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**ANALYZING THE IMPACT OF TAX POLICY ON THE  
SECTORAL STRUCTURE OF VIETNAM ECONOMY**

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**SUMMARY OF ECONOMIC DOCTORAL THESIS**

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## INTRODUCTION

### 1. Rational

Tax policy actively contributes to the promotion or restriction of socio-economic activities of different sectors. Several sectors have favorable conditions for development while several sectors have to narrow down the scale of production. The magnitude of the impact of tax policy on different sectors has led to structural changes in the economy.

Vietnam's tax policy has gone through several stages of reform. In 2011, the Government issued the Strategy for Reform of Vietnam's Tax System in the period 2011-2020. Accordingly, the specific objectives and requirements for tax policy reform emphasize the development and implementation of tax policies to promote economic restructuring towards industrialization and modernization (Prime Minister, 2011). The tax policy for each specific tax is indicated in the legal documents, in which the tax rate is foremost mentioned. In the context of high public debt, the revenue from import tax decreased due to the implementation of trade commitments in the process of integration. As a result, Vietnam's tax policy needs to be further adjusted. The Ministry of Finance has recently proposed a plan to increase the value-added tax rate (Ministry of Finance, 2017). This plan has been facing opposite opinions from experts, economic managers, and the public community. Analyzing and measuring the individual impact of changes in tax rates and the combined effects of the contemporaneous changes in the rates of different taxes play an important role in studying the impact of tax policies on the whole economy in general and on economic sectors in particular.

Over the past few years, there have been many studies analyzing the impact of tax policies on the economic growth and development. However, there also have limitations regarding the content, model, and data.

Addressing the above-mentioned theoretical and practical issues help the macroeconomic policymakers have a scientific basis for selecting and implementing a specific tax policy toward a suitable economic structure for national economic development objectives. This will promote the economic growth, stabilize the budget revenue, and increase the household welfare. As a result, the topic "Analyzing the impact of tax policies on the sectoral structure of the Vietnamese economy" is necessary both in theoretical and practical perspectives.

## **2. Research Objectives**

The overall objective of this thesis is to analyze and forecast the impacts of tax policy on the sectoral structure of the Vietnam economy, which acts as a basis for proposing a number of policy implications for the Government to select and implement a tax policy that contributes to promoting the shift of the economic structure along the direction of industrialization and modernization.

Specific objectives:

Systematize the theoretical and practical reviews of the impact of tax policies on the sectoral structure

Analyze and forecast the impact of each tax policy on the sectoral structure of the Vietnam economy.

Analyze and forecast the combined effect of tax policies on the sectoral structure of the Vietnam economy.

Propose a number of policy implications for the Government to select and implement a tax policy that contributes to promoting the

shift of the economic structure towards modernization and industrialization.

### **3. Research questions**

Under the impact of tax policies, does the structure of Vietnam's economy change in the direction of industrialization or modernization?

Which tax policy should be selected to contribute to promoting the transformation of Vietnam's economic structure towards industrialization and modernization?

### **4. Objects and scope of the study**

#### ***4.1. Objects of the study***

The thesis focuses on the impact of tax policies, under the "Reform Strategy of Vietnam's Tax System in 2011-2020" and the draft of "Law on Amendments and Supplements to a number of articles of the Law on Value Added Tax, the Law on Corporate Income Tax, the Law on Personal Income Tax and the Law on Natural Resource Tax " on the sectoral structure of the Vietnamese economy.

#### ***4.2. The scope of the study***

In terms of the content: This study focuses on the change in tax rates of four types of tax including import tax, value-added tax, corporate income tax, and personal income tax. The study does not investigate the tax administration in tax policies. When considering the impact of tax policies on the structure of the economic sector, the study also investigates the structure of economic sector in the relationships with the economic growth, budget revenue, and household welfare.

In terms of space: Vietnam's economy which is specified into

sixty-three economic sectors. Such sectors were further grouped into twenty-five sectors according to their functions, characteristics, and concerns to present in the results.

In terms of time: the tariffs used in this study are established, based on the current tax reform strategy of Vietnam (2011-2020) and the draft of tax law in 2017. The results of simulations are presented in time orders to examine the short-term and long-term changes.

## **5. Research approach and methodology**

### ***5.1. Research approach***

This study employs an ex-ante approach to stimulate, predict, quantify, and analyze the impact mechanism of different tax policies on the change in the price system, income, and the structure of the economic sector, exports, imports, and GDP.

