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The Importance of Coase Theorem in the Context of Ecological Taxation: Case of Central Asian Region

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Abstract
In this article, an attempt was made to evaluate the economic and theoretical aspects of the Coase theorem, an analysis of its mechanisms for taxation of the result of environmental losses, the procedure for its application to prevent negative environmental situations, and the impact on the economy of developing countries. The problems were studied by applying Coase's theorem, and scientifically based conclusions and suggestions were given accordingly.

Keywords: economy, ecology, product, competitiveness, theorem, information, resource, government, taxation, pollution, law, efficiency, negotiations.

Introduction

Coase's theorem is central to the theory of environmental economics and regulation. But its applicability to solving real external problems remains controversial. In this article, we first consider this fundamental contribution in its historical context. Then we study the experimental literature, in which the importance of many, often implicit assumptions contained in the Coase theorem was tested in laboratory conditions. We discuss a selection of applications of Coase's theorem to real environmental problems, distinguishing between situations in which the polluter pays or the recipient of pollutants. Despite its limited scope, the Coasian bargaining over external factors offers a pragmatic solution to problems that are difficult to solve in any other way.

Economic goods are divided into excluded/competing, excluded/uncompetitive, non-exclusive/competing, non-exclusive/uncompetitive categories. While the market supply of excluded goods leads to levels of consumption and supply that are considered suitable to meet the criteria of optimality, market failure occurs in the case of non-excluded goods, regardless of their competing or uncompetitive nature (Schneider N. – 2022. – T. 8. – №. 2. – C. 93-100).

The principle of efficient distribution of natural and environmental benefits, which is fundamental for the resource economy, cannot be separated from policy instruments.

Through the involvement of public and private actors from different sectors and administrative levels, joint processes solve complex issues by identifying common problems, exchanging information and reaching consensus on results that include policies, management plans and actions on the ground.

The purpose of the study is to assess the relevance of the Coase theorem in the context of environmental planning. The main goal is to offer a critical but synthetic assessment of this theory, related to empirical conditions that can negate the local strength of the theory. It is believed that the arguments related to this give the reader a general picture, as well as comprehensive knowledge on this topic.

Literature Analysis

Pigou first defined the principle of externalities as a situation in which marginal private costs differ from marginal social costs. Without government intervention, inefficient resource allocation would be caused by a mismatch between private and social costs. Pigou therefore proposed a program including taxes and subsidies ("bounties") that were deemed appropriate to internalize these externalities. By doing so, he deliberately advocated state intervention by the public (Pigou, A. C. (1920)).

Coase proposed a controversial article challenging Pigou's approach to environmental issues (or called an attempt to "expose the weaknesses of Pigou analysis"), and stressed that the distribution of property rights according to legal norms is neutral between the two parties, since all external factors are internalized through decentralized decision-making processes. (Coase, R. H. (1992). The Problem of Social Cost. The Journal of Law & Economics, 3 (2), 1-44.).

This innovation, based on the nature of the transfer payment internalizing external factors, has led to a break with the traditional approach to the regulation of environmental damage. At that time, the existing legal practice to eliminate these external factors was limited to two official statements: (i) only governments could internationalize external factors through taxes and subsidies; (ii) rights were to be granted only to an agent affected by external factors (Cassidy & Chae, 2006).

Mas-Colell et al., among others, formalized this theorem algebraically. For an exhaustive and accurate overview of the ecological applications of Coase's theorem, we recommend the excellent contribution proposed in the paper (Deryugina и др. (2021).

Anderlini and Felli have shown that if transactions related to the exchange of property rights are expensive, for example, identifying potential trading partners, approving contracts, monitoring their compliance, the predictions of the Coase theorem become untenable. However, if the parties involved in the negotiation process need preliminary transaction costs to reach the agreement phase. (Anderlini & Felli (2006)).

Several works have applied the Coase lens to one body. For example, Hanley and Summer linked the Cowes concept to the red deer resources in the Scottish Highlands (Hanley & Summer (1995)).

Research Methodology

The methods of comparison, analysis, synthesis, economic analysis, and theoretical approaches were used in the coverage of our research work. In the course of the analysis, the key aspects of the Coase theorem, its importance in economics were considered, problems and a number of other promising tasks related to this area were analyzed. An attempt was made to cover the data more broadly using the method of theoretical analysis. As a result, problems were identified, scientifically sound proposals related to these problems were made, and scientific conclusions based on observations were made.

Analysis and Results

The Coase theorem holds significant importance in the context of ecological taxation, particularly in developing countries, including the Central Asian region, as it provides a framework for addressing environmental externalities through efficient allocation of property rights, facilitating voluntary agreements, and promoting sustainable development.

