Politicians, Firms and the State of Institutional Environment

Davide Infante * and Janna Smirnova

The model we develop analyses how the state of an institutional environment influences resources allocation in a transition economy. We capture the interaction between politicians who influence firms' decisions regarding resources allocation and managers, introducing a parameter which measures the strength of institutions. The results of our model confirm that building up strong institutions in a transition economy can play a central role in privatisation and restructuring processes and motivate agents to agree on a better resources allocation.

Keywords: Institutional environment, Transition economies, Rent-seeking

JEL Classification: H3, P2, P3

I. Introduction

The influence of institutional environment on economic performance continues to be the subject of many studies as interest has been revived with the start of transition in former socialist countries. Transition economies, characterised by drastic changes in social, political and economic structures, present significant transformations in the institutional environment. Since the institutions of planned economies are different from those of market economies, the switch to the latter calls for insti-

*Corresponding Author, Associate Professor, Department of Economics and Statistics, University of Calabria, 87036, Campus di Arcavacata di Rende (Cosenza), Italy, (Tel) 0039-0984-492460, (Fax) 0039-0984-492421, (E-mail) d.infante@unical.it; Postdoctoral Research Fellow, Department of Economics and Statistics, University of Calabria, 87036, Campus di Arcavacata di Rende (Cosenza), Italy, (Tel) 0039-0984-492444, (Fax) 0039-0984-492421, (E-mail) smirnova@unical.it, respectively.

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tutional change. However, along the transitional path institutions themselves are undergoing transformations which, in turn, influence the transition process itself. This therefore generates a vicious circle, whereby institutions affect transition and vice versa. For these reasons, the creation of strong institutions, such as clear legislations, political stability, defined property rights, and stable banking systems, among others, are considered vital tools for transition economies to achieve the objectives of economic development.

Most economists today would argue that troubled transition processes are evident in countries which have overlooked the importance of establishing an institutional infrastructure based on legal, political, economical rules and organisations (Intriligator 1996; Djankov *et al.* 2003). In fact, problems encountered during the transition process often occur because the demolished institutions are not immediately substituted by a new set of them, thus creating an "institutional vacuum" (Tarushkin 2004) or a weak and inefficient institutional context. This situation often leads to the creation of market and state failures (Infante and Smirnova 2009b), making the problems of transition worse, allowing room for corruption, white-collar crime, despoliation of state property, low-quality government and lacunae in the legal system. Our model attempts to explore the links between the strength of institutional environment and transition processes, analysing how the allocation of the resources in a transition economy is influenced by the state of the institutions.

Empirical research has proved that institutional environment has a significant influence on the quality of government, business relations, social welfare, national competitiveness and innovation capabilities, especially in transition economies. While extensive empirical research in various contexts (Mauro 1995; Ofer 2003; Hellman, Jones, and Kaufmann 2003; Lee 2005; Aidis and Estrin 2006; Myant 2007, and others) supports such findings, there are few theoretical models that define the importance of institutions on economic outcomes. In fact, due to the extensive nature of institutions and their complex behaviours, it is difficult to model the role of institutional environment using a general theoretical framework. Most of theoretical models consider only a single institution or a limited set of them, lacking to capture the effects of institutional environment as a whole.

Usually institutions are analysed according to the way they are built and the role they play. Among the theoretical models, institutions regarding corruption in public sector are more frequently analysed. Using this approach, Saha (2001), Lambsdorff (2002), and Guriev (2004) pres-

ented bribing games to demonstrate how low-quality public institutions affect the state of social welfare. Ventelou (2002) examined the effects of top-level corruption on multiple equilibria and showed the influence of political competition on growth processes. Links between corruption, political instability and institutional reform, defined as government policies, have been provided in a sequential game presented by Damania et al. (2004).