### ***5.2. Research methodology***

The main method used in this study is modeling and simulation using the Dynamic Equilibrium Model (DCGE).

After conducting the simulation of the impact of tax policies using the DCGE model, the study uses the descriptive statistics method with tables and graphs to synthesize, analyze, and evaluate simulation results.

In addition, the study also uses methods of synthesis, and comparison to systematize the theory of tax policy, sectoral structure, the impact of tax policy on sectoral structure and overview of empirical research of the impact of tax policy on the sectoral structure, evaluate secondary data relating to the current status, trends, and factors affecting tax policy and economic structure of Vietnam.

## **6. The contribution of the thesis**

### **6.1. New contributions on the academic side**

The study has clarified the theoretical and practical basis for indicating the impact mechanism and the analyzing methods of the impacts of tax policies on the sectoral structure.

The study has clearly analyzed the mechanism of impact of tax policies on the economic, the economic structure. This is the basis for tax policy researchers to explain the causes and impact results in empirical research.

The study also sheds light on a new research direction to use the DCGE model in analyzing and predicting the impacts of the tax policies on the sectoral structure of the Vietnam economy.

### **6.2. New contributions on the practical side**

The study has summarized tax policies and factors that affect Vietnam's tax policy to develop simulation scenarios about changing tax rates in line with the current context.

The study has summarized and analyzed the current situation as well as the guidelines, and orientations for economic development and changing Vietnam's economic structure, leading to the assessment of the impact of tax policies as well as the selection of an appropriate tax policy in the current condition of the Vietnamese economy.

The study has developed a complete set of data on production – distribution – consumption in the Vietnamese economy (Vietnam 2012 Social Accounting Matrix). This is a vital set of data that researchers can use to simulate the impact of the economic policies based on the economic models.

The study also develops the dynamic CGE model for multi-sectors and multi-household groups. This allows for the simulation

and analysis of the impact of economic policies on each sector and each household group, the shifting method of each industry and the whole economy in the long run. It also allows for the explanation for resource allocation mechanisms when tax policies change to the economic structure. This is an empirical model for researchers to simulate the impact of changes in tax rates and taxes on the Vietnamese economy in general and on each sector in particular. As a result, researchers and policymakers may consider selecting the different tax rates that are the most suitable with development goals of Vietnam.

The study significantly contributes to the study and application of the assessment and prediction of the impact of tax policies in the Vietnamese context.

The study analyzes and predicts the impact of tax policies on Literature review and research overview of the impact of tax policies on the sectoral structure through the development, simulation, and evaluation of tariff scenarios about the impact of each different tax rates on the sectoral structure. This is empirical evidence that proves theoretical issues on the impact of tax policies. Research results show that the reduction of tax rates of import tax, corporate income tax, and personal income tax have positively impacted the economic restructuring toward the industrialization and modernization. In particular, with the reduction of the rate of import tax, capital-intensive sectors are more likely to develop than the labor-intensive sectors. The study also provides important evidence for a current hot issue in Vietnam, namely the negative impact of increasing value-added taxes on the structure of the economic sector, the economic growth, and the household welfare.

The outcome of the study is a valuable scientific argument for the Government to select and implement a tax policy that contributes to promoting the shift of the economic structure along the direction of industrialization and modernization.

## **7. The structure of the thesis**

Apart from the opening and conclusion, the thesis is structured into four chapters:

Chapter 1. Literature review and research overview of the impact of tax policies on the sectoral structure

Chapter 2. Research design

Chapter 3. Assessing the impact of tax policies on the sectoral structure of the Vietnam economy

Chapter 4. Implications

### **CHAPTER 1. LITERATURE REVIEW AND RESEARCH OVERVIEW OF THE IMPACT OF TAX POLICIES ON THE SECTORAL STRUCTURE**

The main contents of Chapter 1 are: (1) systematizing the basic theoretical content on the impact of tax policy on the sectoral structure; (2) synthesizing domestic and international research on the impact of tax policies on the sectoral structure. On that basis, this thesis aims at determining the contents and methods of research in the implemented works; pointing out the research gap of the tax policies' impact on the structure of Vietnam economy that the thesis is addressing.