The Coase theorem, developed by Ronald Coase, emphasizes the significance of property rights and negotiations in resolving externalities. In the sphere of ecological taxation, this theorem gains particular relevance for developing countries, including those in the Central Asian region. These countries often face environmental challenges stemming from rapid industrialization, resource extraction, and population growth. Implementing effective ecological taxation policies becomes crucial to address these challenges while promoting sustainable development (Coase, R. H. (1992). The Problem of Social Cost. The Journal of Law & Economics, 3 (2), 1-44.).

The Coase theorem offers insights into designing ecological taxation systems that consider the economic efficiency of resource allocation and encourage stakeholders to internalize environmental costs. By assigning property rights over natural resources and pollutants, governments can create a market mechanism where parties negotiate and reach mutually beneficial agreements to mitigate environmental externalities. This approach fosters collaboration between industries, local communities, and governments, enabling the formulation of comprehensive ecological tax frameworks.

In the Central Asian region, with its diverse ecological landscapes and growing economies, the application of the Coase theorem in ecological taxation can have far-reaching implications. It allows for tailored policy interventions, considering specific environmental concerns, industrial sectors, and socio-economic conditions of the region. By aligning economic incentives with environmental goals, ecological taxation measures can encourage responsible resource use, pollution reduction, and the preservation of unique ecosystems.

Furthermore, the Coase theorem's emphasis on voluntary agreements and negotiations aligns with the participatory and consensus-building approaches commonly adopted in developing countries. In Central Asia, where inclusive decision-making processes and engagement of stakeholders are paramount, the Coase theorem offers a theoretical foundation to promote dialogue, facilitate cooperation, and harmonize interests among different actors.

In conclusion, the Coase theorem serves as a valuable framework in the sphere of ecological taxation, particularly for developing countries like those in the Central Asian region. By incorporating the principles of efficient allocation of property rights, voluntary agreements, and sustainable development, policymakers can harness the potential of ecological taxation to address environmental challenges, promote economic growth, and safeguard the natural resources of the region (Ahmed, Massachusetts, and Sultana, N. (2017)).

The Coase theorem proposes that through negotiations and the assignment of property rights, parties can efficiently allocate these rights to achieve optimal outcomes in the presence of externalities. In the context of ecological taxation, property rights refer to the ownership or control of natural resources, emissions permits, or other environmental assets.

Efficient allocation of property rights in ecological taxation can be achieved through the following mechanisms (UN Development Program. (2019)):

1. Assignment of property rights: Governments can assign property rights over natural resources or environmental assets to specific individuals, communities, or entities. By granting ownership or control, these parties have the authority to make decisions regarding resource use, pollution mitigation, or conservation efforts. Clear and well-defined property rights facilitate efficient resource allocation as owners internalize the costs and benefits associated with their decisions.
2. Transferability of property rights: The Coase theorem emphasizes the importance of transferability in property rights. When property rights are transferable, parties can engage in voluntary transactions to reallocate these rights to those who value them the most. This allows for the efficient use of resources by ensuring that they are in the hands of those who can generate the greatest social benefit.
3. Negotiation and voluntary agreements: Parties with assigned or recognized property rights can negotiate and reach voluntary agreements to address environmental externalities. For instance, in the case of pollution, affected parties can negotiate compensation or mitigation measures with polluters in exchange for the right to emit pollutants. These negotiations can lead to efficient outcomes by aligning the costs and benefits of pollution reduction or resource use among the involved parties.
4. Coordinating collective action: Efficient allocation of property rights also involves coordinating collective action when multiple stakeholders are involved. By assigning property rights, governments can encourage collaboration among stakeholders, such as local communities, industries, and environmental organizations, to collectively manage and protect natural resources. This coordination facilitates better decision-making, resource allocation, and environmental stewardship.

Efficient allocation of property rights, as facilitated by the Coase theorem, ensures that the costs and benefits of resource use, pollution reduction, and environmental conservation are internalized by the relevant parties. By empowering stakeholders with property rights and enabling voluntary agreements, ecological taxation policies can achieve optimal resource allocation and mitigate environmental externalities more effectively.

The Coase theorem suggests that the assignment of property rights can facilitate voluntary agreements between parties involved in environmental externalities. By giving individuals or entities ownership or control over environmental resources or pollution rights, the Coase theorem provides a framework for negotiations and voluntary transactions.

Here's how the Coase theorem can facilitate voluntary agreements in the context of ecological taxation (Dzhumashev , R. (2017)):

1. Internalizing costs and benefits: The assignment of property rights allows parties to internalize the costs and benefits associated with environmental actions. When property rights are well-defined and secure, parties have a vested interest in maximizing the value of their property. This creates an incentive for negotiation and voluntary agreements, as parties seek to optimize their gains while minimizing their costs.
2. Bargaining and negotiation: Parties with assigned property rights can engage in bargaining and negotiation to address environmental externalities. For instance, in the case of pollution, affected parties can negotiate with polluters to reach agreements that reduce pollution levels or

compensate for the damages caused. Negotiations can involve financial compensation, technology transfers, changes in production processes, or other mutually agreed-upon measures.

