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Financial transaction taxes and market structure: Lessons from the gambling industry

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Abstract

Although a number of tax authorities have considered introducing some form of financial transaction tax (FTT) on specific types of financial transaction, implementation has proved politically contentious. We argue here that this debate can be usefully informed by the experience of applying margin-based taxes in gambling sectors. Both our theoretical framework and previous empirical evidence show clear advantages from using margin-based taxation over turnover taxation in these sectors, and we demonstrate that the size of the advantage depends on market structure. Importantly, market structure has not hitherto been explicitly considered in the FTT policy debates, nor in the wider academic literature. Our findings contribute, therefore, in a novel way to the ongoing debate over the optimal form of financial market taxation.

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1. Introduction

A financial transaction tax (FTT) is levied on a financial asset when it is traded, normally as a small proportion of the value of the asset. Originally proposed for foreign exchange markets by Tobin (1978), a significant body of academic work since that time has focused on understanding the economic effects of taxes on financial transactions (see Burman et. al., 2016, for an overview of the literature).

An important aspect of the debate surrounding FTTs focuses on the impact of FTTs on revenue generation and financial activity, including the effect on trading volume. Those favoring a broad-based FTT (e.g., Weiss and Kawano, 2020 and Baker, 2017) emphasize its role as a source of substantial revenue generation. In the US, for example, it was estimated (Pollin, Heintz and Herndon, 2018) that the Inclusive Prosperity Act introduced into the US Congress between 2012 and 2015 could have raised an annual sum of $220 billion, on the basis of a 0.5% rate on stock transactions, 0.1% on bond transactions, and 0.005% on derivative trades. Nunns (2016) argues that these figures are greatly inflated, however, whilst Gale (2020) advocates instead a broad-based value-added tax on consumption as a means of raising equivalent revenue. In addition to potential tax revenue gains, an FTT may curb speculative financial trading, both within a country's borders and across international borders, that would reduce excess volatility in financial markets. Those opposing FTTs also emphasize a negative impact on non-speculative trading volume and asset prices, as well as claimed increases in the cost of capital and decreases in worker wages (Burman et al, 2016).

Despite the extensive academic debate, actual implementation of FTTs has faced political hurdles. For example, as far back as 2011, the EU Commission proposed introducing an FTT in all EU member states on certain transactions involving financial instruments such as shares, bonds, and derivatives. The proposal has never been approved on an EU-wide basis although FTTs are applied by individual EU member states, such as France, Italy, and (most recently) Spain. Other member states are working toward an enhanced cooperation procedure to levy an FTT across a swathe of EU countries where rates proposed on shares have varied between 0.1% and 0.2%.[1] In the US, each Congress in recent years has put forth a proposal for some form of an FTT, with the current 117th Congress (2021 to 2023) proposing a 0.1% tax on transactions involving stocks, bonds, futures, options swaps, and credit default swaps (Congressional Research Service, 2021).[2] In this note we argue that debates regarding FTTs may be enlightened by reference to how taxation changes have been implemented in the gambling sector. A number of authors have identified parallels between gambling and financial markets (see Ziemba, 2017, for a discussion).

While there are clear differences between international financial markets and the traditional bookmaker model, modern betting markets in the UK have developed to mimic financial trading at very high volumes, through the rise of betting 'exchanges' which for a commission directly match traders who want to 'buy' and 'sell' continuous real-time prices on a very large range of event outcomes. Gross profits are measured on commission earned by the exchange operators. Modern betting markets also allow competing prices on a wide range of events, offered by numerous bookmakers, each of which is taxed on its own gross profits.

Although there are similarities, therefore, in how these markets currently operate, little attention has been paid to whether lessons from structural changes to taxation of gambling sectors

[1] KPMG. FTT FAQ https://home.kpmg/xx/en/home/services/tax/regional-tax-centers/eu-tax-centre/financial-transaction-tax/ftt-faq.html Accessed December 15, 2022.

[2] In addition, some state legislators in the US have proposed state-level FTTs.

that have been implemented over the past 20 years can be applied to FTTs. Specifically, in 2001 the UK switched from a turnover tax on betting to a tax on the price of the bet (the gross profit derived by the operator from the bet). A key economic rationale for that policy change was that a Gross Profits Tax (GPT) is generally more efficient than a revenue tax (Paton, Siegel and Vaughan Williams, 2002). Notably, a GPT encourages firms to focus on a low-price, high-turnover strategy, instead of a high-price, low-turnover strategy. Economic theory predicts that this will result in a lower tax burden in sectors such as online betting, which are extremely competitive and thus have relatively low profit margins. In the event, the theory was borne out as turnover rocketed while margins fell. (National Audit Office, 2005).

Over time, GPT-type taxes have been extended to gambling operations in other gambling sectors such as machine gaming, and in other countries (Garrett, Paton and Vaughan Williams, 2020). We argue here that the lessons learned from this experience can also be applied to financial markets insofar as they share similar characteristics to gambling, and thus conceptually link gambling market structure and financial market structure in this way for the first time.

Specifically, we present a theoretical framework to analyze the effects of implementing FTTs in the form of a GPT-type tax, focusing specifically on how the level of market competition in a sector affects the model predictions with respect to turnover (trading volume). We also outline several policy implications of our analysis.

2. Conceptual Analysis

Garrett, Paton and Vaughan Williams (2020) demonstrate the theoretical advantages of a gross profits tax in the context of gambling markets. We develop this approach in the context of financial markets.

