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Competition in bureaucracy and corruption☆

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ABSTRACT

This paper studies the consequences of introducing competition between bureaucrats. Firms are supposed to invest into eliminating negative externalities of production, while bureaucrats administer the process by issuing licences. Some bureaucrats are corrupt, that is, they issue a licence to any firm in exchange for a bribe. The competition regime is found to create more ex ante incentives for firms to invest, while the monopoly regime is better at implementing ex post allocation, that is, distributing the licences given the firms' investment decisions. Additional results on the effect of punishments and bureaucrats' rotation are provided.

1. Introduction

In India, driving licence must be obtained at the police station of the local district where the applicant lives (Bertrand et al., 2007). In Russia, this licence can be obtained at any road police station of the region where the applicant lives.[1] Does this institutional difference have any consequences for welfare and corruption? This is the main question of the paper.

We study this problem in the following setup. There are firms that need a licence to produce. Firms can have either a new clean technology or an old polluting one. The legislation states that only firms with a clean technology are *qualified* for the licence. Firms with a polluting technology are *unqualified*. Production by an unqualified firm creates negative externalities. All firms have an old technology at the beginning, though can change this to a new one by undertaking a costly investment. The licensing process is administered by bureaucrats. While some are *honest* and give a licence only to qualified firms without bribes, others are *corrupt* and would give a licence to any firm in exchange for a bribe. Thus, there exist both *extortion* (when a qualified firm has to bribe) and *collusion* (when an unqualified firm "buys" a licence). The coexistence of the two types of corruption is important for our results.

In the driving licence example, applicants apply for a driving licence. Initially, all applicants do not know how to drive or, at least, not enough to pass the test. They can of course take lessons to learn, but these are expensive. Honest policemen give a licence only to those who drive well enough, while corrupt policemen will try to obtain a bribe from an applicant, whether or not he can drive well.

We will refer to the Indian case as the *monopoly regime*. In this regime the licence must be obtained from a pre-specified bureaucrat; hence, this bureaucrat has a monopoly power over the applicants in his district. The Russian case is the *competition regime*. Any applicant can request a licence from any bureaucrat; thus, bureaucrats compete for applicants. Reapplication to the same or another bureaucrat will involve some costs.

The main finding of the paper is the following. The monopoly regime results in a better *ex post allocation* of licences; that is, how licences are distributed given the investment decisions of firms. While, in the competition regime, firms have more *ex ante incentives* to invest and become qualified. To understand the intuition for the result, consider first ex post allocation of licences. In the monopoly regime, unqualified firms cannot obtain a licence in districts served by honest bureaucrats. In the competition regime, upon meeting an honest bureaucrat an unqualified firm can reapply and reapply until it meets a dishonest bureaucrat. Thus, in the competition regime, unqualified firms more frequently obtain a licence.

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[1] "Pravila sdachi kvalifikacionnyh jekzamenov i vydachi voditel'skih udostoverenij", decree of the Government of the Russian Federation #1396 of the 15th December 1999.

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Now turn to ex ante incentives of firms to invest and become qualified. In the monopoly regime, the only reason to invest is to avoid costly reapplication if the bureaucrat turns out to be honest. In the competition regime, there are two reasons to invest. The first is exactly the same as in the monopoly regime: to avoid reapplication. The second reason is to increase the outside option in the bargaining with a corrupt bureaucrat about the bribe. Indeed, the outside option depends on the qualification since a qualified firm will obtain a licence (for free) if the next bureaucrat turns out to be honest, while an unqualified firm will not. Then, a qualified firm pays a lower bribe than an unqualified one. The competition regime gives an additional strategic reason to invest.

The trade-off between competition and monopoly is now clear. Introducing competition will encourage more firms to invest and become qualified, but those firms that still do not invest will obtain more licences. The total effect on welfare is ambiguous and depends, among other things, on the distribution of investment costs. If these are quite low for most firms, ex ante incentives to invest are important and competition is likely to be better. If they are high and firms do not invest anyway, monopoly is to be preferred. The former case corresponds to the provision of driving licences: as almost everybody is able to learn how to drive properly at relatively low cost, ex ante incentives are crucial. Provision of passports is closer to the latter case: it is difficult to become a citizen of a country, therefore, ex post allocation is more important.

An important extension of the basic model is the inclusion of punishment for corrupt behaviour. We find that it is the competition regime in which punishments have a greater effect on the incentives to invest. The intuition is that, in the competition regime, the bargaining over the bribe involves consideration of the non-trivial outside option of the firm to apply to other bureaucrats in the future, which is negatively affected by a possible punishment. Also, in this regime, extortion of a bribe from a qualified firm can be completely deterred. The optimal punishment for extortion in the competition regime is then either very low to give more incentives to become qualified or very high to deter this sort of corruption. Polinsky and Shavell (2001) also obtain that extortion should not be punished for the same reason of providing incentives for good behaviour. However, they argue that, even if extortion could be deterred, it is not optimal to do so as bureaucrats will switch to framing innocent individuals.