Another type of analysis is referred to the institutional quality. Skaperdas and Syropoulos (2001) modelled economic performance as a function of a single institution, such as trade security, and showed how various trade regimes differ from each other in terms of trade security comparing the levels of social welfare. Similar approach is applied when considering the legal system, particularly referring to property rights protection. Gradstein (2004) built a model that emphasises the importance of property-rights protection on economic growth. Likewise, Acemoglu, Johnson, and Robinson (2001) used a micro-founded analysis to model the property-rights protection for successful economic development.

The organisational characteristics of institutions is another aspect of their analysis. Huang and Xu (1999) presented a model which shows how economic growth rates depend on organisation of merged or centralized institutions. The efficiency of the introduction of a new institute was considered by Jack (2002) who demonstrated the effects that its introduction has on social welfare in transition economies, analysing the interaction between operating enterprises and a new institution by comparing the levels of welfare. The actual development of new institutions, such as property rights was considered by Grossman (2001).

While the above studies provided invaluable insights to understand the links between single institutions and economic performance, few works have examined how the strength of the overall institutional environment influences the economy. In Esfahani's (2000) model of organisational choice, a parameter reflecting the strength of the institutional environment was considered. The introduction of such a parameter gives the possibility to evaluate the influence of institutional environment on production efficiency in state and private enterprises. A similar approach was earlier used by Cukierman and Edwards (1992) who developed an empirical model showing the influence of institutional environment on government performance, demonstrating that political instability leads to inefficiencies in government policies. Likewise, Ellis and Fender (2006) built a growth model incorporating a parameter that measures the quality of institutions accounting for the degree of transparency of the fiscal system that confirms the negative influence of corruption on economic growth.

The present work takes such unitary-institution approach further and investigates how the quality of institutional environment influences resources allocation in transition processes. To formalize the links between resources allocation and the strength of institutional environment we have utilised the seminal Shleifer and Vishny (1994) paper that explores how distribution of property and cash flow rights influences the resources allocation in privatisation and restructuring processes where politicians influence managers' decisions to pursue political objectives. We introduced into this framework the institutional environment context to examine how its changes influence transition processes. We demonstrate that building up a strong institutional environment contributes to restructuring and privatisation, and actually facilitates the processes of transition.

The work is organised as follows: Section 2 presents the settings of the model where a politician and a manager are bargaining on resources allocation. The agents' joint equilibrium and threat points are demonstrated in Section 3. Section 4 defines the equilibrium of resources allocation when bargaining between agents is allowed. In Section 5, bribing is introduced. Conclusions are drawn in Section 6.

II. Model Settings

The model considers a situation where the politicians use firms to maximise personal utility by choosing a level of employment beyond one which is efficient. Shleifer and Vishny's (1994) framework was used to analyse the influence of institutional environment on the allocation of resources such as excess labour and transfer levels. According to Shleifer and Vishny (1994), the politician and the manager bargain on how to allocate a firm's resources. Interested in implementing extra employment, the politician convinces the manager to take on excess labour, by paying a transfer or subsidy (T) at a cost C(T). The transfer is financed by the government, assumed to be a passive player. The social cost of this transfer is σ . When the firm accepts the unneeded employment, the politician receives benefits B(L). As extra personnel (L) produce nothing, despite receiving a wage (w), and society is burdened by a cost (μ), the social welfare function is hence given by:

$$S = -\mu L - \sigma T \tag{1}$$

Following Shleifer and Vishny (1994), we assume that the control rights over L (the rights to decide on the level of L), may belong either to the politician or to the manager, where the latter serves in the interests of shareholders of the firm. If the control rights belong to the politician, the firm is regulated. In the case the control rights belong to the manager, the firm is not regulated. It is assumed that the decrease in L and T corresponds to the restructuring process, since it improves the allocation of the resources and increases the social welfare.

Under such circumstances, the firm receives profits (π) before employing extra labour. The firm is considered private when its manager holds the whole fraction α of profits, or public when the government holds the fraction $1-\alpha$ of profits. As in Shleifer and Vishny (1994), it is assumed that the distribution of cash flow rights (the level of α) reflects the privatisation process of the firm: an increase of the firm's fraction of profits α , indicates that privatisation is advancing.

