expectancy Theory, originally proposed by Victor Vroom (1964), explains motivation and behavioral intention through a cognitive evaluation of expected future benefits, often conceptualized as a conscious assessment of the relationship among effort, performance, and received rewards:

$$M = E \times I \times V$$

Participation motivation ( $M$ ) is expressed as a multiplicative function of expectancy ( $E$ ), instrumentality ( $I$ ), and valence ( $V$ ).

This theoretical framework helps clarify how macroeconomic variables, such as inflation and bank interest rates, may alter workers' perceptions of expected value and their confidence in voluntary social insurance policies.

## III. RESEARCH METHODOLOGY

### 3.1. Research Method

To generate empirical evidence for the proposed research model, the authors employed a quantitative research approach using Likert-scale survey data.

### 3.2. Model and Research Hypotheses

#### 3.2.1. Research Model

Within the scope of this study, and based on an extensive review of relevant prior literature, the authors propose a research framework comprising six key constructs: (1) Personal income, (2) Awareness and understanding of voluntary social insurance, (3) Government support policies, (4) Inflation in Vietnam, (5) Bank interest rates, and (6) Affordability of voluntary social insurance contributions.

Among these constructs, four are specified as independent variables, one serves as a mediating variable, and one functions as a moderating variable. In addition, the intention to participate in voluntary social insurance is modeled as the dependent variable in the proposed research framework. The conceptual model of the study is presented in the following figure:

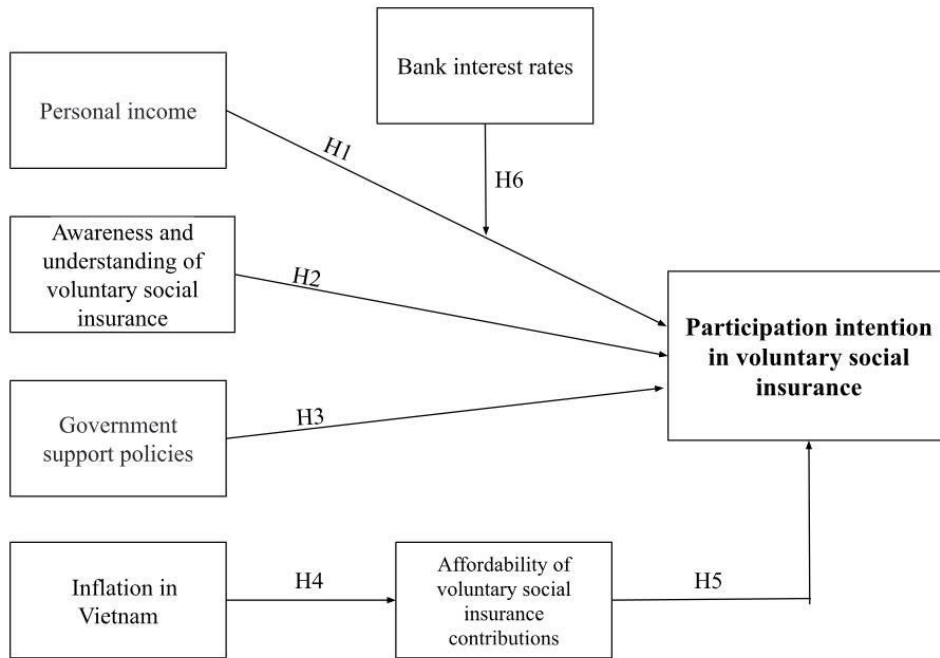


Figure 1. Proposed research model

Source: Author's research design

This structural specification enables the simultaneous examination of direct, indirect, and moderating effects within a unified PLS-SEM framework.

### 3.2.2. Research Hypotheses

H1: Personal income has a significant effect on the intention to participate in voluntary social insurance. H2: Awareness of voluntary social insurance has a significant effect on the intention to participate in voluntary social insurance. H3: Government support policies have a significant effect on the intention to participate in voluntary social insurance. H4: Inflation in Vietnam has a significant effect on the affordability of voluntary social insurance contributions. H5: Affordability of voluntary social insurance contributions positively affects the intention to participate in voluntary social insurance. H6: Bank interest rates in Vietnam moderate the relationship between personal income and the intention to participate in voluntary social insurance.

