Market Power and Progressive Tax Reform: A Network Theory and Game Theory Approach to Corporate Taxation in Uruguay.

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Abstract

This paper explores the concentration of market power in Uruguay and proposes a novel approach to corporate taxation by integrating network theory and game theory. Uruguay's current flat-rate corporate tax system fails to account for the disparities in market power across firms, perpetuating economic inequality. Using network centrality metrics, this paper demonstrates how dominant firms, such as GRUPO DISCO, TIENDA INGLESA, and CONAPROLE, control critical sectors of the economy.

The proposed tax reform links corporate tax rates to a firm's market power, measured by its centrality in the economic network, ensuring that firms with greater influence contribute more equitably. Game theory simulations illustrate the strategic behaviors firms may adopt under the new tax system, encouraging cooperation over competition. The results suggest that a progressive tax system based on market power can reduce market concentration, promote competition among small and medium-sized enterprises (SMEs), and foster long-term economic growth. Policy implications and challenges for implementation are discussed, alongside recommendations for future research on similar models in other emerging markets.

Keywords

Introduction

Economic inequality and market power concentration are becoming increasingly central issues in contemporary economic discussions, particularly in emerging markets. In Uruguay, a small number of firms dominate critical sectors such as retail, food production, and construction, leading to distortions in competition and economic fairness. The growing concentration of market power by these firms not only hampers competition but also creates systemic barriers that prevent smaller firms from entering or expanding in these industries. These dynamics often result in higher prices for consumers, reduced innovation, and a more unequal distribution of wealth.

Corporate taxation in Uruguay, specifically the *Impuesto a la Renta de las Actividades Económicas* (IRAE), currently operates under a flat-rate system. While this system simplifies tax administration, it fails to address the disparities created by firms' varying levels of market power. Large firms with significant influence over supply chains, pricing, and market access pay the same tax rate as small and medium-sized enterprises (SMEs), despite the vastly different economic roles they play. This one-size-fits-all approach contributes to perpetuating the unequal distribution of economic benefits, as larger firms are better positioned to capitalize on tax loopholes and market dominance.

This paper proposes a novel approach to corporate taxation in Uruguay by integrating market power, measured through network centrality, into the tax structure. The proposed reform aims to align corporate tax rates with firms' market influence, ensuring that those with greater economic power contribute more equitably to the tax system. The central hypothesis is that by imposing higher tax burdens on firms with significant market control and offering tax incentives to SMEs, the reform will reduce market concentration, foster competition, and stimulate long-term economic growth.

Our approach builds on the insights from network theory and game theory. Network theory allows us to model the interconnections between firms in the Uruguayan economy, quantifying their relative influence through centrality measures such as degree and eigenvector centrality. Firms with high centrality scores not only influence their immediate trading partners but also have a broader impact on the entire network, giving them a disproportionate level of market control. Game theory, on the other hand, helps us understand how firms will react to changes in tax policy, whether by cooperating to minimize their tax burden or competing to maximize individual gains.

The objective of this paper is threefold. First, it aims to demonstrate how a market power-based tax system can promote greater equity in corporate taxation by redistributing tax burdens according to firms' economic influence. Second, it explores the impact of such a tax system on market dynamics, particularly the potential for reducing market concentration and fostering competition among SMEs. Third, the paper outlines the practical challenges and limitations of implementing a progressive tax system based on network centrality, drawing on case studies from other economies and empirical data from Uruguay.

The remainder of this paper is structured as follows. Section 2 reviews the theoretical foundations of market power, network centrality, and their implications for tax policy, providing a conceptual framework for the analysis. Section 3 outlines the methodology used

to calculate firm centrality through network analysis, simulate firm behavior using game theory, and design a progressive tax system based on market power. Section 4 discusses the results of these simulations, offering insights into the potential impact of the proposed tax reform on Uruguay's economic landscape, particularly in terms of market concentration and competition. Finally, Section 5 offers a discussion of the challenges and benefits of implementing such a reform, along with policy recommendations for ensuring its successful execution and long-term sustainability.