Competitive bureaucracy is more prevalent than it may seem. Firms can usually re-register in another region if they are unhappy with the bureaucracy of their current region, for example, if the local tax authority is too corrupt or, on the contrary, incorruptible. At the individual level, in most European countries passports are provided in the monopoly regime, while in the US applications can be made in any of more than 9000 passport acceptance facilities.[2] Another example is that of notaries who may or may not have exclusive territories where they certify the documents.

The literature on the effects of competition in bureaucracy on corruption is almost non-existent. Rose-Ackerman (1978) was the first to suggest that competitive bureaucracy might help to fight corruption; this was then discussed in Shleifer and Vishny (1993).[3] In the same way as competition among firms reduces prices of the goods they sell, competition among bureaucrats reduces the prices they charge for their services, i.e., bribes. Shleifer and Vishny (1993) say (p. 607):

> "A citizen can obtain a U.S. passport without paying a bribe. The likely reason for this is that if an official asks him for a bribe, he will go to another window or another city. Because collusion between several agents is difficult, bribe competition between the providers will drive the level of bribes down to zero."

As in this paper, they also distinguish between corruption involving qualified and unqualified firms (they refer to extortion "corruption without theft", as it only distributes the surplus between the applicant and the bureaucrat, and collusion "corruption with theft", since it imposes negative externalities on the rest of the society). Introducing competition is good when extortion is present since its only effect is to reduce the level of corrupt payments. It is less so when there is collusion because, by reducing the level of payments, it allows more unqualified firms to buy the bureaucrats' service imposing larger negative externalities on the rest of the society.[4] This observation has been made by Rose-Ackerman (1978, 1999) and Shleifer and Vishny (1993). However, they do not study the *incentives* of the firms to become qualified in the two regimes, and this is the novelty of this paper.[5]

No other paper, to the best of our knowledge, compares the two regimes. From the modelling point of view, the bargaining procedure between a firm and a corrupt bureaucrat is close to the one in Cadot (1987). He considers only the competition regime and is interested in how information structure of the game (that is, whether the bureaucrat and applicant himself know if the applicant is qualified) affects the delivery of the licence. Qualification is exogenous in his model. In Mookherjee and Png (1995) and Acemoglu and Verdier (2000), firms decide on their behaviour; there is, as we call it, endogenous qualification. In these models, firms may be inspected by a bureaucrat with a certain probability and, once a firm is inspected, it has to deal with a given bureaucrat. Thus, both papers have the monopoly regime; it is quite difficult to think about the competition regime there.[6]

In our model, there is complete information about the applicant's type. This implies that the tape red (application costs in terms of both time and money) is used only to provide incentives to the applicants for the desired behaviour; it is not used by bureaucrats to screen different types of applicants as in Banerjee (1997), Saha (2001) and Guriev (2004). Of course, both here and in those papers, red tape also makes it possible to extract bribes from applicants. Complete information about the type of the applicant also implies that, in the competition regime, qualified and unqualified applicants pay different bribes and both types are served immediately. In Ahlin and Bose (2007), in a setting similar to our competition regime, bureaucrats do not know the applicants' type and, therefore, ask for the same bribe from qualified and unqualified applicants. When the proportion of honest bureaucrats becomes higher, the reapplication becomes a better option for the qualified applicants and they may reject the bribe demand and, thus, experience a delay which may lead to a lower welfare. This effect is absent in our model and a higher proportion of honest bureaucrats always increases the welfare both by boosting incentives to become qualified and by improving the allocation of licences.

The rest of the paper is organized as follows. The model is introduced in Section 2 and the equilibrium outcomes are found for both monopoly and competition regimes. Section 3 compares the two regimes and Proposition 3 presents the two main results discussed above. Section 4 introduces punishments for giving and accepting bribes. Section 5 discusses the case when the type of bureaucrats is known before applying. Section 6 concludes.

[2] http://travel.state.gov/passport/passport_1738.html.

[3] The papers that look at corruption and competition, such as Bliss and Di Tella (1997), Ades and Di Tella (1999) and Laffont and N'Guessan (1999), study the effect of competition in the regulated market and not in bureaucracy.

[4] Strangely enough, Shleifer and Vishny (1993) do not speak about the possibility that a non-citizen can obtain a US passport without or with a small bribe.

[5] Rose-Ackerman (1999) also argues that competition is beneficial in a dynamic setting as it pushes down the size of bribe when there are more corrupt bureaucrats decreasing the incentives to become corrupt. We make a preliminary analysis of this argument in the working paper version, Drugov (2007).

[6] Lambert-Mogiliansky et al. (2008) also consider the incentives to become qualified in the monopoly regime. They focus on the setting where several complementary licences issued by different bureaucrats are needed. In our model, there is only one licence to be obtained.