### 3.3. Research Design

#### 3.3.1. Data Used

The dataset used in this study comprises 285 workers in Hanoi collected between October 2025 and December 2025. Primary data were obtained through a structured questionnaire employing a five-point Likert scale. The survey items were designed to measure economic determinants and individual characteristics that may influence workers' intention to participate in voluntary social insurance.

#### 3.3.2. Research Sample

The research sample consists of informal workers in Hanoi during the period from October 2025 to December 2025. A total of 285 respondents were surveyed, including individuals who are currently participating in, have not yet participated in, or have previously participated in voluntary social insurance in Hanoi. The sample size of 285 workers is considered adequate

to provide a representative dataset for the informal labor force in Hanoi.

#### 3.3.3. Data Analysis

The study employs Partial Least Squares Structural Equation Modeling (PLS-SEM). The research sample consists of 285 workers, including:

- Number of workers currently participating in voluntary social insurance: 127.
- Number of workers who have temporarily discontinued participation: 35.
- Number of workers who have not yet participated: 123.

After collection, the data were screened, cleaned, and coded prior to analysis using PLS-SEM to evaluate both the measurement and structural models simultaneously.

#### 3.3.4. Data Analysis Tools

The authors used SmartPLS 3 statistical software to estimate the PLS-SEM models and diagnose potential model issues. The analytical procedure was conducted in the following steps:

Step 1: Descriptive statistics to summarize the characteristics of the research sample.

Step 2: Assessment of the measurement model.

Step 3: Evaluation of the structural model.

Step 4: Bootstrapping to test the statistical significance of the proposed research hypotheses. (5,000 resamples)

## IV. RESEARCH RESULTS

### 4.1. Assessment of Reliability and Convergent Validity

The reliability of the measurement scales was evaluated using Cronbach's Alpha and Composite Reliability (CR), while convergent validity was assessed based on the Average Variance Extracted (AVE). According to Hair et al. (2017), Cronbach's Alpha and CR values should exceed 0.70, and AVE

should reach at least 0.50 to ensure acceptable measurement quality.

The results reported in Table 1 indicate that Cronbach's Alpha values range from 0.785 to 0.888 and CR coefficients range from 0.848 to 0.931, both exceeding the recommended thresholds. In addition, AVE values range from 0.588 to 0.817, all above the minimum criterion of 0.50. These findings confirm that the measurement scales demonstrate satisfactory internal consistency reliability and convergent validity, thereby meeting the requirements for subsequent PLS-SEM structural model analysis.

TABLE 1. Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE)

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
TN	0,828	0,884	0,666
NT	0,855	0,896	0,632
CS	0,812	0,876	0,638
LP	0,830	0,887	0,802
KN	0,785	0,861	0,588
LS	0,813	0,848	0,817
YD	0,888	0,931	0,817

Source: Authors' compilation

#### 4.2. Assessment of Discriminant Validity

Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT). According to Fornell and Larcker (1981) and Henseler et al. (2016), HTMT values should be below 0.85 to ensure adequate discriminant validity among constructs. The analysis results indicate that all constructs in the model satisfy this criterion, confirming that discriminant validity is well established. Detailed results are presented in Table 2.

TABLE 2. Heterotrait-Monotrait Ratio (HTMT)

	CS	KN	LP	LS	NT	YD	TN
CS							
KN	0.082						
LP	0.067	0.744					
LS	0.159	0.044	0.085				
NT	0.213	0.095	0.048	0.107			
YD	0.460	0.434	0.285	0.048	0.415		
TN	0.074	0.083	0.098	0.151	0.122	0.546	

Source: Authors' compilation

#### 4.3. Multicollinearity Assessment of Independent Variables

Multicollinearity was assessed using the Variance Inflation Factor (VIF). According to Hair et al. (2017), VIF values below 3 indicate the absence of serious multicollinearity issues. The analysis results show that all independent constructs in the model have VIF values below 3. Therefore, it can be concluded that multicollinearity is not a concern and the model estimates are considered reliable.

