

摘要

水资源是一种关系到国民经济、民生、生态等方面的重要战略资源，合理利用和保护水资源是“五位一体”总体战略布局中生态文明建设的重要一环。当前，我国经济逐步转型至高质量、绿色可持续发展，全面深化改革也步入了关键时期，但与此同时，我国水资源供需矛盾愈发严峻，水资源缺乏现象日益突出，水资源的稀缺性和空间分配不均俨然成为了现阶段制约我国经济绿色、可持续发展的重要阻碍。改革开放后，我国为了缓解水资源供需矛盾、遏制水资源过度开采、打击污染浪费水资源等，也采取了一系列的政策措施。其中，征收水资源费是适用范围最广、力度也是最大的一项举措。相较于收费，税收作为政府宏观调控的工具之一，显然在实现资源优化配置、调节经济运行等方面具有更大的作用，能够形成更为有效的约束机制。基于此，我国开始探索推行水资源税改革试点，2016年7月，河北省成为首个试点实施水资源税的省份。2017年12月，北京、天津、山西、山东、内蒙古、河南、陕西、宁夏、四川九个省份（直辖市、自治区）也开始试点实施水资源税，形成了“1+9”的试点格局。

本文以水资源利用效率为研究对象，探讨了水资源税改革试点对试点地区水资源利用效率的影响。第一，介绍了水资源税的相关概念，阐述了水资源税改革试点的理论依据和水资源税影响水资源利用效率的作用机制。第二，介绍了水资源税的发展历程、税制要素，并通过数据和案例阐述了水资源税改革试点以来所取得的成就以及存在的问题。第三，介绍了合成控制法原理，利用2012-2021年间各省份水资源相关数据，分析水资源税改革试点对试点地区水资源利用效率和用水量的影响，而后按照农业用水、工业用水和生活用水进行划分，进一步分析水资源税改革试点对不同类型用水的影响。

实证结果表明：（1）所有试点地区万元GDP用水量均显著下降，水资源税改革试点提高了所有试点地区的水资源利用效率。其中，河北、天津、陕西、山西、河南的万元GDP用水量在水资源税改革试点后显著减少，而北京、山东、内蒙古、四川、宁夏的万元GDP用水量虽然在政策实施后也出现了下降，但减少幅度相较于上一组不够明显。

（2）分用水类型来看，水资源税政策效应在不同行业间存在差异。第一，对于农业用水，所有试点地区的农业用水效率均有提升；而除四川和宁夏外，其他试点地区的农业用水量也均显著减少。第二，对于工业用水，所有试点地区的工业用水效率显著提升，工业用水量也显著减少。且与农业用水相比，试点地区的工业用水量下降幅度要高于农业用水量，表明水资源税政策对工业用水的影响更大。但河北、天津、山东和宁夏工业用水量在政策实施后期有上升趋势，政策效应力度有所减弱，出现了政策“疲软”的现象。第三，对于生活用水，与农业和工业用水不同，所有试点地区的人均日生活用水量和生活用水总量均有所增加，这表明水资源税改革试点在面对生活用水的“刚性需求”

时并未发挥应有的政策效果，如何对生活用水进行有效调控也将是今后水资源税改革试点的重要方向之一。第四，除宁夏外，所有试点地区的地下水供水量在政策实施后均出现了下降。基于实证结果，在借鉴国际经验的基础上，从优化水资源税制度、加强部门税收征管能力和明确水资源税税款支出用途三个方面提出完善水资源税政策的建议。

本文的创新之处在于一方面采用了合成控制法，能够弥补传统的双重差分在非随机性样本中的不足，避免人为选择的主观性带来的偏差。另一方面则是对所有试点地区均进行了实证分析，而不是只聚焦在首个试点省份河北省，能够更加全面考察水资源税政策的实施效果。