Consider a financial industry that, for simplicity, consists of stock traders who trade a single stock. For the moment we are not concerned about the market structure of the industry. Let Q be the total turnover in the industry, measured as the number of \$1 shares of stock that are traded. The price P is the proportion of each \$1 stock trade that is retained by the trader as his or her commission ($0 < P < 1$). The marginal cost of each \$1 stock trade is denoted as C ($0 < C < 1$). A financial transaction tax (FTT) is levied on Q whereas a gross-profits tax (GPT) is levied on P.

Under an FTT having rate t, a trader's profit function is $\pi(Q) = Revenue(Q) - Cost(Q) - tQ$. The profit-maximizing number of trades Q is found by differentiating this profit function with respect to Q and setting the expression equal to zero.[3] Doing so reveals that the profit-maximizing number of trades Q occurs at the point where $MR = C + t$, where MR is marginal revenue. Suppose now, however, that instead of taxing turnover the policy is one of taxing gross profits at rate r. A trader's profit function becomes $\pi(Q) = Revenue(Q)(1 - r) - Cost(Q)$, and the profit-maximizing number of trades occurs at the point where $MR(1 - r) = C$.

It is now straightforward to show the importance of market structure in determining the level of turnover under each of the two tax schemes by using the profit maximization conditions above.[4] Assume that r is revenue neutral and yields the same price and quantity combination as under the FTT. This implies $r = t/P$, where P is the equilibrium price under the FTT. Using this expression for r we have $MR(1 - r) = MR - MR(t/P)$. Now, if the financial industry has

[3] The second-order conditions for a maximum are assumed to be satisfied.

[4] In this exercise, we treat market structure as exogenous to taxation. Allowing for feedback from taxation to market structure would be a useful way of extending the analysis.

some degree of market power, it is the case that $MR < P$.[5] This implies that $MR(1-r) > MR - t$. Because C remains the same under the FTT and the GPT, in equilibrium the number of stock trades (turnover) will be expanded under the GPT compared to the FTT (and consumer welfare will thus also be higher). If the financial industry is perfectly competitive, it is the case that $MR = P$.[6] This then implies that $MR(1-r) = MR - t$. With C again remaining the same under both taxes, in equilibrium the level of turnover is therefore identical under both the FTT and the GPT.[7]

The above analysis demonstrates that market structure should inform the current debate on FTT tax policy, as well as tax policy in general. One criticism of imposing an FTT is that it will reduce the volume of stock trades and thus inhibit price discovery. More consideration is needed, however, when assessing the effect of an FTT on turnover. Of course, turnover from an FTT (and a GPT) would be lower than in the absence of any financial market taxation. But if zero taxation is not in the choice set of policy makers, then it is important to understand how market structure informs the effects that various forms of taxation each have on turnover. Here we considered a gross-profits tax as an alternative form of financial market taxation. We have shown that the degree to which each tax reduces trading volume is dependent upon the degree of market power in the industry. Since many markets within the financial sector are relatively competitive, the analysis here suggests that the greater reduction in turnover from implementation of an FTT compared to a GPT would likely be less than in more imperfectly competitive markets such as sports betting and casino gaming.[8]

3. Policy Implications & Conclusion

There is good evidence that a shift to the use of turnover taxes in gambling markets has been able to generate additional tax revenue without restricting overall turnover. Our analysis, which is the first to conceptually link gambling market structure and financial market structure in this way, suggests that this experience provides important implications for the application of FTTs. In particular, margin-based financial taxes may yield higher trading volumes than the often-considered FTTs that directly tax turnover.

However, our analysis demonstrates that the above advantage of margin-based GPT is dependent on market structure, i.e., as a market becomes more competitive the turnover advantage of GPT relative to a traditional FTT begins to reduce. Thus, while there is a documented turnover advantage in the gambling industry from a GPT tax relative to a turnover tax due to the industry having some degree of market power (resulting, in part, from government-imposed barriers to entry via licenses, etc.), it seems reasonable to assume that financial markets in general are more competitive than gambling markets and thus would experience less of a turnover advantage under a GPT relative to an FTT. Determining the degree of competition in the financial market, and possible differences across specific asset markets, is an empirical exercise.

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[5] The condition $MR < P$ can be seen as follows: Revenue for a firm with some degree of market power is $P(Q) \cdot Q$ and marginal revenue MR is $\left(\frac{\partial P}{\partial Q}\right) Q + P$, where $\frac{\partial P}{\partial Q} < 0$ due to downward sloping demand. Since the firm only will produce Q where $MR > 0$, it thus must be the case that $MR < P$.

[6] For a firm with no market power (e.g., perfect competition) revenue is simply $P \cdot Q$ and so $MR = P$.

[7] The above analysis is similar to that of per-unit taxation versus ad valorem taxation under different market structures as outlined in Keen (1998).

[8] Bagheri and Nakajima (2004) and Haddad et.al (2021) examine the degree of competition in financial markets, specifically stock markets and exchanges.

Of course, gambling markets and financial markets are not completely analogous, and there are other factors in the debate over FTTs that should inform the appropriate form of financial market taxation such as revenue generation, internalizing externalities, speculative trading, and resource redistribution. The salient point we make here, however, is that market structure has not hitherto been considered, either theoretically or empirically, in the aforementioned debates occurring in the US, UK, and EU over FTT structure, nor in the wider academic literature on FTTs. Our findings therefore contribute an important element to the global debates over the appropriate structure of financial market taxes, especially with respect to trading volumes. We believe that future research can usefully build on these findings to identify particular financial markets whose institutional features render them most suitable for the application of a GPT-type tax.

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