Further, we analyse the influence of cash-flow rights, and control rights, on allocation of excess labour and transfers.

According to the above settings, the manager's utility is given by:

$$U_m = \alpha \pi + T - wL \ge 0 \tag{2}$$

Therefore, the profit-share belonging to the manager plus government subsidies are greater than extra-labour cost. In turn, the politician's utility function is given by the difference between the benefits from extra employment and the cost of providing the transfers to the manager:

$$U_p = B(L) - C(T) \tag{3}$$

At this point, we introduce the institutional environment into Shleifer and Vishny's (1994) model to analyse how institutional change influences the allocation of excess labour and transfers. To do this, we refer to the institutional parameter λ that represents the value of the rent, or the premium (Esfahani 2000), which politicians can extract from public funds, and is denoted as: $\lambda = \varphi/b$, where b is the administrative capability of the government and φ are factors referred to weak institutions, such as economic and political instability, non-transparent juridical systems, undefined property rights, *etc.* The parameter λ increases when the institutions are weak (φ is high) and the administra-

tive capability of government is low (b is low). On the contrary, λ decreases with a high government administrative capability and with strong institutions that limit corruption, bureaucratic barriers and rent-seeking, decreasing politicians' discretion power.

In order to introduce the institutional parameter into the model, we suppose that the politician is self-interested and is involved in practicing rent-seeking activities. Then, it is assumed that the politician's duty is to transfer T from the state to the firm, when the firm takes on extra employment. Transferring T leaves room for politician's rent-seeking activities and permits to extract a premium from the funds. We assume that this premium is created by delaying the transfer to the manager, and is expressed as the interest rate gained from delayed subsidies payments (i.e., T becomes available for the manager only after a certain period of time). T

By introducing the premium λ we differentiate from Shleifer and Vishny (1994), who analyse the effects of illegal rent-seeking activity, such as corruption. Our model, in turn, introduces both types of rent-seeking: legal and illegal, recalling that the economic rent may be obtained through tools and mechanisms that do not necessarily contradict the rules of society (Infante and Smirnova 2009a). In the model, legal rent-seeking is considered as delays in subsidy payments (Section 3 and 4) and illegal rent-seeking is considered as an outright cash bribe or corruption (Section 5).

Upon introducing the parameter λ , the politician's utility becomes:

$$U_p^* = B(L) - C(T) + \lambda T \tag{4}$$

where λT is the value of the premium the politician gains from the state transfer.

The politician gains high rent when λ is high and the institutional environment is weak, while gains small or nil rent when λ is low and the institutional environment is strong.

¹ The extraction of a rent, expressed as the interest rate gained from delayed subsidies payments, is a commonly accepted and largely diffused practice in transition and developing countries (Saha 2001).

III. Threat Points and Joint Equilibrium

A. Threat Points of Politician and Manager

In this section, the influence of institutional environment on threat points of agents and their joint equilibrium point, determined by control rights over L, is examined. When the manager has control over L, the solution corresponds to those of Shleifer and Vishny (1994), where the agents choose L=T=0 and no excess labour is taken on.

In the case where the politician controls L, she maximises the utility function $U_p^* = B(L) - C(T) + \lambda T$, which is subject to the utility of the manager: $\alpha \pi + T - wL \ge 0$. The solution would therefore be given by:

$$\begin{cases} B'(L) = \omega(C'(T) - \lambda) \\ T = \omega L - \alpha \pi \end{cases}$$
 (5)

Solution (5) demonstrates that the allocation of resources depends on the premium λ .

To investigate the influence of the premium on resources allocation, we analyse a privatisation process, referring to the case demonstrated by Shleifer and Vishny (1994). The process of privatisation is represented by an increase in α (α in the Figure 1), which shifts, according to (2) the manager's constraint downwards, leading to greater L and smaller T. As Shleifer and Vishny (1994) argue, an increase in α permits to the politician to extract surplus by rising L and reducing T, hence, extracts more from the manager. This demonstrates that regulated private firm has a greater excess of labour than a public firm. Given this context, we can demonstrate that improving institutional environment improves the allocation of resources.

