

Title: The Effects of Carbon dioxide Emission Control on Thai Economy by Using Fuel Taxes

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Abstract: This paper studies the effects of carbon dioxide emission control on Thai economy by using fuel taxes. The reasons why studying this topic are that the climate change or global warming becomes one of the most serious problem in the world today. All of countries all over the world have to respond in this problem. Currently, there is Kyoto Protocol, an agreement to reduce and control the greenhouse gas emissions in developed countries and the developing countries tend to have to join this agreement soon. This requires the countries to study about the different method to control their greenhouse gas emissions and the effects of each method on the various aspects. This paper studies the effects of fuel taxes because in domestic level, tax is the most effective and practical method to reduce the greenhouse gas emission.

The methodologies in the paper are divided into 2 parts. First, an Almost Ideal Demand System (AIS) model will be used to explain the relationship between changes in fuel prices and change in the consumption of each sector. Second, Input-Output model will be used to study the effects of change in consumption in each sector on the economy. The whole model will be simulated by using STELLA program.

There are 3 scenarios contained in the paper. Scenario A studies the effects of each type of fuel tax separately. It is divided into 3 scenarios: A1, A2 and A3. The effects of 10% tax on coal price, oil price and natural gas price are found out respectively. Scenario B studies the effects of 10% tax on carbon dioxide emission or carbon dioxide price. Scenario C studies the effects of taxing 500 Baht/ton of carbon dioxide. The results indicate that tax on oil price is one of the good policies while tax on coal and natural gas price will increase oil use. And in scenario C, which is the popular method, the natural gas price will increase a lot even it emits least carbon dioxide (166% compare to its price). The recommendation is that taxation should be considered on its effects on fuel price, because the price will change the behavior of consumption of consumer and producer.

Keywords: Carbon dioxide emission, fuel taxes, Kyoto Protocol, Thai economy

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