#### **1.1. Tax policy**

##### ***1.1.1. Taxation and basic functions of taxation***

##### ***1.1.2. The concept of tax policy***

Tax policy is a part of fiscal policy, which is the sum of the

views, ideas, solutions, and tools that the state uses to make decisions on revenue mobilization to meet the spending needs, to regulate income, allocate resources and protect production.

### ***1.1.2. The content of tax policy***

One of the most important aspects of tax policy is determining the level of tax regulation, which is reflected in the quantification of the effects that tax policy brings.

### ***1.1.3. Factors influencing tax policy***

## **1.2. Sectoral structure**

### ***1.2.1. Definition of sectoral structure***

### ***1.2.2. Factors affecting sectoral structure***

Group of internal factors: market factors and consumer demand; the level of the productive forces along with the appropriate movement of production relations; mechanism, policy, and institutional factors.

Group of external factors: social and political trends in the region and in the world; globalization and internationalization of productive forces; the achievements of the revolution of science and technology, the explosion of information technology.

### ***1.2.3. Indicators defining the economic structure***

- Structure of output by sector: structure of GO, the structure of GDP.

- Structure of foreign trade by sector: structure of export, structure of import.

## **1.3. The impact of tax policy on the economy, sectoral structure**

### ***1.3.1. The impact of tax policy on macroeconomic indicators, sectoral structure***

#### ***1.3.1.1. The impact of tax policy on economic growth, state budget***

*1.3.1.2. The impact of tax policy on export and import*

*1.3.1.3. The impact of tax policies on the sectoral structure*

*1.3.1.4. The impact of tax policy on income distribution, and household welfare*

***1.3.2. Mechanism of the impact of each tax on the economy and sectoral structure***

*1.3.2.1. For import tax*

*1.3.2.2. For VAT*

*1.3.2.3. For CIT, PIT*

**1.4. Overview of empirical studies assessing the impact of tax policy on sectoral structure**

***1.4.1. Overseas studies***

1.4.1.1. Studies on the impact of indirect tax policies on the structure of the economy

1.4.1.2. Studies on the impact of direct tax policies on the structure of the economy

1.4.1.3. Studies related to methods of analyzing the impact of tax policy

***1.4.2. Studies in Vietnam***

1.4.2.1. Studies related to economic structure and economic restructuring

1.4.2.2. Studies on the impact of tax policy on economic development, the economic structure of Vietnam

***1.4.3. Some conclusions from the review of empirical research and the research direction of the study***

Most of studies analyze the impact of a specific tax policy on the economy. As a result, study the combined effect of tax policies will be the new contribution of this research.

Up to now, two groups of methods have been commonly used to study this problem: the first group is based on Ex-post investigation, using the econometric models to verify and assess the impact; the second group of methods is based on Ex-ante approach, using CGE or IO models for simulation and forecasting. The CGE model has many advantages.

However, studies using the CGE model have the following limitations: (1) use of I/O table or SAM 2007 backwards, (2) some studies only apply the static CGE model (3) studies using the CGE model has not elaborated on the impact of all tax policies on the structure of the economy. (4) The level of detail by sector is limited because of the structure of the economy by sectoral groups or using GTAP data.

With this discussion, the study selects and develops the dynamic CGE model to study the impact of tax policies on the sectoral structure of the Vietnam economy. Data for the model is the 2012 Vietnam SAM. When developing the CGE model, the author explains the mechanisms for allocating resources when tax policies are changed on the transformation of economic structure. This is the usage difference of CGE model in this study compared to previous CGE models. In addition, the SAM 2012 table built from Vietnam IO 2012 table is also a new contribution.

## **CHAPTER 2. RESEARCH DESIGN**

Based on the systematization of the theory and a review of empirical studies to find the research gaps in chapter 1, chapter 2 presents the research model, input data for the model and the construction of the scenarios to study the impact of tax policies on sectoral restructuring in Vietnam economy.

## **2.1. Research process**

### **2.2. The dynamic general equilibrium model**

The model consists of three equilibrium blocks: the inter-temporal equilibrium block, the intra-temporal equilibrium block, and the steady-state equilibrium block, which allows simulation of the activity and long-term relationship of the five major entities forming the economy: producer, government, household investment, and the rest of the world (ROW).

The model in this study is a multi-sector model. As a result, the model allows simulating and analyzing of the impact of economic policies on each sector as well as the long-term transformation of the sectors and the economy; explaining the mechanisms for allocating resources when tax policies are changed on the transformation of economic structure. This is the usage difference of CGE model in this study compared to previous CGE models.