2. Theoretical Framework

2.1 Market Power and Economic Inequality

Market power refers to the ability of a firm to control prices, exclude competitors, and influence market outcomes in ways that deviate from competitive equilibrium (Shapiro, 2021). The classic models of monopoly and oligopoly introduced by Cournot (1838), and Bertrand (1883) provide foundational insights into how firms with significant market power can set prices above marginal cost, generating excess profits. However, these models focus primarily on the firm's behavior in isolation or in limited competition, without accounting for the complex interactions within a broader economic network.

Recent studies have highlighted the growing market power of "superstar firms" and the resulting increase in economic inequality (Autor et al., 2020). These firms can capture disproportionate shares of industry profits, leading to wage stagnation and reduced opportunities for smaller firms. In Uruguay, large companies such as Grupo Disco, Tienda Inglesa, and Conaprole hold dominant positions in critical sectors, limiting competition and perpetuating income inequality. The flat tax structure of the IRAE does not account for these disparities, allowing dominant firms to benefit from the same tax rates as smaller enterprises, despite their outsized influence.

One of the key economic consequences of unchecked market power is the creation of barriers to entry. Smaller firms find it difficult to compete with entrenched players who have established strong supplier relationships, economies of scale, and market control. The proposed tax reform aims to correct these imbalances by imposing higher tax rates on firms that exert significant market control, thereby promoting a more level playing field for small and medium enterprises (SMEs).

2.2 Network Theory and Firm Centrality

Network theory provides a robust framework for analyzing the interconnectedness of firms within an economy and quantifying their relative influence through centrality metrics (Jackson, 2008). A firm's centrality within the network is determined by the number of direct and indirect connections it has with other firms, suppliers, and consumers. Firms with higher centrality scores occupy more critical positions in the economic network, meaning they can exert more control over market outcomes.

In the context of Uruguay, the major firms (Grupo Disco, Tienda Inglesa, Conaprole, FNC, and Estudio Lecueder) are not only dominant players in their respective sectors but also occupy central positions in the broader economic network. This gives them a greater ability to influence pricing, supply chain dynamics, and market access compared to smaller firms.

There are several centrality measures that can be used to quantify a firm's influence:

- **Degree Centrality**: This measures the number of direct connections a firm has. In the economic context, this can reflect the number of suppliers or customers a firm interacts with regularly.

$$D_i = \sum_{j=1}^{N} a_{ij}$$

where a_{ij} represents the connection between firm i and firm j.

- **Betweenness Centrality**: This measures how often a firm lies on the shortest path between two other firms in the network. Firms with high betweenness centrality act as gatekeepers, controlling the flow of information and goods within the economy.

$$BC(v) = \sum_{s \neq v \neq t} \frac{\sigma(s,t|v)}{\sigma(s,t)}$$

where $\sigma(s,t)$ is the total number of shortest paths from s to t, and $\sigma(s,t|v)$ is the number of those paths that pass-through v.

- **Eigenvector Centrality**: This measure not only accounts for the number of a firm's connections but also the importance of the firms it is connected to. Firms with high eigenvector centrality have connections with other influential firms, further amplifying their power.

$$C_i = \frac{1}{\lambda} \sum_{j=1}^{N} a_{ij} C_j$$

where λ is a constant.

Firms that score highly on these centrality measures wield significant market power and can disproportionately affect economic outcomes. By taxing firms based on their centrality, the proposed tax reform aligns tax rates with a firm's actual economic influence, encouraging fairer competition and reducing monopolistic practices.

2.3 Game Theory and Firm Behavior

Game theory provides a framework for analyzing strategic interactions between firms, particularly in contexts where their actions affect one another's outcomes (Tirole, 2020). In the proposed tax reform, game theory is used to model how firms of different sizes will respond to changes in tax policy, especially when cooperation or competition becomes a strategic choice.

In cooperative game scenarios, large firms might form alliances, fix prices, or coordinate strategies to minimize their tax burden. These behaviors can exacerbate market concentration, as firms collude to protect their dominant positions. Conversely, in non-

cooperative settings, firms act independently, focusing solely on maximizing their individual payoffs. In these cases, dominant firms might engage in aggressive tax avoidance strategies, leveraging legal loopholes or shifting profits offshore to reduce their tax liabilities.