关键词：水资源税；合成控制法；水资源利用效率

Abstract

Water resources are an important strategic resource related to the national economy, people's livelihood, ecology, and other aspects. Reasonable utilization and protection of water resources are an important part of the overall strategic layout of the "Five in One" ecological civilization construction. At present, China's economy is gradually transforming to high-quality, green and sustainable development, and the comprehensive deepening of reform has also entered a critical period. At the same time, however, the contradiction of water supply and demand in China is becoming more and more serious, and the shortage of water resources is becoming more and more outstanding. The Scarcity of Water Resources and Unbalanced Spatial Distribution has become a major barrier to the sustainable development of Chinese economy. After the reform and opening up, China has also adopted a series of policy measures to alleviate the contradiction between water supply and demand, curb excessive exploitation of water resources, and combat pollution and waste of water resources. Among them, collecting water resource fees is the most widely applicable and powerful measure. Compared to fees, taxation, as one of the tools for government macroeconomic regulation, clearly plays a greater role in optimizing resource allocation and regulating economic operation, and can form a more effective constraint mechanism. Based on this, China has begun to explore the pilot implementation of water resource tax reform. In July 2016, Hebei Province became the first province to pilot the implementation of water resource tax. In December 2017, nine provinces (municipalities directly under the central government, autonomous regions) including Beijing, Tianjin, Shanxi, Shandong, Inner Mongolia, Henan, Shaanxi, Ningxia, and Sichuan also began pilot implementation of water resource tax. As of now, there are ten pilot areas for water resource tax reform in China.

This article takes water resource utilization efficiency as the research object and explores the impact of water resource tax reform pilot on water resource utilization efficiency in pilot areas. First of all, this thesis introduces the conception of water resource tax, and expounds the theory foundation of the experiment reform and the mechanism of water resource taxation. Secondly, the development process and tax system elements of water resource tax were introduced, and the achievements and existing problems since the pilot reform of water resource tax were explained through data and cases. Thirdly, the principle of the composite control method is introduced. Using the relevant data of water resources in various provinces from 2012 to 2021, the impact of the water resources tax reform pilot on the water resources utilization

efficiency and water consumption in the pilot area is analyzed. Then, the impact of the water resources tax reform pilot on different types of water use is further analyzed according to the division of Farm water, industrial water and domestic water.

The empirical results indicate that: (1) The water consumption per 10000 yuan of GDP in all pilot areas has significantly decreased, and a pilot project on the Water Resource Tax Reform has improved the efficiency of the use of water resources in all pilot areas. Among them, the water consumption per 10000 yuan of GDP in Hebei, Tianjin, Shaanxi, Shanxi, and Henan significantly decreased after the pilot water resource tax reform, while the water consumption per 10000 yuan of GDP in Beijing, Shandong, Inner Mongolia, Sichuan, and Ningxia also decreased after the policy implementation, but the reduction was not significant compared to the previous group. (2) From the perspective of water use types, there are differences in the effects of water resource tax policies among different industries. First, for Farm water, the efficiency of Farm water in all pilot areas has been improved; Except for Sichuan and Ningxia, agricultural water consumption in other pilot areas also decreased significantly. Secondly, for industrial water use, the efficiency of industrial water use in all pilot areas has significantly improved, and the amount of industrial water used has also significantly decreased. And compared with Farm water, the decreasing in industrial water consumption in the pilot area exceeds that in agriculture, indicating that the water resource tax policy has a greater impact on industrial water consumption. However, the industrial water consumption in Hebei, Tianjin, Shandong, and Ningxia showed an upward trend in the later stage of policy implementation, with weakened policy effects and a phenomenon of policy "weakness". Thirdly, for domestic water use, unlike agricultural and industrial water use, the per capita daily domestic water use and total domestic water use in all pilot areas have increased. This indicates that the water resource tax reform pilot has not played its due policy effect in facing the "rigid demand" for domestic water use. How to effectively regulate domestic water use will also be one of the important directions for future water resource tax reform pilot projects. Fourthly, except for Ningxia, the groundwater supply in all pilot areas has decreased after the implementation of policies. Based on empirical results and drawing on international experience, suggestions on improving water resource taxation policy are put forward in three respects: ameliorating the water resource tax system, strengthening departmental tax collection and management capabilities, and clarifying the purpose of water resource tax expenditure.

The innovation of this article lies in the use of composite control method, which can compensate for the shortcomings of traditional double difference in non random samples and avoid the bias caused by subjective selection. On the other hand, empirical analysis was

conducted on all pilot areas, rather than focusing solely on the first pilot province, Hebei Province, to comprehensively examine the implementation effect of water resource tax policies.

Key Words: Water resource tax; Synthetic control method; Water resource utilization efficiency

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