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Support Monopolist or Consumer? (Application of Game Theory with the Presence of the Government)

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Abstract

Today, it has been established that if countries can employ proper policies in line with the benefits of international trade, they can then prevent related crises in the field of trade, such as payment balance crises. This article models the behavior of monopolists and countries based on possible strategies for each player by presenting a static game between the players. Initially, a scenario is considered in which two countries are indifferent to each other. Then, in the second scenario, two countries are considered to be rivals (enemies), and in the third scenario, three countries are assumed, with one being a rival and the other being indifferent. The results show that in all three scenarios, the dominant strategy for the monopolist is to supply products domestically. However, for the government in the first scenario, the dominant strategy is a zero import tariff (consumer support). In the second scenario, where there is also a rival country, there is no dominant strategy for the government, and equilibrium occurs where the government imposes high tariffs (supporting the monopolist). In the third scenario, the dominant strategy for the government is to impose high import tariffs (supporting the monopolist). In summary, if imports occur from non-rival countries, the government supports consumers, and in the case of imports from other countries, the government supports the monopolist.

Keywords: Government, Monopolist, Game Theory, Static Games with Complete Information, Nash Equilibrium.

JEL Classification: G28, L12, D50.

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1. Introduction

In the economic literature, there are two comprehensive theories regarding the source of monopolies, which are the self-sufficiency theory and the interventionist theory. The opinion of the proponents of the self-sufficiency theory is at the opposite point of the opinion of the interventionist theory proponents, who consider the root of all harmful monopolies to be the interference of the government or the legislator in economic activities. In general, the interests of two groups of consumers and producers are in front of each other. One seeks to maximize his utility with the least payment and the other seeks to maximize his profit with the most receipt. In this direction, there is a government that seeks to maximize social welfare (which consists of the interests of two groups of producers and consumers) and its decisions strongly affect the interests of each of these two groups.

2. Theoretical framework

Throughout human history, the position of the government in the field of economy and market system has always undergone changes in the amount of intervention and the way of intervention. With the failure of the theories of capitalist economy in the 1930s, the world economy presented a new definition of the government and the scope of its interventions. Today, one of the most important objections that economists bring to governments is the widespread presence of governments in the field of economic activities. On the other hand, it should be noted that limited intervention in cases of market system inefficiency, such as the formation of monopolies, asymmetric information, etc., is obvious and undeniable.

3. Methodology

Game theory modeling is in international economics, labor economics, macroeconomics and public finance and is progressing towards development economics and economic history. The ultimate goal of this knowledge is to find the optimal strategy for the players. Also, game theory uses mathematical relationships to analyze logical cooperation and competition between individuals or companies based on the assumption of rationality, so that it can model the decisions made by the parties of the game that are in conflict with each other modeling (conflict of interests). A cooperative game in coalitional form is an ordered pair $< N, \nu >$, where $N = \{1, 2, \ldots, n\}$ is the set of players, and $\nu: 2^N \to \mathbb{R}$ is a map, assigning to each coalition $\mathbb{S} \epsilon 2^N$ a real number, such that $\nu(\emptyset) = 0$. Game theory gives us the tools to describe different type of interactions in a formal way, which gives us hope to get to know and understand them better.

Acquiring new, universal knowledge about the phenomena falling within the competition-cooperation spectrum may have a significant impact on the ability to build better organizations and shape the rules of social life.

4. Findings

The results show that in all three scenarios, the dominant strategy for the monopolist is to supply products domestically. However, for the government in the first scenario, the dominant strategy is a zero import tariff (consumer support). In the second scenario, where there is also a rival country, there is no dominant strategy for the government, and equilibrium occurs where the government imposes high tariffs (supporting the monopolist). In the third scenario, the dominant strategy for the government is to impose high import tariffs (supporting the monopolist). In summary, if imports occur from non-rival countries, the government supports consumers, and in the case of imports from other countries, the government supports the monopolist.

5. Conclusion and Suggestions

This paper models the behavior between monopolists and countries with respect to the possible strategies for each player, by presenting a static game between players. In this regard, first of all, a situation has been considered where the two countries are indifferent to each other. Then, in the second case, two countries are considered to be competitors (enemies) and in the third case, three countries are assumed, one of them is a competitor and the other is indifferent. The results showed that in all three cases, the dominant strategy for the monopolist is to supply products domestically, but for the government, in the first case, the zero import tariff strategy (consumer protection) is dominant. In the second case, where there is a competitor country, there is no dominant strategy for the government, and the equilibrium occurs where the government imposes a high tariff (supporting the monopolist). Third case show, the strategy of high import tariff (supporting the monopolist) dominant for the government. According to the obtained results, it is suggested that in order to increase social welfare in the case of imports from non-competing countries (where imports are carried out with zero tariffs) and to protect consumers, products imported from these countries should be organized by the government itself and not be given to monopolists so that it is given to consumers at the lowest possible price and social welfare increases. This leads to the development and strengthening of the fields of international trade and the creation of global markets, and it can also provide the fields for the growth of demand and as a result the growth of exports, and also increase the welfare of consumers and finally social welfare.

6. Ethical Considerations

6.1. Compliance with ethical guidelines

All ethical guidelines have been followed in writing this article.

6.2. Funding

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6.3. Authors' contribution

The authors contributed equally in writing this article.

6.4. Conflict of interest

There is no conflict of interest to declare from the author.