TABLE 3. Variance Inflation Factor (VIF) Results

Relationship	VIF
TN → YD	1,026
NT → YD	1,059
CS → YD	1,065
LP → KN	1,000
KN → YD	1,009
LS → YD	1,070
TN * LS → YD	1,032

Source: Authors' compilation

#### 4.4. Mediation Analysis

The mediating role was examined using bootstrapping to assess the statistical significance of both the indirect and direct effects. An effect is considered significant when the p-value is less than 0.05. The type of mediation was determined based on the joint significance of these two effects. In a simple mediation model, the Variance Accounted For (VAF) is calculated as follows:

$$VAF = \frac{(a \times b)}{a \times b + c'}$$

Where:

a: Path coefficient from the independent variable to the mediator

b: Path coefficient from the mediator to the dependent variable

c': Direct effect from the independent variable to the dependent variable

The interpretation of VAF follows these thresholds:

- VAF < 20% → No substantial mediation.

- 20% ≤ VAF ≤ 80% → Partial mediation.

- VAF > 80% → Full mediation.

The combined use of bootstrapping and the VAF index enables a comprehensive assessment of the nature and magnitude of the mediation mechanism within the proposed research model.

TABLE 4. Mediation Analysis Results and VAF Values

Relationship	Path Coefficient (β)	Standard Deviation	VAF (%)	T Values	P Values	Result
LP → KN → YD	-0.187	0.026	145%	7.108	0.000	Full mediation

Source: Authors' compilation

#### 4.5. Moderation Analysis

The moderating effect was examined through the interaction term TN × LS in the structural model. Bootstrapping results reported in Table 5 indicate that the path coefficient of the interaction term is statistically significant at the 5% level (p < 0.05). Therefore, hypothesis H6 is supported.

The interaction coefficient is negative (β = -0.122), indicating that LS weakens the relationship between TN and YD. As LS increases, the positive effect of TN on YD diminishes. However, because the direct effect of TN on YD remains positive and statistically significant, LS reduces the strength of the relationship but does not alter its direction.

#### 4.6. Research Results

The bootstrapping results with 5,000 resamples presented in Table 5 show that all hypotheses regarding direct effects are supported at the 5% significance level. Both the mediation and moderation effects are also confirmed, indicating that the proposed mechanism in the model is statistically robust.

The model's explanatory power is reported in Table 6, where the dependent variable achieves a relatively high R<sup>2</sup> value, reflecting the strong explanatory capability of the independent constructs. Furthermore, the effect size (f<sup>2</sup>) analysis in Table 5 indicates that the predictors' contributions range from very small to large, thereby confirming the

heterogeneous roles of the determinants in shaping the dependent variable.

TABLE 5. Summary of Results

Hypothesis	Relationship	Path Coefficient ( $\beta$ )	Standard Deviation	f <sup>2</sup>	T values	P Values	Result
H1	TN $\rightarrow$ YD	0.428	0.040	0,529	10.621	0.000	Supported
H2	NT $\rightarrow$ YD	0.382	0.037	0,409	10.356	0.000	Supported
H3	CS $\rightarrow$ YD	0.458	0.038	0,584	12.022	0.000	Supported
H4	LP $\rightarrow$ KN	-0.603	0.036	0,009	16.861	0.000	Supported
H5	KN $\rightarrow$ YD	0.311	0.037	0,284	8.461	0.000	Supported
H6	TN*LS $\rightarrow$ YD	-0.122	0.051	0,042	2.399	0.017	Supported
Mediating Variable							
Relationship	Path Coefficient ( $\beta$ )	Standard Deviation	T Values	P Values	Result		
LP $\rightarrow$ KN $\rightarrow$ YD	-0.187	0.026	7.108	0.000	Full mediation		

Source: Authors' compilation

TABLE 6. R<sup>2</sup> and Adjusted R<sup>2</sup>

Independent/Dependent Variable	R <sup>2</sup>	Adjusted R <sup>2</sup>
KN	0.364	0.361
YD	0.663	0.655

