Regulation and the market for checks ☆

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ABSTRACT

This paper presents an analysis of the market for checks using the monopoly problem as an approximation. The need for such an analysis arises due to the following policy proposal: from time to time, the Turkish government considers increasing the lump-sum amount that drawee banks are legally responsible to pay per bad check. The purpose of this proposal is to ease out firms' liquidity needs especially during recessions. We show that banks will tend to restrict the quantity of checks as a response to such a policy action. We report that a percentage point increase in banks' obligation per bad check could lead up to a 1.7% decline in the total supply of checks on the margin. This means that such a policy change may harm the real economy rather than providing support. We establish that the extent of the monopoly distortion depends on three main factors: (i) the elasticity of demand for checks, (ii) how fast the fraction of bad checks increases with the total supply of checks, and (iii) the degree of preference heterogeneity.

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1. Introduction

The severity of the recent worldwide recession and the seemingly successful regulatory efforts to remedy the damages of the initial shock have led to, sometimes ignorant, calls for substantial changes in the present regulations especially in the financial sector. We agree that new regulations are needed, but the type of new regulations must be in response to a recognition that market forces determine how the effects of these regulations will diffuse into the economy. This paper argues how one can think of the workings of the market for checks and how the market forces interact with certain regulatory changes. We present a Turkish case study which exemplifies the illusive charm of trying to government control everything.

Commercial life in the Turkish economy extensively draws on checks as a medium of exchange. Each year more than 30 million checks are processed by banks. Unlike the US economy and other modern economies, where checks are used in all kinds of daily transactions, checks are almost exclusively used by merchants in the Turkish economy. This fact highlights the importance of regulatory practices and policy actions associated with the use of checks for the real economy, and, in particular, for small- and medium-scale enterprises who are substantially dependent on checks to ease out their liquidity needs.

There is a simple rule that the Central Bank sets on behalf of the government: drawee banks are obliged to pay a certain lump-sum amount—that we call π (which is TRY 470, approximately USD 300)—to the check owners per bad check. The main motivation behind this paper is a recurring policy debate. From time to time, the Turkish government considers increasing π and the initial policy proposals generally involve quite large increases (the most recent proposal involves an at least twofold increase in π). A related but distinct proposal is to use π as a policy instrument in the future. The aim is to partly transfer the check owners' risk to drawee banks and, further, to establish a government control—as a policy tool—over the risk-sharing arrangements in the market for checks. The proposal seems innocuous in the sense that it is expected to serve as a partial insurance for the check owners and to provide a longer run stimulus for the banks to perform more efficient screening practices. However, screening is costly and requires a continuous investment in institutional (external and internal) auditing, from which the banks avoid. If π goes up significantly, an increasingly higher burden would fall on drawee banks. This paper seeks an answer to the question: what happens to the supply of checks when π goes up?

To address this question, we focus on a simple monopoly problem. Since banks are the sole suppliers of checkbooks and they have the ability to adjust the quantity of checks as a response to changing market conditions, we treat the banking sector as a single bank, the monopolist.[1] The

[1] We tried a version with imperfect competition among many banks, but the qualitative results are unchanged. The monopoly problem yields, as we discuss in Sections 2 and 3, easier-to-interpret and sharper results.

monopolist "sells" checks at the monopoly "price" and bears the total cost of producing checks: π times the number of bad checks that the monopolist makes payment for. Price of a check that we study in this paper is an abstract notion. (We call it the "implicit" price.) Loosely speaking, price of a check can be thought of as a composite of various pecuniary and nonpecuniary factors such as the opportunity cost of the collateral demanded by the drawee banks or the benefits and flexibilities that checks offer.[2]

The literature on checks and related payment systems issues is vast. However, a surprisingly small number of attempts have been made to incorporate checks into standard economic models. One example is (He et al., 2005) a version of (Kiyotaki and Wright, 1993) which is a model of equilibrium search. Another is (McAndrews and Roberds, 1999). Most of these papers take either a monetary economics or a methodological payments systems approach. This paper differs from the others in that it brings in the law and economics components of the problem via analyzing the effects of altering the regulatory practices on equilibrium outcomes in the market for checks.[3]

In discussing the policy effects, we focus on a key parameter that naturally arises from our analysis: the π-elasticity of demand for checks, ε_π. In other words, we derive an explicit formula for the percentage change in the quantity of checks resulting from a percentage change in π. We work out two versions of our model. First one, the *basic model*, assumes for simplicity that the demand for checks is of the constant elasticity form. The policy parameter ε_π is also constant in this setup, which is simple but very useful in understanding how the model operates. It is less realistic because the effect of a policy is best detected on the margin and the policy response may change depending on how many people there are on the margin. In the second version, the *extended model*, we assume a simple preference heterogeneity for checks that would generate a distribution of individuals along the demand curve. The policy parameter ε_π varies along the demand curve in the extended model.