#### ***2.2.1. The Inter-Temporal Equilibrium block***

Household consumption and saving

Firms and investment

Foreign debts

Capital stock owned by each household groups

#### ***2.2.2. The Intra-Temporal equilibrium block***

The theoretical structure of The Intra-Temporal equilibrium block is based on the static CGE model in studies of Dervis, Melo & Robinson, 1982; Vargas & F. Schreiner et al., 1999; Hosoe, 2001; Chen, 2004 and Toan, 2005.

Producers

Government and Household

Demand

Supply

Market clearing

Equilibrium prices

### ***2.2.3. The steady-state equilibrium block***

At every point of time, equilibrium must be achieved across all commodity markets, labor markets and the foreign exchange market. In the long term, the economy must reach a stable equilibrium, where the following conditions must be met:

Steady state condition for sectoral capital stock

Steady state condition for capital stock owned by each household group

Steady state condition for foreign debt

Steady state condition for interest rate

## **2.3. Data for the CGE model**

### ***2.3.1. Social Accounting Matrix for Vietnam***

In Vietnam, CIEM has collaborated with international organizations to develop and publish SAMs for Vietnam in 1999, 2000, 2003, 2007, and 2011. In order to serve the research objectives of the dissertation, from the Input-Output Table 2012 released by the General Statistics Office in 2015, the 2011 SAM for Vietnam (CIEM, 2012), The Ministry of Finance's data on the state budget revenue and expenditure for the year 2012, The State Bank of Vietnam's data on Vietnam's 2012 Balance of Payment, the author self-conducts the 2012 SAM for Vietnam.

### ***2.3.2. Construction of the 2012 Macro SAM for Vietnam***

The macroeconomic SAM Vietnam 2012 does not detail industries, households and factors of production.

### ***2.3.3. Construction of the 2012 Micro SAM for Vietnam***

The 2012 SAM for Vietnam are classified in detail. The classification in the 2012 SAM for Vietnam includes activities classification, commodities categorization disaggregated into 63 activities, 63 commodities.. Classification of factors of production consists of seven factors, including six types of labours which is classified by geography (urban-rural) and education levels (primary, secondary and tertiary). Household classification consists of 20 types of household, which is classified by three criterion, urban-rural; agricultural and non-agricultural; and 5 income quintiles (from the poorest (quintile 1) to the richest (quintile 5)).

### **2.4. Construction of research scenarios**

Scenario 1 (S1): The import tax rate is gradually reduced to 0%, , and the other tax rates remain unchanged.

Scenario 2 (S2): The VAT rate is increased to 12%, and the other tax rates remain unchanged.

Scenario 3 (S3): The CIT rate is reduced to 17%, and the other tax rates remain unchanged.

Scenario 4 (S4): The personal income tax rate is reduced to 20%, and the other tax rates remain unchanged.

Scenario 5 (S5): Tax rate for all four taxes is changed s as in S1, S2, S3, S4.

Scenario 6 (S6): The VAT rate is kept constant and other tax rates decrease as in S1, S3, S4.

## **CHAPTER 3. ASSESSING THE IMPACT OF TAX POLICIES ON THE SECTORAL STRUCTURE OF THE VIETNAM ECONOMY**

Based on the proposed research hypothesis, the CGE model is presented in Chapter 2 along with the GAMS software to solve the

model. Chapter 3 will be the focus of assessing the impact of each tax policy as well as overall tax policy on the sectoral change in Vietnam economy.

### **3.1. Current situation of tax policy and economic structure of Vietnam**

#### ***3.1.1. Tax policy of Vietnam since 1990***

#### ***3.1.2. The sectoral structure of the Vietnam economy***

### **3.2. Analysing the impact of each tax policy on the sectoral structure of the Vietnam economy**

#### ***3.2.1. The simulation results of the impact of tariff reduction***

The reduction of tariff rates leads to the economy shifting towards the expansion of industry sector; and shrinkage of agriculture and service sector. The proportion of service sector decreases but output in this sector tends to increase; in particular, the prioritized service sectors expand significantly. This shows that the economy has made positive changes in the integration process; the sector structure is no longer biased towards traditional services. In the industry sector, sectors producing production material have promoted their key role and development, especially the machinery sector. The S1 result also implies that Vietnam industry sector no longer relies on advantageous industries but gradually shifts towards industrialization and modernization in the process of economic integration and reduction of tariff barriers.

