The Influence of Environmental Regulations on Total Factor Productivity: The Key Role of Companies' Bargaining Power

Extended Abstract

Purpose

In recent years, governments have placed significant importance on improving total factor productivity and deem it necessary to shift the economic model from input-driven growth to efficiency-driven growth. Corporate social responsibility and reporting, particularly in the environmental dimension, have garnered substantial attention due to the impacts of human activities on global warming and environmental degradation. Companies negotiate with governments to address environmental issues and enhance total factor productivity. This study examines the impact of environmental regulations on total factor productivity and the role of companies' bargaining power in moderating this effect. Data from ۱۳۳companies listed on the Tehran Stock Exchange from ۲۰۱۷to ۲۰۲۱were collected as balanced panel data and analyzed using ordinary least squares regression with year and industry effects to test the hypotheses. The results indicate that environmental regulations significantly improve companies' total factor productivity; however, companies' bargaining power weakens this positive relationship between environmental regulations and total factor productivity. The findings of this study provide empirical evidence supporting Porter's hypothesis at the microeconomic level.

Purpose

The main *Purpose* of this study is to investigate the effect of environmental regulations on total factor productivity and the moderating role of companies' bargaining power in this relationship. This study seeks to answer the question of whether environmental regulations can improve total factor productivity and how companies' bargaining power can moderate this relationship. By providing empirical evidence supporting Porter's hypothesis, this study examines whether environmental regulations can enhance organizational innovation and, consequently, increase total factor productivity. Additionally, another objective of this study is to examine the role of companies' bargaining power in moderating this relationship. In other words, the study aims to investigate whether companies with high bargaining power can reduce the positive impact of environmental regulations on productivity. This study analyzes these impacts precisely using data from companies listed on the Tehran Stock Exchange and regression models with year and industry effects, demonstrating how bargaining power can moderate the relationship between environmental regulations and total factor productivity. The study offers strategies for improving total factor productivity through strengthening environmental governance and reducing the negative effects of companies' bargaining power.

Methodology

This research is applied in nature and conducted using quantitative data. The statistical population includes all companies listed on the Tehran Stock Exchange during the period from ۲۰۱۷to ۲۰۲۱. The sample was selected using a systematic elimination method, comprising ۱۳۳companies over ۵ years. Data were collected from Tadbir Pardaz and Rahavard Novin software, the research management and Tehran Stock Exchange websites, and the integrated information systems of publishers (Codal). Data analysis and calculations were performed using EViews and Excel software. In this study, total factor productivity (TFP) is examined as the dependent variable. Environmental regulations (ER) are considered the independent variable, measured using the board of directors' activity reports and the logarithm of the number of environmental-related words. Companies' bargaining power (BP) is considered the moderating variable, calculated as the ratio of a firm's sales to the sales of the industry leader with the highest sales. Control variables include company size (Size), financial leverage (LEV), company performance (ROA), capital labor density (CD), fixed assets (FR), major shareholder (Shrcr), CEO duality (Duality), and independent directors (Bodind)

Finding

The findings of this research show that environmental regulations significantly improve companies' total factor productivity. The coefficient of determination of the regression models indicates that a substantial portion of changes in total factor productivity are influenced by environmental regulations. Moreover, the results indicate that companies' bargaining power can weaken the positive relationship between environmental regulations and total factor productivity. In other words, companies with high bargaining power may avoid fully implementing environmental regulations and experience lower productivity.

Conclusion

This research contributes to understanding the conditions under which companies can improve total factor productivity from the perspective of government environmental governance. The findings show that environmental regulations can enhance organizational innovation and improve production efficiency. These results align with Porter's hypothesis, which states that environmental regulations can strengthen organizational innovation. Additionally, the results show that companies' bargaining power can weaken the positive relationship between environmental regulations and total factor productivity. Therefore, governments should focus on improving

environmental governance and mitigating the negative effects of companies' bargaining power. This research, like other studies, has limitations. The inefficiency of Iran's capital market may influence the research results. Furthermore, this study does not comprehensively analyze the heterogeneity of companies with different levels of pollution. Future research can begin by categorizing companies with different levels of heterogeneity and examining the various impacts.