We show that the effect of an increase in π on the supply of checks depends on three main factors: the elasticity of demand for checks, the curvature of bad checks as a function of the total supply of checks, and the degree of heterogeneity in the willingness to pay. We calibrate both versions using the available data and show that the π-elasticity of demand for checks, ε_π, is equal to -0.88 for the basic model and -1.70, on the margin, for the extended model. The idea behind this policy is to support the real economy by increasing the credibility of checks. The credibility would indeed increase. The prospects for the real economy, however, will not be as good as expected. We argue that drawee banks will tend to limit the burden that falls on themselves by restricting the supply of checks. This would hit the check-dependent sectors, especially the small enterprises who are less competitive in accessing liquidity.

This paper is structured as follows. Section 2 describes institutional and legal framework about check use in Turkey. Section 3 studies the theoretical framework. A basic model of constant elasticity form is introduced. Then, we extend the basic model by relaxing the constant elasticity assumption and incorporating heterogeneous preferences. Section 4 provides the data description, calibration, and the main results. Section 5 discusses basic welfare implications and some further policy issues. Section 6 concludes.

2. Institutional framework for check use in Turkey

Banks issue checks against some form of a collateral or promise.[4] Merchants use these checks in their transactions and the owner of the check has the right to cash out. Most of the time two parties informally agree on a future cash out date—typically up to 12 months—for a current transaction. The party who accepts the check bears the risk of not getting paid when she demands a cash out. When the economic outlook is positive, this is less of a concern. But when the economy goes down-the-road, sensitivity in risk perceptions increases and merchants become more careful in accepting checks. Checks are so widely used that seeking cash-only transactions would mean to lose an important fraction of customers. Moreover, checks are attractive for all parties since they offer a flexible borrowing instrument the terms of which are decided bilaterally. Perhaps the most striking feature of checks is that they can be signed off to third parties for further circulation. There is no close substitute for checks offering similar benefits. But still, checks impose an exogenous risk on enterprises and this risk frequently leads to a debate over government regulation.

On the legal side, the issuer of the bad check is subject to severe punishments ranging from heavy fine to imprisonment up to 5 years.[5] Still, Turkish courts review and adjudicate more than 200,000 cases related to bad checks every year. These impose significant costs on the parties involved in transactions that checks are used as the medium of exchange and also on the society. Besides this legal framework, drawee banks are obliged to pay the owner a fixed amount π, as described in Section 1, per bad check. Table (1) shows the historical evolution of π in both real and nominal terms.[6] To our knowledge, French and Polish governments impose similar requirements on drawee banks. However, their π is negligibly small and has no observed effect on the workings of the system. Obligatory payments currently impose a nonnegligible burden on the Turkish banking system. Each year these payments amount to a roughly 0.5% of the equity capital of the whole banking sector.[7]

As a reaction to an increase in π, banks will tend to exercise their monopoly power and restrict the number of checks they issue. This concern is of extreme relevance especially during recession periods like the one the world is currently experiencing. The widespread belief that the world economies are expected to undergo a sustained economic slowdown reinforces the monopoly power of the banks. When the state of the economy is not worrisome, such a policy change would not be a big deal. In fact, a fivefold nominal increase in π was executed in 2003 and the effects were not so frightening. But setting the effects of the policy change in 2003—when the economic outlook was positive—as a benchmark and trying to make policy predictions for the future based on this benchmark by analogy is not a sensible strategy and, ironically, such a viewpoint is the subject of the famous critique by (Lucas, 1976). As a response to the current policy debate, Turkish

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[2] A question that would naturally arise in a monopoly problem is: what happens to the monopoly rents? Other than the deadweight loss associated with the monopoly, there would be an additional loss resulting from the competition to become a monopolist (see (Posner, 1975)). We abstract from this consideration for the purpose of focusing on the policy implications.

[3] Another issue that we abstract from is the political economy of the problem. The government, regardless of the name of the ruling party, will tend to support such a policy change since the proposed regulation directly sends signals to the voter base. This is consistent with the "capture" viewpoint à la (Stigler, 1971) in the sense that interest groups will use their regulatory power to shape laws and political institutions in a way they think it is mutually beneficial to themselves and to the government. We do not address how strategic interactions between the government and voters affect the policy-making process. Instead, this paper presents one example when a policy action aimed at making the target group happier can produce consequences that would eventually disappoint them.

[4] The form and the amount of collaterals demanded largely vary across banks. The history of the relationship between the merchant and the bank is an important factor determining the amount of collateral.

[5] Sentence of imprisonment for writing bad checks has been removed after an amendment issued in early 2010.

[6] Magnitude of π is currently indexed to inflation and is regularly adjusted every year. The indexation started in 2003. The reason real π seems as if it visibly changes is that it is actually indexed to PPI and we use CPI as the deflator. PPI series has been published since 2003 and we choose to deflate with CPI since it offers a consistent series going back to 1985.

[7] It is worth mentioning that not every bad check goes through this process. The owner has the option of asking the bank to receive π and start legal proceedings, which is automatic once the owner receives payment of π. But, sometimes the bad check owners do not want to receive π and start legal proceedings since they would like to preserve their existing commercial links with their clients. If π goes up significantly, an increasingly higher burden would fall on drawee banks since these goodwill motives would weaken.