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硕 士 学 位 论 文

基于CGE模型的碳税税率设计

The Designation of Carbon Tax Rate

——Base on the CGE Model

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## 摘要

中国是一个人口众多、人均资源量低、粗放型生产的大国。受能源分布的约束，我国是世界上少有的以煤炭为主的能源消费国之一。改革开放30年来，我国经济高速发展，碳排放量也逐年增加，而且增长很快。虽然《京都议定书》并没有规定中国当前的碳减排要求，但是温室效应、全球气候变暖是当前全球每个国家都面临的环境问题，中国作为全球最大的发展中国家有责任也有义务早日参与到全球碳减排的伟大计划中。因此，早日建立真正以环保为目的的税收，完善我国环境税制已成为当前政府工作的重点。碳税是实现节能减排的有力政策手段，也是保护环境的有效经济措施。全球已经有不少国家开征了碳税，如丹麦、芬兰、德国、荷兰、挪威、瑞典、瑞士、和英国等，我国也早就存在征收碳税的必要性和可行性。碳税（Carbon Tax）是指针对二氧化碳排放所征收的税，即按碳含量的比例对燃煤和石油下游的汽油、航空燃油、天然气等化石燃料产品征税，以减少化石燃料消耗和二氧化碳排放的一种环境税。虽然多种研究成果都表明碳税能够取得显著的碳减排效果，但征收碳税会在一定程度上造成对能源价格、能源供应与需求和经济增长等方面的影响。因此，有必要就碳税问题及其对我国社会、经济、环境等方面的影响进行深入研究，从而合理制定相关的碳税制度和政策，在促进节能减排的同时，将其对经济的不利影响降到最低。

本文在回顾国内外关于碳税的研究和分析的基础上，结合目前世界各国二氧化碳等温室气体的排放情况和节能减排的情况，对我国目前征收碳税的必要性和可行性进行了简单的介绍。文章接着通过建立一个包含三个模块的可计算一般均衡模型（CGE模型），运用中国近年的经济数据进行模拟，初步探索对经济增长的影响在可接受范围内，同时使社会总效用最大化的适合中国目前现状的碳税税率。文章最后针对碳税的征税范围、征税对象、计税依据和征税环节等方面提出相关政策建议，希望对我国未来碳税的开征有所帮助。

**关键词：**碳税税率； CGE模型； 政策建议

## Abstract

China is a country with a large population and low per capita resources.

Constrained by the energy distribution, China is one of the rare countries with coal-based energy consumption in the world. Thanks to the 30 years of reform and opening up, China has a rapid economic development. However, the carbon emission has increased too, and it's growing fast every year. Although the "Kyoto Protocol" does not require China's carbon emission reduction requirements now, the greenhouse effect, global warming is the global environmental problem faced by each country nowadays. As the world's largest developing country, China has the responsibility and obligation to participate in the great global carbon emission reduction plan as soon as possible. Therefore, to establish the environmental tax with the real purpose of environmental protection, and improve our environmental taxation has become the focus work of our government. Carbon tax is not only an effective energy conservation policy instruments, but also an effective economic measure to protect the environment.

A number of countries in the world have introduced carbon tax, such as Denmark, Finland, Germany, Netherlands, Norway, Sweden, Switzerland, and the United Kingdom, etc.. China has the necessity and feasibility of levying carbon tax.

Carbon tax is a kind of environmental tax, which is levied for the tax carbon dioxide emissions, with the purpose of reducing the consumption of fossil fuel and carbon dioxide emissions. In other means, carbon tax is levied on the carbon content ratio of coal, gasoline, aviation fuel, natural gas and other fossil fuel products. Although many studies have shown that carbon tax can achieve significant carbon emission reduction effect, carbon tax will have certain degree of effect on energy prices, energy supply & demand and economic growth.

Therefore, it is of higher important to have an in-depth study on carbon tax and its impact on China's social, economic, environment and other aspects of the

country. Studying carbon tax is also helpful for developing a reasonable carbon tax system and related policies, to promote energy saving program and minimize its negative impact on economy at the same time.

This paper reviews through the internal and external research on the carbon tax firstly. It then explores the necessity and feasibility of levying carbon tax in China. And finally the paper tries to find an acceptable carbon tax rate for China by establishing a Computable General Equilibrium model (CGE model) consisting of three modules, and using China's economic data to do the simulation. The paper finds the acceptable carbon tax rate for China, which has the proper effect on China's economic growth, while making the greatest overall social utility for the Chinese utility. The paper also provides some policy recommendation on the scope of carbon taxation, taxed and the tax basis, with the hope of offering some help for the introducing of carbon tax in the future.

**Keywords:** Carbon Tax Rate CGE Model Policy Proposals

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