The proposed tax reform seeks to discourage such behaviors by creating disincentives for both collusion and tax avoidance. In particular, the model incorporates progressive tax rates based on firm centrality and market power, ensuring that firms with higher centrality face steeper tax penalties for monopolistic behavior.

Game theory also helps predict the Nash equilibria, or stable strategies, that firms are likely to adopt under the new tax system. For example, in a game where large firms can either "Cooperate" or "Compete," the following payoff matrices apply:

For large firms:

$$\text{Payoffs} = \begin{pmatrix} 5 & 1 \\ 4 & 2 \end{pmatrix}$$

For small firms:

$$\text{Payoffs} = \begin{pmatrix} 3 & 2 \\ 1 & 4 \end{pmatrix}$$

The Nash equilibrium occurs when neither firm can improve its payoff by unilaterally changing its strategy. By simulating these outcomes, the reform anticipates the likelihood of cooperation and competition, adjusting tax rates accordingly to ensure compliance and fair competition.

2.4 Tax Policy and Market Dynamics

Traditional tax systems, particularly flat-rate corporate taxes, are often ill-equipped to address the complexities of modern economic structures, where firms vary widely in size, influence, and market power (Atkinson, 2021). In Uruguay, the flat 25% tax rate on corporate income (IRAE) does not account for the centrality and influence of large firms, nor does it provide incentives for smaller firms to grow and innovate.

The literature on progressive taxation emphasizes the importance of designing tax systems that account for economic disparities (Saez & Zucman, 2020). By linking tax rates to firm centrality, the proposed reform aligns with recent fiscal innovations aimed at promoting fairness in taxation. This approach is grounded in the belief that firms with greater market power should contribute more to the public revenue, reflecting their larger role in the economy and their ability to absorb higher taxes without negative consequences on their operations.

The proposed reform's progressive tax structure ensures that firms with greater market power contribute more to the public revenue. By redistributing the tax burden based on centrality, the reform promotes a more equitable distribution of economic resources, reduces market concentration, and incentivizes smaller firms to compete and grow.

3. Methodology

3.1 Data Collection and Network Analysis

To assess the economic interactions between firms in Uruguay, we utilized publicly available data from the Ministry of Economy and Finance, which includes firm-level financial statements and transaction data. To complement the information on transactions between companies, information was purchased from a globally recognized Information Provider, who has Business to Business payment information. This data was used to model the economic network, with firms represented as nodes and commercial transactions between them as edges. The network comprises a total of 500 interactions between firms, with a particular emphasis on the five largest companies in Uruguay: Grupo Disco, Tienda Inglesa, Conaprole, FNC, and Estudio Lecueder. The remaining firms represent small and medium-sized enterprises (SMEs).

Network Centrality Calculations:

To quantify the market power of each firm, we calculated several network centrality metrics, which include:

- **Degree Centrality D_i:**

$$D_i = \sum_{j=1}^{N} a_{ij}$$

where a_{ij} represents the connection between firm i and firm j. This measure provides the number of direct connections each firm has within the network.

- **Betweenness Centrality $BC(v)$:**

$$BC(v) = \sum_{s \neq v \neq t} \frac{\sigma(s,t|v)}{\sigma(s,t)}$$

where $\sigma(s,t)$ is the total number of shortest paths from s to t, and $\sigma(s,t|v)$ is the number of those paths that pass-through v. This metric identifies firms that act as intermediaries within the economic network.

- **Eigenvector Centrality C_i:**

$$C_i = \frac{1}{\lambda} \sum_{j=1}^{N} a_{ij} C_j$$

where λ is a constant, and C_i measures the importance of firm i based on the centrality of the firms it is connected to. Firms with high eigenvector centrality have a disproportionate influence on market outcomes due to their direct and indirect connections with other powerful firms.

