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主 論 文 の 要 旨

論文題目

Incidents of the New Policies for Promoting Trade with Climate Change Consideration: A Case of Thailand

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論 文 内 容 の 要 旨

International trade has been the primary source of economic growth of Thailand over the past three decades. Thailand's international trade policy is on track to free trade as its government emphasized on export promotions and trade agreements. Historical statistics indicate that Thailand succeeds in promoting free trade policy or trade reform to promote economic growth and poverty reduction. However, if climate change is concerned, an important question arises whether trade reform will eventually harm an environment by raising GHG emission. An answer to this question may reshape our perspective on trade reform from benign to something else.

To re-examine trade reform with climate change considerations, impacts of trade reform in multi-dimensions relating GHG emission, poverty, and income distribution need to be assessed. There are two objectives of the study. The first objective is to analyze impacts of trade reform on GHG emission of Thailand when implementing with and without the carbon tax. The second objective is to assess impacts of trade reform in the similar way of the first objective, but the impacts on poverty and income distribution are taken into account.

At first, the study presents background of the Thai economy, international trade, environment, and climate change. In the company of economic growth and structural change, rapid economic growth during trade promotion period has positive impacts on the poverty and income distribution. However, the volume of GHG emission has continuously increased. To date, Thailand does not have direct measures for dealing with GHG emission. Market-based measures such as pollution surcharge and carbon tax are scheduled to launch shortly. When carbon tax is enforced, poverty and income distribution will be affected, as the tax will redistribute income of agents in the economy.

There are two stages of analysis for examining impacts of trade reform on the environment and poverty. At the beginning, this study applies the Standard Computable General

Equilibrium (CGE) model and calibrate it with the Social Accounting Matrix (SAM) of Thailand. Impacts of trade reform when imposing with and without carbon tax are assessed under six scenarios. Scenario one is a simulation of full trade reform (import liberalization) that tariffs are removed across the sectors. Scenario two is a simulation of trade reform policy in carbon intensive sectors, so called the partial trade reform. Scenario three is a simulation of the lax carbon tax without trade reform. Scenario four is a simulation of the strict carbon tax without trade reform. Scenario five addresses full trade reform with the lax carbon tax. Scenario six is a mixed policy of full trade reform and the strict carbon tax.

For environmental impact evaluation, results from the CGE analysis are used to calculate the changes in the level of GHG emission. Results reveal that the full trade reform enhances economic growth, but Thailand has to face an expansion of GHG emission at the same time. Adverse impacts of full trade reform can be eliminated by introducing the carbon tax. Nonetheless, the degree of a carbon tax is important. Strict carbon tax reduces substantial GHG emission but also leads to economic contraction. Thus, the lax carbon tax is more desirable for Thailand case. Results also indicate that partial trade reform brings about benefits both to economy and environment by enhancing economic growth and reducing GHG emission. Thus, to impose trade reform policy with climate change considerations, there are two possible solutions (a) mixed policy package of full trade reform and lax carbon tax and (b) the partial trade reform.

To obtain impacts of trade reform and a carbon tax on poverty and income distribution in Thailand, results from CGE simulation are utilized by micro-simulation method to find changes in poverty incidences. A calculation of poverty variations is done at household level using data from the 2005 Household Socio-Economics Survey (SES). Micro-simulation results show that trade reforms, both full and partial trade reform, are beneficial for the poverty reduction but neutral to income distribution. Similar to GHG emission analysis, the degree of a carbon tax is matters. A lax carbon tax is beneficial to poverty reduction, but strict carbon tax adversely affects poverty. Both of them have negative impacts on income distribution. Reconsidering the particular two policies that successfully reducing GHG emission and boosting economic growth, the partial trade reform and the policy package combining the lax carbon tax and full trade reform, the findings show that partial trade reform is slightly more successful in the poverty reduction than the mixed policy. An analysis of poverty dynamic confirms the findings as comparison between policy scenarios shows that the partial trade reform contributes the greatest advantage to the poverty reduction. However, it is important to note that the carbon tax, either combining with trade reform or imposing individually, generates government revenue that can be utilized for desired purposes. The government can use carbon tax revenue for launching a fund to cope with climate change, enhancing economic growth, and compensating income loss in the poor household.

Apart from the six scenarios discussed earlier, two more scenarios, pollution control

policy and measures in transportation sector, which are illustrations of the “command and control” strategies, are integrated with full trade reform. These two scenarios represent technological progress that cannot be simulated endogenously by the CGE analysis. Pollution control policy, the first scenario, is defined as the government uses command and control approach to regulate GHG emission from carbon intensive sectors. Consequently, producers in the carbon intensive sectors adjust their production toward low carbon production technology. An emission intensity of carbon intensive sectors is assumed to reduce by half as illustrative of technology progress. Environmental measures in a transportation sector, the second scenario, is similar to the pollution control policy except an assumption that the government imposes policy only in transportation sector. Thus, under the second scenario, emission intensity of transportation reduces while emission intensity of other sectors remains the same. Findings show that integrating command and control policy with full trade reform is helpful for GHG emission reduction. Since command and control approach refers to technology development or legal pollution controls, it can be considered that there are no significant changes in factor returns or employment. Thus, using the command and control policy is rather neutral to poverty and income distribution.

Research findings can be summarized in line with the research objectives. For the first objective, results show that environmental impacts of trade are different depending on the characteristics of trade reform. If trade reform is done across the sectors, GHG emission will increase and production structure will move toward the carbon intensive sector. These adverse impacts can be avoided by reducing tariff in “carbon intensive sector” or choosing partial trade reform. Another option for dealing with GHG emission raised from trade reform is the lax carbon tax. A mixed policy of lax carbon tax and full trade reform should be imposed to control GHG emission while the economy can still enjoy the expansion.

For the second objective, trade reform, both full and partial trade reform, reduces the poverty but degrades income equality. The mixed policy of trade reform and lax carbon tax produces similar consequences. The mixed policy contributes positive impacts on the poverty but negative impacts on income distribution.

In conclusion, trade reform is worthwhile for Thailand, but it has to be applied carefully. Based on the research findings, there are some issues that the policymakers should notice.

- i. Partial trade reform is a useful trade policy for Thailand when climate change is taken into account. The partial trade reform enhances economic growth and reduces the poverty of Thailand, without shifting economic structure toward carbon intensive sectors and causing substantial GHG emission. Thus, partial trade reform should be promoted instead of the full trade reform.
- ii. The country should adopt mixed policies of full trade reform and lax carbon tax if full trade reform is required to accomplish. Note that the degree of a carbon tax should be

taken into consideration. Thailand should adopt mixed policies of full trade reform with a lax carbon tax. With the mixed policy, advantages of economic growth and poverty reduction received from trade reform still exist, and climate change is still under control.

- iii. Revenue recycling is significant and should be selected carefully. Implementing the carbon tax raises government revenue that can be utilized for various purposes depending on government objectives. If the government picks appropriate channel for revenue recycling, country will possibly benefit from both the environment and poverty aspect at the same time.
- iv. Thailand should promote low carbon technology. Implementing low carbon technology supports GHG mitigation without worsening poverty and inequality problems.
- v. Universal policy that accomplishes all development goals does not exist. Results of this study highlight an importance of imposing policy in a “package”, particularly when multiple development targets are established. As each policy has its own advantages, policymakers must realize this knowledge and choose to implement the policy package that corresponds to the targets.