#### ***3.2.2. The simulation results of the impact of increasing the value-added tax***

Raising the VAT rate causes the economy to shift in the long run towards the direction of increasing the proportion of agriculture and service sectors (up 0.31%); reduce the proportion of industry sector. In the industry sector, the impact of increased VAT improves

the proportion of consumer goods (seafood processing, food processing, textiles, and footwear) and reduces the proportion of manufacturing sectors (metallurgy, machinery). The S2 result also implies that labor-intensive sectors benefit and expand production more than capital-intensive sectors.

### ***3.2.3. The simulation results of the impact of corporate income tax reduction***

The reduction of the corporate income tax rate in S3 has made the economy move towards increasing the proportion of industry with negligible level. The result of S3 implies that reducing CIT has a negligible impact on production as well as sector restructuring in Vietnam economy.

### ***3.2.4. The simulation results of the impact of personal income tax reduction***

The reduction of the PIT rate in S4 has made the economy move towards increasing the proportion of industry but the increase is negligible. The results of S4 imply that reduction of personal income tax has a negligible impact on the production as well as on the sector restructuring in Vietnam economy.

### ***3.2.5. Synthesize results of simulating impacts of each tax on the economic structure***

The change in import tax has made the structure of industry change towards industrialization and modernization. Meanwhile, changing the VAT makes the economy in the long run reduce the proportion of industry in GDP. The change in income tax has made the structure of Vietnamese economy unchanged.

## **3.3. Evaluating the combined impact of tax policies on the sectoral structure of the Vietnam economy**

### ***3.3.1. Simulation results in 5***

Increasing VAT along with the reduction of import tax, corporate income tax and PIT makes the economy move towards the expansion of industry sector; and the shrinkage of agriculture and service sector. The highlight of this scenario is the strong development of the textile industry which, in turn, promotes industrial development. The S5 results also imply that, in addition to reducing import tariffs as committed, if the government adjusts tax policies under the tax reform strategy and draft law then most sectors will reduce output (noticeably in cultivation and machinery production); and the textile and garment sector will gain advantages and become a key sector in the economy. The positive impact of the reduction of import tax rates (S1) could be eliminated due to the unfavorable impact of increasing the VAT rate.

### ***3.3.2. Simulation results in 6***

Reduction of import tax, corporate income tax, personal income tax while maintaining in S6 will cause the economy to move towards of the expansion of industry sector. The highlight of this scenario is that industry sector, which plays an important role in the industrialization and modernization strategy of the country will increase output. The S6 results also imply that no VAT increase under the draft law of Finance ministry would create incentives for product development and that capital-intensive sectors have a greater chance of developing than those of more labor-intensive sectors.

### ***3.3.3. Synthesize the results of analyzing the simultaneous impacts of taxes on the structure of the economy***

The reduction of import tax, corporate income tax and personal income tax while unchanged VAT (S6) may be a reasonable

choice in the long-term strategy of the Government. The increase in VAT should be considered more carefully in the current context.

### **3.4. The impact of tax policies on macroeconomic indicators**

Lowering the import tax (S1) enhanced GDP by 7.87% in the long term. Reducing tariffs inevitably reduces the budget (down by 1.44% in the short term). Therefore, Vietnam needs to focus on and promote appropriate policies or save money to make up for this shortage. However, the reduction of tariffs is accompanied by an increase in trade and economic expansion, thereby facilitating the increase of other taxes. Therefore, in the long term, reducing tariff can improve the budget by 3.97%.

Raising the VAT rate from 10% to 12% (S2) has a negative impact on production (GO, GDP decrease), a decrease in exports is likely to cause a trade deficit. In the short term, government revenue increases by about 7%. This increase is diminished by the decline in economic activities, particularly in the industry sector, which accounts for a large proportion of the economy (more than 45 %). As a result, in the long run, total government tax revenue does not improve significantly compared to the base year (up 0.12%) due to the decrease in revenues from the tariff, corporate income tax, and personal income tax.

Reduction of corporate income tax (S3) causes a slight decrease in GDP (-0.03%) in the short term but an increase in the long run, while both import and export values improve. However, this scenario negatively affects the state budget with a deficit of about 12%.