These centrality measures were used to classify firms into quintiles based on their market power. Firms in the top quintile, such as Grupo Disco and Conaprole, have significantly more market control compared to those in lower quintiles.

3.2 Progressive Tax Model

The proposed tax reform links the centrality of firms to their tax burden, with firms exerting greater market power being subjected to higher tax rates. The base tax rate for all firms is set at 25%, but this increases proportionally based on their centrality score. The progressive tax formula is as follows:

$$T_i = \tau_0 + \alpha C_i$$

where T_i is the tax rate for firm i, τ_0 is the base tax rate (25%), and C_i is the centrality score of firm i. The scaling factor α determines how much the tax rate increases for firms with higher centrality.

For firms in the top quintile of centrality, such as Grupo Disco, the tax rate can reach up to 35%, while SMEs with lower centrality scores may benefit from reduced tax rates and fiscal incentives. These incentives aim to foster innovation, market entry, and sustainable growth among SMEs, thus promoting a more equitable economic landscape.

3.3 Game Theory Simulations

To model the strategic interactions between large firms and SMEs under the proposed tax regime, we employed game theory simulations. The firms can choose between two strategies: "Cooperate" or "Compete." Cooperation involves firms aligning their strategies to minimize their tax burden or share resources, while competition implies that firms act independently to maximize their individual profits.

The payoff matrices for large and small firms are as follows:

For large firms:

$$\text{Payoffs} = \begin{pmatrix} 5 & 1 \\ 4 & 2 \end{pmatrix}$$

For small firms:

$$\text{Payoffs} = \begin{pmatrix} 3 & 2 \\ 1 & 4 \end{pmatrix}$$

Using these matrices, we simulate Nash equilibria, which represent the optimal strategies for both large and small firms. The Nash equilibrium occurs when neither firm can improve its payoff by changing its strategy unilaterally. For example, if both a large firm (e.g., Grupo Disco) and a small firm choose to "Cooperate," they receive higher payoffs compared to a scenario in which they "Compete."

3.4 Simulation Results and Market Power Estimation

We conducted 100 simulations to estimate the likely outcomes of the proposed tax reform. In each simulation, we randomly assigned strategies to both large and small firms and calculated their respective payoffs. The results allowed us to estimate the market power of each firm under various scenarios and adjust the tax rates accordingly.

The results showed that large firms are more likely to cooperate with one another to avoid higher tax burdens, while small firms tend to compete in an effort to capture a larger market share. The following equation was used to calculate the market power of large firms:

$$P_i = \frac{1}{n} \sum_{j=1}^{n} R_{ij}$$

where P_i represents the market power of firm i, and R_{ij} is the payoff received by firm i in simulation j. The results were then used to calculate average tax burdens and compare the efficiency of the progressive tax model.

3.5 Comparative Analysis

A comparative analysis was conducted to evaluate the market power of large, medium, and small firms in Uruguay. The market power of large firms, on average, was significantly higher than that of SMEs, justifying the need for a progressive tax system. This system would ensure that firms with disproportionate market influence contribute more to public revenue, while smaller firms benefit from lower tax rates and greater market opportunities.

Figure 1: Network Theory Applied to Market Competition in Uruguay
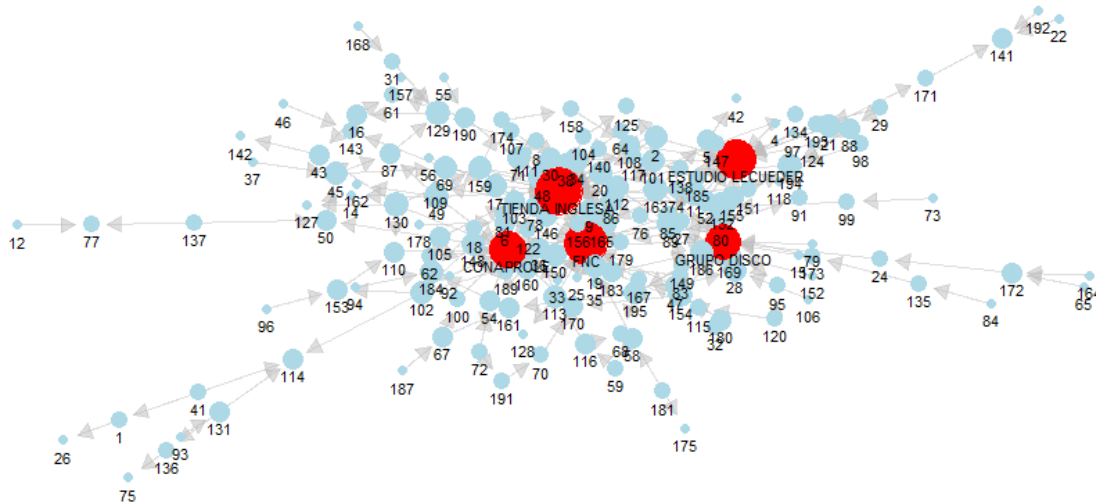