We suppose that during the privatisation the institutional environment becomes stronger and λ decreases ($\lambda \geq \lambda^*$). Taking into consideration the functions B(L) and C(T) and their derivatives,² the decrease in the premium lowers the levels of L and T (L^* and T^* in Figure 1), since the curve $B'(L) = w(C'(T) - \lambda)$ shifts downward.

²We assume that functions of politician benefits and costs are represented by: $B=\alpha L^{1/s}$ and $C=c+gT^r$, where s, r, and g are parameters and c is a constant (s, r, g and c are greater than zero). The functions are chosen in such a way that the difference of their derivatives gives the curve described by Shleifer and Vishny (see the behaviour of the utility functions in the Appendix).

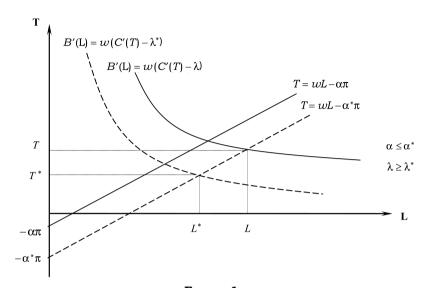


FIGURE 1
ALLOCATION OF RESOURCES, GIVEN THE PREMIUM EXTRACTABLE FROM PUBLIC FUNDS

In fact, the decrease in premium increases the marginal costs of transfer for the politician and leads him to accept a lower level of excess labour compared to that achievable under weaker institutions. When institutions become stronger, politician extracts lower rent, maximising the utility at lower levels of excess labour and transfers which leads to a better final allocation of these resources. This thus promotes restructuring of the firm, in the process of privatisation. The following proposition can subsequently be formulated:

Proposition 1. During privatisation, in transforming a public firm into a privately regulated firm, improving institutions that limit the rent-seeking activity of a politician leads to a better allocation of resources, i.e., promotes the restructuring process.

B. Joint Efficiency Point

We verify now how the improvement of institutional environment influences the joint optimal choice of the agents. Following Shleifer and Vishny (1994) and considering parameter λ , the joint utility function of the manager and the politician can be represented by:

$$U_i^* = B(L) - C(T) + \lambda T + \alpha \pi + T - wL$$
 (6)

Differentiating the joint utility function with respect to L and T gives the following solution:

$$B'(L) = \frac{w}{\lambda + 1}C'(T) \tag{7}$$

As the solution shows, both agents extract transfer from the state, to the point where the marginal benefit of obtaining extra labour for the politician is equal to the marginal cost of releasing transfer to pay for it, discounted by λ . As in the previous section, the decrease in premium of politicians, followed by the improvement of institutional environment, leads to the increase of marginal cost in obtaining the transfer. This implies the decrease of allocation level of excess labour, therefore, facilitating the restructuring process of the firm.

IV. Bargaining between Manager and Politician without Bribing

In this section, we analyse the distribution of control rights influence on the allocation of L and T when, given the change in λ , the manager and the politician are allowed to bargain. As in the model of Shleifer and Vishny (1994), when the politician controls L, the politician and the manager cannot bargain an allocation that is better for them without resorting to bribes, which are supposed not to be allowed. Hence, threat point (5) of the politician also defines the final bargained allocation.

On the other hand, when L is under the control of the manager, the manager's incremental utility is given by T-wL, while the politician's incremental utility now includes parameter λ : $B(L)-C(T)+\lambda T$. The Nash bargaining solution is the product of incremental utilities, described as:

$$U_p^{bargaining} = (B(L) - C(T) + \lambda T) (T - wL)$$
 (8)

Differentiating this function with respect to L and T gives, in accordance to Shleifer and Vishny (1994), the same result as in the case of a joint efficiency point (7) and again includes the institutional parameter: $B'(L) = \{w/(\lambda+1)\}C'(T)$. As in the case of joint efficiency, we confirm that a strong institutional environment leads to a better final

resources allocation, decreasing the levels of L and T, therefore, contributes to the restructuring process of the firm, increasing the social welfare in accordance to (1).