Reduction of personal income tax (S4) affects insignificantly the macroeconomic indicators such as GDP, export and import

values. The state budget also reduces insignificantly because PIT accounts for a small proportion of total state budget revenues.

Increasing VAT, reducing other taxes (S5), has a negligible impact on GDP and other macroeconomic variables, with a budget decrease of 15.32%.

Maintaining the VAT rate, reducing other taxes (S5) dramatically enhanced GDP (by 8.27%), exports and imports increases sharply in the long term, the state budget decreases by 11.28%.

It can be said that scenario 6 is the most feasible option in terms of welfare (increase by 4.21%) and long-term strategy of the government. However, the budget deficit is too large (11.28%), so policymakers should consider choosing and changing other taxes to deal with this situation.

The results indicate that only a VAT increase scenario reduces welfare; all the remaining scenarios of changing tax rates can increase welfare for all types of households. Specifically, the welfare of the rich households (H5, H10, H15, H20) in all areas, the sector increases more strongly than the other groups, thus widening the income gap.

## **CHAPTER 4. IMPLICATIONS**

This chapter outlines the basics of policy implications, leading to the proposing a number of policy implications for the Government to select and implement a tax policy that contributes to promoting the shift of the economic structure along the direction of industrialization and modernization.

### **4.1. Background for policy implications**

#### ***4.1.1. Main findings from research results***

After evaluating the simulation results of the impact of tax policies on sectoral structure changes in the Vietnamese economy in relation to economic growth, government budget revenue, and the household welfare, the main results are as follows:

The changes in the indirect tax rates (VAT, import tax) have a stronger impact than changes in direct tax rates (CIT, PIT).

The reduction of import tax rate leads the economy move toward the increase of the proportion of industry and the reduction of the proportion of agriculture and services.

The reduction of the rates of import tax, CIT and PIT have a positive impact on the economic sector restructuring toward the industrialization and modernization, promoting economic growth and improving household welfare.

Increasing VAT rate negatively affects the sectoral structure, economic growth, and household welfare.

Increasing VAT rate along with reducing import tax rate, CIT rate and PIT rate also results in the increase in the proportion of industry and the reduction in the proportion of other sectors in the economy. The increase in a VAT rate results in the decrease in national budget revenue as opposed to the expected increase.

Maintaining the VAT rate and reducing the rates of other taxes help promote the process of economic sector restructuring toward the industrialization and modernization. These also result in the strong increase in the welfare and GDP in the long run. The national budget has decreased but the percentage of the decrease is lower than the percentage of the increase in the VAT rate.

#### ***4.1.2. The orientation of the sectoral restructuring in the Vietnam economy***

By 2020, the share of the agriculture sector is at 10%; the share of industry and construction will be planned to increase to 45%, and the share of services will be planned to increase to 45%.

#### **4.2. Implication**

Firstly, the government should have appropriate support policies to promote and develop hi-tech industries in order to increase productivity and competitiveness of domestic goods and boost exports. The government should also consider policies that support R & D and create conditions for adding value to exports until when tariff decreases.

In addition, the revenue from taxes will decrease when tariff lines are reduced to 0%. This affects the national budget revenue. This also requires the government to seek for other sources of revenue such as increasing the revenue from other taxes, increasing debts or cutting regular expenditure in order to stabilize the state budget balance. However, simulation results show that the reduction of import tariffs is accompanied by an increase in trade and economic expansion, which in turn has facilitated the increase of other taxes. Therefore, in the long term, although reducing import taxes, the budget will increase 3.97%. Moreover, the reality shows that in the period 2011-2015, total state budget revenues increased, of which total revenue from VAT increased (while not increasing the tax rate). Therefore, the Government does not necessarily increase the tax rate of other taxes to offset the reduction of import revenue. In the context of rising public debt, the solution to increase debt can not be implemented. As a result, depending on the stage and policy objectives, these fiscal balance measures need to be taken into account to ensure macro stability and encourage the production

and consumption. This helps avoid contradictions with efforts of other policies. In the short term, policies should focus on cutting regular expenditure.

Secondly, in the context of the current Vietnamese economy, the increase in the VAT rate makes the structure of the economy, in the long run, shift towards increasing the share of GDP in agriculture and services. Thus, the sectoral structure under the influence of increasing VAT is not really in line with the target shift from agriculture to industry and services as set out in the socio-economic development strategy in the period 2011-2020 in Vietnam.