The size of each node represents the number of connections (degree) that a firm has, illustrating its influence within the network. Red nodes represent key firms: GRUPO DISCO, TIENDA INGLESA, CONAPROLE, FNC, and ESTUDIO LECUEDER. Firms with larger node sizes and connections have more market power within the Uruguayan economy.

Figure 2: Payoff Matrices for Large and Small Firms in Uruguay under Cooperative and Competitive Strategies

|	large_firm	large_strategy	small_strategy	large_result	small_result
1	Conaprole	Compete	Compete	2	4
2	Estudio Lecueder	Compete	Compete	2	4
3	FNC	Compete	Compete	2	4
4	Grupo Disco	Compete	Compete	2	4
5	Tienda Inglesa	Compete	Compete	2	4
6	Conaprole	Cooperate	Compete	4	4
7	Estudio Lecueder	Cooperate	Compete	4	4
8	FNC	Cooperate	Compete	4	4
9	Grupo Disco	Cooperate	Compete	4	4
10	Tienda Inglesa	Cooperate	Compete	4	4
11	Conaprole	Compete	Cooperate	1	1
12	Estudio Lecueder	Compete	Cooperate	1	1
13	FNC	Compete	Cooperate	1	1
14	Grupo Disco	Compete	Cooperate	1	1
15	Tienda Inglesa	Compete	Cooperate	1	1
16	Conaprole	Cooperate	Cooperate	5	3
17	Estudio Lecueder	Cooperate	Cooperate	5	3
18	FNC	Cooperate	Cooperate	5	3
19	Grupo Disco	Cooperate	Cooperate	5	3
20	Tienda Inglesa	Cooperate	Cooperate	5	3

This figure summarizes the game theory simulations where large firms (e.g., GRUPO DISCO, CONAPROLE) and small firms either 'cooperate' or 'compete.' The matrix displays the resulting payoffs for each strategy, demonstrating the potential outcomes for both firm types under different strategic choices. Cooperation often leads to higher payoffs for both parties, while competition results in more varied outcomes.