3. Coordinating interests and preferences: The Coase theorem recognizes that individuals and organizations have diverse interests and preferences. Through voluntary agreements, parties can find mutually beneficial solutions that align with their respective goals. By allowing negotiations to take place, the Coase theorem encourages the exploration of different options and the possibility of creative solutions that satisfy the interests of all involved parties.

4. Flexibility and adaptability: Voluntary agreements based on the Coase theorem offer flexibility and adaptability. As circumstances change, parties can revisit and renegotiate their agreements to ensure they remain effective and relevant. This flexibility allows for continuous improvement and adjustment in response to evolving environmental, economic, and social conditions.

By facilitating voluntary agreements, the Coase theorem recognizes the importance of individual preferences, market mechanisms, and negotiation in resolving environmental externalities. It provides a framework for stakeholders to engage in dialogue, explore trade-offs, and find mutually acceptable solutions that balance economic interests and environmental concerns.

In the realm of ecological taxation, voluntary agreements can be reached through negotiations involving polluters, affected communities, government entities, and other relevant stakeholders. These agreements can involve financial incentives, emissions trading schemes, technology transfers, or collaborative efforts to reduce pollution and promote sustainable practices. The Coase theorem provides a theoretical basis for such negotiations and encourages the pursuit of voluntary solutions to environmental challenges.

The Coase theorem can promote sustainable development by providing a framework for addressing environmental externalities and optimizing resource allocation. Here's how it can contribute to sustainable development(13):

1. Balancing economic growth and environmental protection: Sustainable development aims to achieve a balance between economic growth, social well-being, and environmental conservation. The Coase theorem, by internalizing environmental costs and incentivizing negotiations, helps strike a balance between economic interests and environmental concerns. By assigning property rights and facilitating voluntary agreements, it encourages stakeholders to consider the long-term implications of their actions and promotes sustainable resource use and pollution reduction.

2. Encouraging efficient resource allocation: Sustainable development involves the efficient use of resources to meet present needs without compromising the ability of future generations to meet their own needs. The Coase theorem, through its focus on efficient allocation of property rights and voluntary agreements, promotes optimal resource allocation. By internalizing costs and benefits, it encourages stakeholders to consider the long-term value and sustainability of resource use, leading to more efficient utilization of natural resources.

3. Fostering innovation and technological advancements: Sustainable development often requires the adoption of new technologies and practices that minimize environmental impacts. The Coase theorem, by providing incentives for negotiations and voluntary agreements, encourages innovation and the development of environmentally friendly technologies. By allowing parties to

trade property rights and negotiate solutions, it creates opportunities for the exchange of ideas, knowledge, and technologies that can contribute to sustainable development.

4. Enhancing stakeholder participation and engagement: Sustainable development recognizes the importance of inclusive decision-making processes and the active involvement of stakeholders. The Coase theorem, with its emphasis on negotiations and voluntary agreements, promotes stakeholder participation and engagement. By empowering stakeholders with property rights and encouraging dialogue, it allows for the consideration of diverse perspectives and the integration of local knowledge, contributing to more informed and sustainable decision-making.

The Central Asian region, comprising countries such as Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan, and Turkmenistan, faces unique environmental challenges and opportunities that make sustainable development crucial. These countries possess rich natural resources, including oil, gas, minerals, and diverse ecosystems. However, rapid industrialization, population growth, and resource extraction have resulted in environmental degradation and air pollution.

Promoting sustainable development in the Central Asian region is important for several reasons (Kuralbayeva, K., and Karimov, A. (2015); Akramov, K., and Shaksmit, M. (2018)):

– Environmental preservation: The region is home to unique ecosystems, such as the Aral Sea and the Tien Shan mountains, which are under threat due to unsustainable practices. Sustainable development ensures the preservation of these ecosystems, which are vital for biodiversity, climate regulation, and the well-being of local communities.

– Climate change mitigation: Central Asian countries are vulnerable to the impacts of climate change, including water scarcity, glacial melt, and increased natural disasters. Sustainable development approaches that promote renewable energy, energy efficiency, and sustainable agriculture can contribute to climate change mitigation and adaptation in the region.

– Socio-economic stability: Sustainable development fosters socio-economic stability by promoting inclusive growth, poverty reduction, and social equity. It aims to improve living standards, access to basic services, and opportunities for local communities, reducing inequality and promoting long-term economic resilience.

– Regional cooperation: Sustainable development in the Central Asian region requires regional cooperation and collaboration. By adopting sustainable practices, sharing knowledge, and jointly addressing transboundary environmental challenges, the countries of Central Asia can work together towards a more sustainable and prosperous future.

In summary, the Coase theorem contributes to sustainable development by balancing economic growth and environmental protection, promoting efficient resource allocation, fostering innovation, and enhancing stakeholder participation. Sustainable development is particularly important in the Central Asian region due to its unique environmental assets, vulnerability to climate change, socio-economic challenges, and the potential for regional cooperation to address shared environmental concerns.

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