In addition, increasing the VAT rate could help improve tax revenue for the government budget (about 7%) in the short term. However, in the long run, the increase in the VAT rate distorts the price system of goods which adversely affects the production. As a result, in the long run, total government tax revenue was not significantly improved (0.12%) due to lower revenue from import tax, corporate income tax, and personal income tax. Therefore, if the policy of increasing VAT rate is implemented, the target of using VAT policy for increasing the state revenue may not be as expected.

With this above discussion, the Government should consider the policy of increasing the VAT rate when the policy targets are oriented towards the sectoral structure in the direction of industrialization and modernization and increase the tax revenue.

Thirdly, the general trend of countries is to gradually reduce the income tax rate to increase the attractiveness of the investment environment. In the context of the current Vietnamese economy, the reduction of the income tax rate has a negligible impact on economic growth as well as the restructuring of the sector. However, when

combining with the scenario of reduction of import tax rates, the combined effect of these policies is greatly activated, resulting in the sectoral structure changes towards industrialization and modernization, the stronger economic growth and the increase in household welfare. Therefore, the Government should incorporate income tax policies with other tax policies to enable the development of the economy.

Finally, reducing import taxes is inevitable in the context of Vietnam's current international economic integration. However, the reduction of import tax rate should be considered simultaneously with other tax policies. In all proposed scenarios, the scenario with no change in the VAT rate and the reduction in the rates of the import tax, CIT, and PIT is the most reasonable option in the current period for the Government with respect to the restructuring the sector toward the industrialization and modernization as well as macroeconomic indicators. However, due to the significant decrease of the national budget, the government should consider cutting regular expenditures and calling for other sources of revenue.

## **CONCLUSION**

### **1. The research results**

The study systematizes a number of theoretical reviews on the impact of tax policies on the sectoral structure. In particular, the study synthesizes concepts, contents, factors affecting tax policies and the sectoral structure. It also explains the impact mechanism of tax policies on the economy and the sectoral structure.

The study synthesizes and analyzes the current situation of tax policies and the sectoral structure of the Vietnam economy as a basis for developing simulation scenarios about the changes in tax rates

and the selection of appropriate tax policies in the current context.

The study has established the 2012 SAM for Vietnam based on the clear and reliable published data to simulate the impact of tax policies based on the DCGE model. This is a vital dataset for researchers using to simulate the impact of economic policies based on economic models.

The study uses the DCGE model, the VSAM2012 data set and the GAMS software to analyze and estimate the impact of each tax as well as the combined effect of tax policies on macroeconomic indicators, household groups and the trend of restructuring the sector in both short-term and long-term through the simulation of tax rate change scenarios. Estimated results provide empirical evidence to demonstrate the mechanism, magnitude, and appropriateness of tax policies in Vietnam.

Based on empirical simulation results, the study suggests a number of implications for the selection of appropriate tax policies (The VAT rate is kept constant and reduction of the rates of import tax, CIT, and PIT) to restructure the economic sector toward the industrialization and modernization, stabilize the macroeconomy and improve the household welfare.

## **2. Limitations**

The study uses the CGE model for analyzing the impact of tax policies on the structure of the Vietnamese economic sector. There are still some limitations:

About the model: The DCGE model used in the study is a multi-sector, multi-household, competitive, small/price-taking open economy model. The model has not integrated with the GTAP model to analyze the effects of international economic policies.

The downside of the CGE model is its association with assumptions. In particular, there is an assumption about the equilibrium of the economy even this is unlikely to occur in reality.

About the data: In VSAM2012, the economic relationships between Vietnam and foreign countries are commonly shown in the row and column named ROW. Meanwhile, the tax rates on imported goods from different countries are not the same. Moreover, the calculation of the average tax rate for each product line in VSAM2012 has leveled the difference in tax rates among the more detailed products. As a result, the change in tax rates does not coincide with the actual change in tax rates for narrow sectors.

### **3. Future research directions**

The CGE model is increasingly used in policy analysis. It is possible to use the dynamic CGE model to simulate the impact of changing the different tax rates, different taxes on the Vietnamese economy in general and each economic sector in particular.

It is possible to develop a dynamic CGE model for analyzing the impact of other economic policies on the Vietnamese economy.

It is possible to integrate the CGE model with the GTAP model to analyze the impact of the international economic policy.

## LIST OF PUBLISHED SCIENTIFIC ACHIVEMENTS

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