Proposition 2. In the case of collusion between the politician and the manager, as well as in the case of their bargaining in defining the level of excess labour, the improvement of institutional environment may actually decrease the allocation level of excess labour, thus, contribute to the restructuring process of the firm and increase social welfare.

V. Resources Allocation When Bribing Is Allowed

Illegal rent-seeking in the form of bribing is now introduced into the model. We assume that φ in the definition $\lambda = \varphi/b$ depends exclusively on bribing, therefore, the value of bribe offered by manager to politician increases in a weak institutional environment. We define $\varphi = z/k$, where z is the parameter that reflects the amount of the bribe that the manager pays the politician to obtain T, and k is the parameter that reflects the cost the bribe bears on the politician accepting the bribe.

When bribes are introduced, the politician's utility function becomes:

$$U_p^{bribing} = B(L) - C(T) + T\varphi/b \tag{9}$$

while the manager's utility functions is given by:

$$U_m^{bribing} = \alpha \pi + T - wL - Tz \tag{10}$$

We now consider the allocation of L and T when bribes are allowed in a privately or publicly operated firm. The situation where the politician has control over L is analysed first. We define $B(L_d)$ and $C(T_d)$ as the cost and benefit, respectively, at the politician's threat point, as in the model of Shleifer and Vishny (1994). The politician's incremental utility function resulting from bargaining can therefore be written as:

$$V_p^{bribing} = B(L) - C(T) + T\varphi/b - (B(L_d) - C(T_d))$$
(11)

while the manager's incremental utility function in this circumstance is:

$$V_m^{bribing} = \alpha \pi + T - wL - Tz \tag{12}$$

Differentiating the product of the two utilities with respect to L and T defines the following Nash equilibrium:

$$B'(L) = \frac{w}{1 + \omega/b - z}C'(T)$$
 (13)

Before analyzing the role that the state of the institutional environment has in determining how resources are allocated, we will define the first order condition for the case where the manager has control over L. In this case the manager's incremental utility function can be defined by:

$$W_m^{bribing} = T - wL - Tz \tag{14}$$

while that of the politician's is given by:

$$W_p^{bribing} = B(L) - C(T) + T\varphi/b \tag{15}$$

Differentiating as above, we obtain the same result as when the politician has control over L: $B'(L) = \{w/(1 + \varphi/b - z)\}C'(T)$. In fact, regardless of whether the manager or politician controls L, the allocation of L and T depends on the level of corruption in the same way.

Indeed, our model demonstrates that the allocation of L and T under private or state operated firms depends on the level of bribing as well as on the government's administrative capability. Increasing bribes decreases the amount of excess employment since the manager uses bribes to reduce the politician's influence. We now analyse the influence of bribes on the allocation of L and T.

The equilibrium level of bribe when the manager or politician controls L can be determined by differentiating the product of incremental utilities of the agents with respect to z. In the case where the politician controls L, the level of bribe can be expressed in the following manner:

$$z^{politician} = \frac{1}{2T} \left(\alpha \pi + T - wL \right) - \frac{kb}{2T} \left(B(L) - C(T) - B(L_d) + C(T_d) \right) \tag{16}$$

On the other hand, if the manager has control over L the level of bribe

can be defined by:

$$z^{manager} = \frac{1}{2T} \left(T - wL \right) - \frac{kb}{2T} \left(B(L) - C(T) \right) \tag{17}$$