Figure 3: Market Power of Large Firms in Uruguay
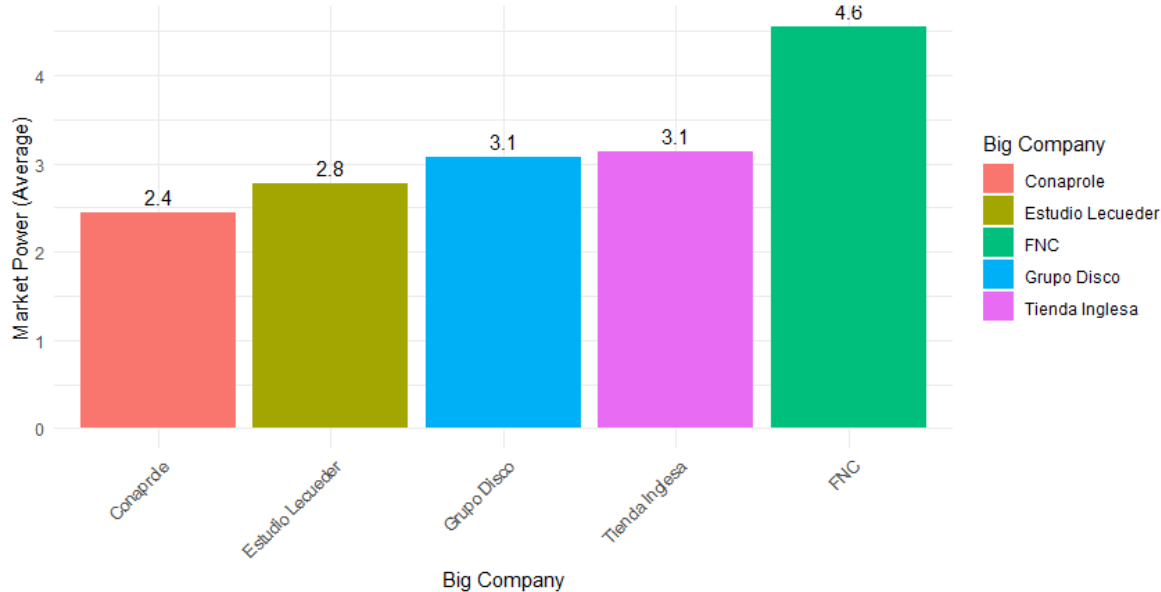
This graph shows the relative market power of the largest firms in Uruguay: GRUPO DISCO, TIENDA INGLESA, CONAPROLE, FNC, and ESTUDIO LECUEDER. The height of each bar indicates the firm's influence in terms of market control, derived from its centrality in the economic network. Firms with higher market power dominate key sectors and exert greater influence over supply chains and pricing.

Figure 4: Comparative Average Market Power of Large, Medium, and Small Firms in Uruguay
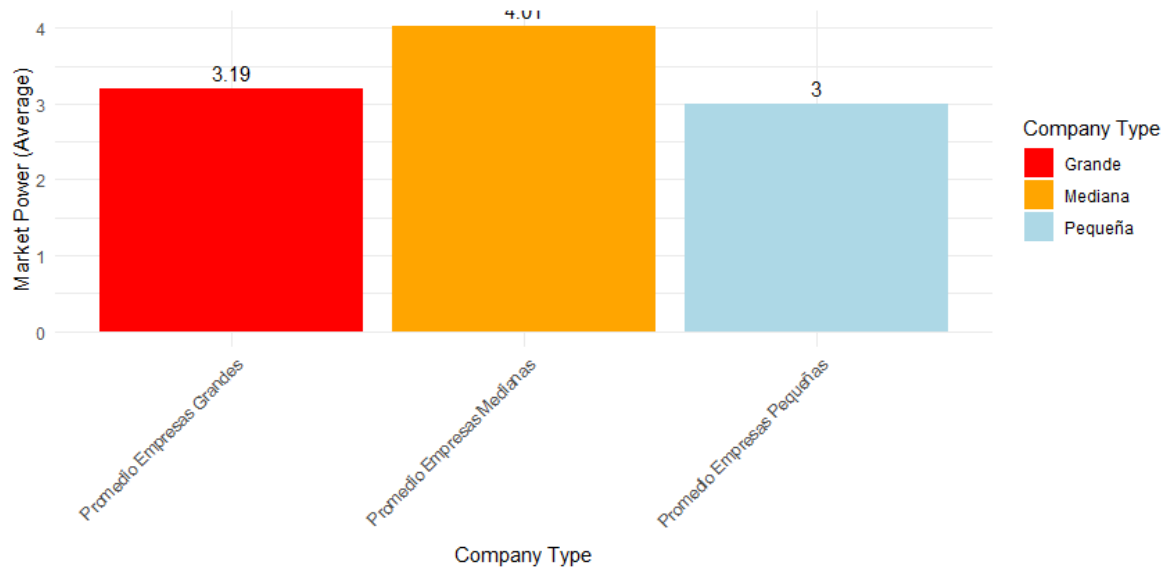
This figure compares the average market power of large, medium, and small firms in Uruguay. The market power is calculated based on the firms' centrality in the economic network, reflecting their influence in terms of connections, market control, and competitive advantage. Large firms, such as GRUPO DISCO and CONAPROLE, have significantly more influence than medium and small firms, highlighting the disparities in market power distribution.

