

SUMMARY OF MASTER'S DISSERTATION

Student Identification Number	80833167	Name	Shinya Kuramoto
<p>Title Study on Design of Carbon Tax Rate by Considering both Environment and Economy</p>			
<p>Abstract</p> <p>In recent years, there is a significant growing of global awareness for natural environment, greenhouse gas emissions and environmental policy. There are multiple measures to cope with the issues, the world tends to introduce environmental taxes (e.g. carbon tax) as an effective and practical solution of the worldwide issues. The trend is typical to Europe, especially in Western and Northern European countries and it was in France that environmental tax was initially introduced in 1970's followed by Northern European countries (Finland, Norway, and Sweden) in 1990's. Most of the countries have finished introduction by 2001.</p> <p>In this thesis, the author firstly analyzes the environmental tax structure in European countries both in the past and at present which has affected industrial production of the countries. Secondly, an original environmental taxation system is to be build. The new Japanese environmental tax suits to its economic structure: composition of industries, present eco-technology, and consumer's utilities. Finally, the target is to maximize the tax revenue from industry, incentive toward nation, and Gross Domestic Product, meanwhile curb carbon dioxide emissions to the minimum.</p> <p>Then, the author utilizes GAMS as a simulation method to estimate the tax-imposed Japanese economy. Tax rates are set from ¥0 JPY to ¥20,000 JPY. The author examines several tax rates to achieve a purpose in this tax rate range.</p> <p>As the consequence of calculation, the maximum point of tax revenue is 17,700yen/t-CO₂, the government gains 2 trillion 87.68 billion yen. The carbon dioxide emission is calculated to 117.9 million tons, 34.7% compared to present. 17,700yen/t-CO₂ taxation equals to 40.71 yen burden in case of 1 liter gasoline. That is approximately ten times as much as the existing carbon exchange market- 1,500 yen/t-CO₂. However, GDP declines to 296 trillion 988.2 billion yen, which is 60% of present. This reduction does not mean the realization of sustainable society.</p> <p>On the other hand, the author found 4,800yen yen/t-CO₂ is sufficient to achieve 25% carbon emission cut, which is now the Japanese government's target. In this case, GDP turns into 426 trillion 310.9 billion yen, 86.26% of present. Though that indicates carbon tax itself can not achieve the government's emission reduction target, the carbon tax integrated with technology innovation can solve to mitigate global warming.</p> <p>Key Words: Environmental Tax, Economic Structure Change, Macro Economics, Policy Analysis, Design Policy</p>			