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The Theory of Externalities¹

by

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Abstract

In this short paper, I briefly discuss the economic theory of externalities. After first defining the concept, I pay attention to the history of this concept, the way in which it has been conceptualized, new developments, and the contemporary policy relevance of externalities and their regulation.

Keywords: Global Externality, Negative Externality, Policy, Positive Externality, Regulation

JEL Codes: Q50, H20

1. Definition

An externality arises when an individual or a firm is involuntarily impacted, either positively or negatively, by the actions of a third party and this third party is not penalized (rewarded) for the damage (benefit) it imposes (confers) on others. Education (pollution) is an example of a positive (negative) externality.

One needs to distinguish between direct and pecuniary externalities. The preceding two examples are direct externalities. A pecuniary externality arises when the action of one party affects others but only through market prices. For instance, when city dwellers buy second homes in a rural area, they drive up the price of homes and make it more difficult for young people in this area to buy homes.

2. History

Modern thinking about externalities commenced with the work of Henry Sidgwick (1838-1900) and Arthur C. Pigou (1877-1959). Sidgwick was the first to articulate the notion and Pigou, in his 1920 tome *The Economics of Welfare*, was the first to analyze externalities formally.

Pigou argued that a tax, equal to the marginal damage or marginal external cost on negative externalities would reduce their incidence to the efficient level. Subsequent scholars have debated whether externalities are best regulated with price control instruments *a la* Pigou or whether alternate approaches such as the property rights approach championed by Ronald Coase (1960) make more sense.

3. Theory

Batabyal (1995) notes that externalities are generally regulated with either price or quantity control instruments. To address positive externalities, policymakers consider interventions like subsidies or the public provision of goods and services. For instance, governments may subsidize education to incentivize individuals to pursue it, recognizing that the benefits extend beyond the individual to society. By internalizing the positive externalities, these interventions endeavor to align private incentives with broader social goals, thereby fostering more efficient resource allocation.

Addressing negative externalities requires the use of regulatory instruments to internalize the costs. Taxes on polluting activities, pollution emissions trading systems, and the establishment of property rights are common policy tools. For instance, a carbon tax can be set to account for the environmental cost of carbon emissions, thereby influencing firms to reduce pollution. By internalizing the negative externality, these policy measures seek to align private incentives with the broader societal goal of environmental sustainability.

4. Conceptualization

The existence of externalities implies that markets will generally fail to allocate resources efficiently. In the case of positive externalities, there is insufficient production or under provision, as private actors do not capture the full social benefits from their activities. For negative externalities, there is excessive production, as market prices do not fully reflect the costs of harmful actions borne by society. The resulting market failures provide the rationale for governmental intervention to correct the misalignment of private and social incentives.

That said, the challenge lies in the design and implementation of effective policies. Determining the appropriate level of intervention, whether through taxes, subsidies, or other regulations, requires a nuanced understanding of the specific externality under consideration. Moreover, policymakers must also consider the intertemporal nature of externalities, the fact that they are making decisions under uncertainty, and the potential for unintended consequences.

5. New Developments

In our interconnected world, the theory of externalities expands to include global externalities. These occur when activities undertaken within a nation give rise to positive or negative impacts that transcend this country's borders. Examples of such externalities include ozone depletion, deforestation, and climate change.

In the case of climate change, greenhouse gas emissions in one country contribute to global warming with significant implications for all nations. Addressing global externalities requires international cooperation, posing significant challenges for diplomacy and governance. The 1997 Kyoto Protocol and the 2015 Paris Agreement are attempts to tackle the global externality known as climate change. These agreements seek to coordinate efforts among nations to mitigate the adverse effects of climate change. However, the effectiveness of such agreements depends on the willingness of countries to comply with their commitments and mechanisms to monitor and enforce commitments.

6. Policy Relevance

Regulating externalities is policy relevant because externalities can have significant and often undesirable effects on society, the economy, and the environment. In this regard, three points deserve some mention.

First, externalities lead to market failures where the price mechanism fails to allocate resources efficiently. By regulating externalities, policymakers aim to internalize the resulting external costs, bringing private and social costs into alignment and promoting economic efficiency. Second, externalities often have public health impacts. So, regulations, like taxes on tobacco or restrictions on certain ingredients in food, can promote public health. Finally, externalities can disproportionately affect certain groups, leading to an inequitable distribution of benefits and costs. Regulating externalities can enhance social justice by ensuring that the burdens and benefits are distributed more fairly among different segments of the population.

7. Application Fields

Externalities and their regulation have widespread applications in many fields. Regulations can lead to the promotion of public health, the use of environmentally friendly practices in the resource extraction and energy sectors, and the efficient control of everyday phenomena such as traffic congestion.

In addition, regulations about land use and zoning are useful in urban planning, regulations pertaining to noisy activities such as construction can promote sound infrastructure use and more livable communities, and agricultural regulations can help control soil erosion and promote sustainable farming methods.

8. Prospect

Externalities will always be present in society. Therefore, in the future, the regulation of externalities is poised to play a pivotal role in safeguarding our planet. As awareness of global externalities such as climate change grows, nations can be expected to adopt stringent measures, thereby promoting sustainable practices and curtailing pollution. Collaborative global efforts will

likely shape a regulatory landscape that fosters ecological balance, thereby ensuring a healthier outlook for both the present and future generations.

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