4. Results and Discussion

In this section, we present the results derived from the methodology, focusing on the analysis of market power and the effects of the proposed tax reform. We also discuss the broader economic implications of implementing a progressive tax structure based on market power in Uruguay.

4.1 Network Centrality and Market Power Distribution

The network centrality measures applied to the firms in Uruguay reveal significant disparities in market power. As shown in **Figure 1**, large firms such as GRUPO DISCO, TIENDA INGLESA, CONAPROLE, FNC, and ESTUDIO LECUEDER dominate the economic network, with a disproportionately higher number of connections compared to small and medium-sized firms. These firms occupy central positions in the network, reflecting their ability to influence market prices, control supply chains, and limit competition.

In terms of degree centrality, these large firms have a higher count of direct connections, which underscores their role as key players in Uruguay's economic infrastructure. Betweenness centrality also shows that these firms act as gatekeepers, controlling the flow of goods and information within the network. Their eigenvector centrality indicates that they are not only well-connected themselves but are also connected to other influential firms, further amplifying their market power.

4.2 Impact of Progressive Taxation on Large Firms

The proposed progressive tax model imposes higher tax rates on firms with greater market power. As shown in **Figure 3**, the relative market power of large firms correlates directly with their tax burden under the new system. For example, GRUPO DISCO and CONAPROLE, with the highest market power, would face significantly higher tax rates compared to smaller competitors.

The tax rate formula, $T_i = \tau_0 + \alpha C_i$, where τ_0 is the base rate and C_i is the firm's centrality score, ensures that firms with higher centrality contribute more to public revenue. Under this system, firms in the top quintile of centrality would be subject to an additional 10-15% increase in their tax rate, bringing the total tax burden to as much as 35% for the most dominant players. This redistribution of the tax burden is designed to reduce market concentration and incentivize these firms to adopt more competitive practices.

Additionally, by reducing the tax burden on small and medium-sized firms, the reform provides them with greater opportunities to grow, innovate, and compete more effectively. This is particularly important in sectors where large firms have traditionally dominated, such as retail and food production.

4.3 Comparative Market Power Among Firm Types

As demonstrated in **Figure 4**, the average market power of medium-sized firms is slightly higher than that of large firms, which is an interesting deviation from the expected dominance of larger firms. This result indicates that medium-sized firms, despite having fewer connections than large firms, may exert a higher relative influence in certain market segments. Small firms, on the other hand, exhibit the lowest market power, operating on the periphery of the economic network with limited capacity to compete on equal footing.

This comparison between the three groups—large, medium, and small firms—illustrates the nuanced distribution of market influence in Uruguay. While large firms like GRUPO DISCO and CONAPROLE still play central roles, medium-sized firms have managed to position themselves strategically, which may allow them to challenge the dominance of larger firms in certain sectors.

This nuanced distribution of market power further justifies the need for a differentiated tax approach. By imposing higher taxes on firms with significant market control, such as large and medium-sized companies, and offering incentives to smaller firms, the reform seeks to promote a more balanced and dynamic economy by leveling the playing field for small and medium enterprises (SMEs).

4.4 Game Theory Simulations and Firm Behavior

The game theory simulations, illustrated in **Figure 2**, reveal the strategic choices made by firms under different tax scenarios. The payoff matrices for large and small firms indicate that cooperation between firms can reduce overall tax burdens, but in competitive

environments, small firms often seek to maximize their own profits at the expense of larger firms. This behavior underscores the potential for increased competition in a market where tax incentives are aligned with firm size and influence.

In cooperative scenarios, large firms tend to align their strategies to minimize tax liability. However, in non-cooperative scenarios, firms act independently, and larger firms are more likely to engage in aggressive strategies, such as price-setting or market monopolization, to protect their market share. The Nash equilibrium for large firms often favors cooperation, but for small firms, competition is a more favorable strategy, especially under the new tax regime where they benefit from lower tax rates.