Source: Authors' compilation

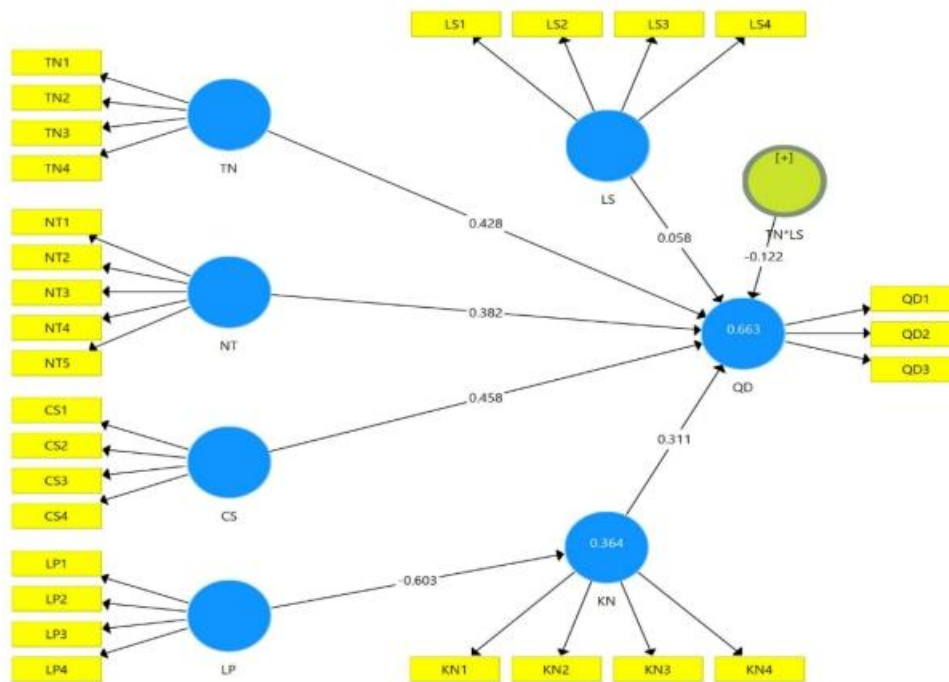


Figure 2. Research Model and Path Coefficients  
Source: SmartPLS 3 analysis results

## V. CONCLUSION AND IMPLICATIONS

Based on the empirical findings, the study has identified and quantified the key determinants influencing individuals' intention to participate in voluntary social insurance. Using survey data collected from research participants, the results indicate that income, awareness, government support policies, affordability, inflation, and interest rates exert varying degrees of influence on participation intention. Notably, the study clarifies the mediating role of affordability and the moderating role of interest rates in the relationship between income and participation intention. These findings provide new empirical evidence for Vietnam's social insurance market. Overall, the results offer useful insights for policymakers and relevant

stakeholders in designing appropriate measures to enhance voluntary social insurance participation.

From a policy perspective, it is essential to strengthen the transparency, stability, and consistency of policies related to voluntary social insurance. Clear communication regarding benefits, contribution levels, and government support mechanisms would help improve public awareness and reinforce trust. In addition, the contribution subsidy scheme should be further refined toward greater flexibility to accommodate different income groups, particularly informal sector workers. At the macro level, the government should maintain stable economic policies to keep inflation and interest rates within reasonable ranges, thereby reducing financial barriers and strengthening participation incentives.

For individuals and implementing organizations, efforts should focus on improving financial literacy, diversifying advisory channels, and leveraging digital technologies in contribution collection and management. These measures can enhance accessibility and support sustained long-term participation. Moreover, designing flexible insurance products tailored to irregular income patterns is crucial for expanding voluntary social insurance coverage.

Nevertheless, several limitations should be acknowledged. First, the survey scope remains limited and may not fully capture heterogeneity across regions and occupational groups. Second, the cross-sectional nature of the data does not reflect behavioral changes over time. Third, the study does not comprehensively incorporate other psychological and social determinants that may influence participation decisions. These limitations provide directions for future research to expand the sample frame, incorporate additional constructs, and employ longitudinal data to improve the generalizability and practical relevance of the findings.

#### REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes.*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
2. Allan, W. (1951). *The Economic Theory of Risk and Insurance*, Philadelphia: University of Pennsylvania Press, USA
3. Beck, T., & Webb, I. (2003) Economic, Demographic and Institutional Determinants of Life Insurance Consumption. *World Bank Economic Review*, 17(1), 51–88. <https://doi.org/10.1093/wber/lhg011>
4. Dang, B.H. (2000). *Social Insurance for farmers in Vietnam*. PhD thesis
5. Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Addison-Wesley Publishing Company.
6. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.). Sage.
7. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis (8th ed.)*. Cengage Learning.
8. Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107-123. <https://doi.org/10.1504/ijmda.2017.10008574>
9. Huỳnh Thế Nguyễn, Phan Đình Nguyên, & Nguyễn Thị Như Ngọc. (2019). Các yếu tố ảnh hưởng đến gánh nặng bảo hiểm xã hội của các doanh nghiệp nhỏ và vừa tại Việt Nam. *Tạp chí Khoa học Đại học Mở Thành phố Hồ Chí Minh*.
10. Modigliani, F., & Brumberg, R. (1954), Life Cycle Hypothesis
11. Modigliani, F., & Brumberg, R. (1954). Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data. In K. Kurihara (Ed.), *Post-Keynesian Economics* (pp. 388-436). Rutgers University Press.
12. Nguyễn Thị Chinh, & Nguyễn Xuân Tiệp. (2024). Determinants of the Voluntary Social Insurance Participation Intention of Employees in Hanoi. *European Journal of Business and Management*.
13. Nguyễn Thanh Nhân. (2023). Factors Affecting the Voluntary Social Insurance Participation Intention: The Case of Small Traders in Ho Chi Minh City. *Journal of Science – Hue University*.
14. Nguyễn Thị Hải Đường. (2022). Các nhân tố ảnh hưởng đến tình trạng gia tăng hưởng bảo hiểm xã hội một lần ở Việt Nam. *Tạp chí Tài chính Doanh nghiệp* (in số 9/2022).
15. Nguyễn Thị Nguyệt Dung, & Nguyễn Thị Sinh (2019). Ảnh hưởng của thu nhập đến ý định tham gia BHXH tự nguyện của người lao động khu vực phi chính thức tại huyện Thạch Thất, TP Hà Nội. *Tạp chí Kinh tế – Xã hội*, số 53 (2019).
16. Nguyễn Tiến Phú. (2001). *Cơ sở lý luận về việc thực hiện các loại hình bảo hiểm xã hội tự nguyện ở Việt Nam*. Đề tài nghiên cứu khoa học cấp Bộ. Bảo hiểm xã hội Việt Nam.
17. Nguyễn Tấn Tâm. (2023). Nghiên cứu các yếu tố ảnh hưởng đến quyết định tham gia bảo hiểm xã hội tự nguyện của người lao động ở Quảng Ngãi. Luận án tiến sĩ, Trường Đại học Thương mại, Hà Nội.
18. Nguyễn Xuân Thu (2006). Chế độ bảo hiểm xã hội tự nguyện ở Việt Nam, *Tạp chí Luật học*. Số 9.
19. Van Vu, H. (2025). Intention to participate in voluntary social insurance in an emerging economy: An examination based on extended Theory of Planned Behavior. *Journal of Social Economics Research*.
20. Võ Lan Anh (2015). Thực trạng pháp luật về bảo hiểm xã hội tự nguyện ở Việt Nam. Luận văn Thạc sĩ, Đại học Quốc gia Hà Nội.
21. Vroom, V. H. (1964). *Work and Motivation*. John Wiley & Sons.
22. Trần Quốc Toàn, & Lê Trường Giang. (2001). Các giải pháp thực hiện BHXH TN đối với lao động thuộc khu vực nông, ngư và tiểu thủ công nghiệp. Luận văn thạc sĩ.