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The effect of carbon tax on economic welfare index in Iran with dynamic systems approach

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EXTENDED ABSTRACT

INTRODUCTION

Every country has constant needs to improve its economic structure and sustainability, which can increase the government's long-term planning and policies. Among the types of government resources, tax as a permanent and predictable source has always been the concern of statesmen. On the one hand, taxes have an impact on the distribution conditions of the society due to the impact of taxes, and on the other hand, they have allocation effects by moving resources from one market to another. Therefore, economists always seek to identify tax bases that impose the least inefficiency on the society. Among the types of taxes, the only tax base that has such a feature is environmental taxes. This tax base, which is applied to all types of environmental pollution, not only does not impair efficiency, but also increases social benefit due to the reduction of costs caused by pollution. Since the carbon tax can generally affect the welfare indicators in an economy, the main goal of this article is to determine the effect of the carbon tax on the level and index of economic welfare in Iran.

METHODOLOGY

This research has investigated the effect of green tax on economic welfare in Iran by using the time series data of Iran's economy in the period (1371-1399) and using the dynamic systems approach. Based on the descriptive statistics and the analysis of the variables affecting the green tax in the past

years, two effective variables of inflation and GDP have been investigated to investigate the effect of the green tax on economic well-being. Considering the structure of dynamic models and the systematic relationship that exists between the variables and as a result the equations of each part, it is important from the point of view of analysis how the variable that is the communication channel between the independent variable and the function variable has been affected and from It reacts. Based on this, the variables of green tax and carbon dioxide emissions and economic well-being are defined in the form of equations in the framework of dynamic systems, and using Vensim software in two scenarios of 3% increase in GDP and 25% increase in inflation and two scenarios for forecasting the time period (1400-1406), the effect of two effective variables of inflation and gross domestic product has been investigated to investigate the effect of green tax on economic well-being.

FINDINGS

Based on the first scenario, the output of the model has shown that the change in GDP has a 3% response to both greenhouse gas emission and green tax variables. Since the purpose of defining the scenario was to determine the impact of the carbon tax on the level of economic welfare. The set defined to characterize this effect is that it is influenced by GDP, the carbon tax of greenhouse gas emissions has been investigated. Naturally, the amount of greenhouse gas production is a factor for influencing economic welfare. The second scenario was to determine the economic effects of the carbon tax on economic welfare with a 25% change in the increase in the general level of prices. Since, based on the theoretical basis of the research, inflation from the channel of greenhouse gas emissions has an effect on the green tax, the output chart shows the effect of 25% inflation on the green tax. Also, the output of the model shows that the change in inflation as much as 25% has resulted in the reaction of all three variables of green tax, carbon emission and economic welfare. The outputs of the 3% GDP increase scenario for the time horizon (1400-1406) indicate that due to the growth of the GDP, the flow of greenhouse gases experiences an upward trend. And on the other hand, due to the weak laws and regulations in the tax system, along with production incentive policies, the flow of green tax interprets a downward trend. In general, in the future, increasing economic

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growth through the channel of carbon reproduction and emission will decrease the level of economic welfare. And practically, due to the weak role of the green tax, this decrease in welfare can be justified. And finally, the outputs of the 25% inflation increase scenario for the time horizon (1400-1406) indicate that inflation also has an increasing effect on greenhouse gas emissions and a decreasing effect on the green tax and thus the welfare index.

CONCLUSION

Considering that the average economic growth in the last 20 years of Iran's economy was 3%, the first scenario showed that through the carbon tax channel, the effect of GDP increase on the welfare index was seen. On the other hand, in the second scenario, the effect of carbon tax through inflation was observed. As the output of the model shows, inflation with an increase of 25% has been able to affect the government budget and the government budget on green tax and green tax on welfare. Therefore, it is concluded that the changes in inflation can affect the degree of influence of green tax on welfare in Iran. Also, the output of the model shows that the higher the inflation rate, the more it can have a greater impact on the welfare index through the effective channel of the government budget and green tax. Based on this, it is suggested that in order for the green tax to have positive effects on welfare, it should be focused on the two channels of GDP and inflation. Therefore, it should be noted that based on the results of the model, in the future, the increase in economic growth and the increase in inflation through the proliferation and emission of carbon will lead to a decrease in the level of economic welfare. Since a huge part of government spending in Iran's economy is construction and capital spending, which is related to production and as a result of co2 production, based on the obtained results, it is suggested that the government's investment should be in the direction of renovating factories and replacing worn out machines and using industrial machines with higher technology and less fuel consumption and pollution. Also, using higher quality fuels and clean energies instead of fossil fuels, take a more serious approach.

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