As the levels of bribe show, the cash-flow rights distribution (the dimension of α), thus, privatisation process, influences resources allocation only when the politician has control over L, confirming the Shleifer and Vishny (1994) result.³ However, in contrast to their solution, the final allocation of L and T also depends on the distribution of control rights. In fact, given that (16) and (17) depend on L and T, the final allocation (13) also depends on L and T through z. Consequently, the distribution of cash-flow rights (in the case of politician control over L) as well as the distribution of control rights influence the amount of bribe, which in turn, influences how resources are allocated. In Shleifer and Vishny (1994) basic model, the final allocation of resources is independent on bribe, hence, independent on the distribution of control and cash-flow rights, which means that under corruption privatisation and restructuring do not matter. Therefore, differently from the Shleifer and Vishny (1994) result, we presently demonstrate that privatisation and restructuring processes actually become possible even in the presence of corruption, where strong institutional environment decreases the equilibrium level of bribe, facilitating restructuring, in accordance to (13). Such result is supported by the large evidence of the high corruption level in transition economies (Bardhan 1997; EBRD 1999) which, however, have been accomplishing privatisation and restructuring processes.

Proposition 3. When bribes are involved in bargaining between politician and manager on defining the level of excess labour, considering the institutional context permits to capture the effects of restructuring and privatisation processes and demonstrates that these processes are facilitated by building up a strong institutional environment.

 3 In the case the manager has control over L, the equilibrium level of bribe is independent on α , hence, privatisation process does not matter for resources allocation. This outcome confirms the existence of the "problem of the privatisation irrelevance" defined by Shleifer and Vishny (1994) which can be overcome by introducing a decency constraint, ensuring subsidies to less profitable firms.

VI. Conclusion

In this paper, we extended some of the aspects of Shleifer and Vishny (1994) seminal paper by introducing into their model the state of the institutional environment, that appears to seriously affect the allocation of resources in transition processes where politicians influence managers' decisions to pursue political objectives by practicing legal and illegal rent-seeking activities.

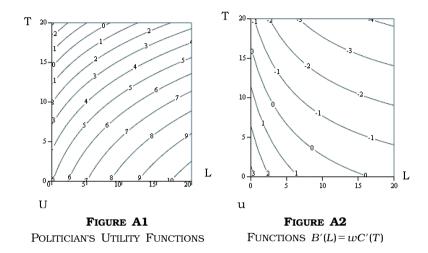
Our approach permits to confirm the widespread opinion on the importance of establishing strong institutional environment in a transition economy. The results show that within strong institutions that limit politician's rent-seeking, the processes of privatisation and restructuring can be facilitated. The positive impact of a strong institutional environment on transition processes is manifested in the following forms. Firstly, limitation of rent-seeking activities by reinforcing institutions reduces the amount of excess labour during the privatisation process, thus contributing to the effective restructuring of private regulated firms. Secondly, a strong institutional environment, that poses barriers to corruption, facilitates transition processes through decreasing the value of bribes which, in turn, contributes to reducing the amount of excess labour, thereby increasing social welfare. Finally, we have demonstrated that the creation of solid institutions during transition period promotes privatisation and restructuring processes, even in the presence of corruption, making distribution of control and property rights important for the allocation of firm's resources.

What are the policies that can be implemented to reinforce the links between the institutional environment and economic performance? As a reply, the model may be extended to incorporate other parameters that reflect the effects of different policies. An empirical model may also be used to test our propositions and determine how institutional strength can influence economic outcomes in transition countries.

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Appendix: Utility Functions

Functions of the politician's benefits and costs utilized for the construction of the model⁴ are given by $B=\alpha L^{1/s}$ and $C=c+gT^r$, where s,



r, and g are parameters and c is a constant. The first order conditions of the above functions are $B'(L) = (a/s)L^{(1/s)-1}$ and $C'(T) = grT^{r-1}$. The shapes of the utility functions U = B - C are represented in Figure A1 of Appendix. The solution to a politician's maximization problem is shown in Figure A2 of Appendix and is given by: $\max B'(L) = wC'(T)$, subject to $T = wL - \alpha\pi$.

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⁴The difference of the above functions' derivatives gives the same shape of the curve described by Shleifer and Vishny (1994).

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