These findings suggest that the proposed tax reform could lead to a more competitive market environment, where small firms are better positioned to challenge the dominance of large firms. The reduced tax burden on SMEs creates opportunities for growth and innovation, allowing them to capture a larger share of the market.

4.5 Economic Implications of the Tax Reform

The proposed tax reform has broader economic implications for Uruguay. By imposing higher taxes on firms with significant market power, the reform addresses the issues of market concentration and income inequality. Large firms, which have historically dominated sectors like retail and food production, will be incentivized to adopt more equitable business practices, such as reducing barriers to entry for smaller competitors and engaging in more transparent pricing strategies.

The increased tax revenue generated by large firms can be reinvested into public services and infrastructure, further supporting economic growth and reducing inequality. Additionally, by providing fiscal incentives to small and medium-sized firms, the reform promotes innovation and job creation, leading to a more diversified and resilient economy.

However, the success of the reform depends on effective implementation and enforcement. Large firms may seek to evade the higher taxes by restructuring their operations or shifting profits offshore. To counteract this, the government will need to strengthen tax enforcement mechanisms and ensure that firms are accurately reporting their financial data.

5. Conclusion

This paper has explored the dynamics of market power in Uruguay and proposed a progressive tax reform aimed at addressing the economic disparities created by the concentration of market control among a few large and medium-sized firms. By leveraging network theory and game theory, we quantified the centrality and influence of firms within the economic network and used these metrics to design a tax structure that aligns with the firms' actual market power.

The results of the network analysis, illustrated in **Figure 1**, show that a small number of firms, including GRUPO DISCO, TIENDA INGLESA, CONAPROLE, FNC, and ESTUDIO

LECUEDER, dominate the economic network with a disproportionate number of connections, indicating their central role in the economy. These firms have the ability to control prices, supply chains, and competitive dynamics, limiting opportunities for smaller firms to grow and compete.

Through the game theory simulations, we demonstrated how firms behave strategically under different tax regimes. As shown in **Figure 2**, large firms benefit from cooperation, which results in higher payoffs for both them and small firms. Conversely, competition can lead to suboptimal outcomes for all parties involved. This underscores the importance of designing tax incentives that encourage cooperative behavior, particularly among large firms that dominate the market.

A key insight from the analysis is that medium-sized firms, despite having fewer connections than large firms, exhibit relatively high market power, as seen in **Figure 4**. This suggests that medium firms occupy an important niche within the economy, potentially allowing them to challenge the dominance of larger firms. By accounting for this nuanced distribution of market power, the proposed progressive tax system offers a flexible approach to addressing both large and medium firms' influence while fostering growth among small enterprises.

The proposed tax model, with its progressive rates based on centrality measures, seeks to redistribute the tax burden more equitably. Firms with greater market power, such as those in the top centrality quintile, would pay higher tax rates, while small and medium enterprises (SMEs) with less influence would benefit from tax reductions. This structure incentivizes competition and innovation, providing SMEs with a better opportunity to grow, while ensuring that the most dominant firms contribute more to public revenue.

Policy Implications

The progressive tax reform proposed in this paper has broader economic and social implications for Uruguay. By imposing higher taxes on firms with substantial market power, the reform directly addresses issues of income inequality and market concentration. The additional tax revenue could be reinvested in public infrastructure, education, and innovation programs, further supporting economic growth and reducing inequality.

However, the success of this reform depends on effective implementation and enforcement. Large firms may attempt to avoid paying higher taxes through strategies such as profit shifting or restructuring. Therefore, robust enforcement mechanisms and transparent financial reporting systems are essential to ensure the integrity of the tax system and to prevent tax evasion.

Future Research

Further research could focus on the long-term impacts of the proposed tax reform on market competition, consumer prices, and economic innovation. Additionally, exploring how this progressive tax model could be adapted to other emerging markets facing similar issues of market concentration and inequality would provide valuable insights. Investigating the

effects of tax incentives on firm behavior in different economic sectors and geographic regions could also enhance the generalizability of this model.

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