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TOWARDS THE DYNAMIC MODEL OF LEGAL REFORM

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Emergence of efficient system of laws guaranteeing property and contract rights are commonly viewed as important condition for economic development and growth. The research is aimed at developing a dynamic setting that models explicitly the evolution of law. In this model a legislature faces a fundamental effort constraint that forces him to allocate his efforts between creation of efficient laws enhancing social welfare and those aimed at the private interest of a lobbying group. It is assumed that a system of law evolves gradually over time through continuous efforts of legislative body. Economic efficiency at any moment in time depends on the accumulated stock of law. In the absence of interest groups seeking private competition advantages, legislative system would develop indefinitely and economy would be on the growth path. However, if legislature is not benevolent, interest group can contract him for private protection. Specifically, it is assumed that legislature is a pure rent-seeker, and, thus, policy choice is controlled by interest groups. One of the key results of our analysis is the qualitative dependence of economic and legislative evolution on the original state of law. It is conjectured that with originally poor legal environment society faces the risk of stagnation characterized by the absence of economic and legislative development. On the other hand, if the efficiency of law is pushed above some critical level, the system would come on the growth path. Thus, multiple equilibrium is a clear possibility.

Карев М.Г. Динамическая модель правовой реформы. Препринт BSP/01/049E.- М., Российская экономическая школа, 2001.- 49 с.(Англ.)

Создание правопорядка, гарантирующего правовую защиту, является необходимым условием успешного экономического развития. В работе делается попытка построить динамическую модель, призванную описать эволюцию правовой системы. Данная модель предполагает, что законодательная власть обладает ограниченным ресурсом усилий, которые могут быть направлены на создание эффективных законов и (или) на защиту частных интересов лоббирующих групп. Развитие правовой системы рассматривается как постепенный процесс, требующий постоянных усилий со стороны законодательной власти. Экономическая эффективность в заданный момент времени зависит от накопленного правового капитала. В отсутствие лоббирующих групп система права развивается неограниченно и экономика растет. Лобби могут отвлекать законодательный ресурс на защиту собственных интересов, противоречащих общей экономической эффективности. Далее предполагается, что законодатель ценит пожертвования со стороны лоббирующей группы и находится под ее контролем. Одним из главных результатов модели является качественная зависимость правового и экономического развития от начального уровня правового капитала. В условиях правовой незащищенности общество сталкивается с риском постоянной стагнации, характеризующей отсутствием развития экономики и права. С другой стороны, при достаточно высокой правовой защите, система переключается в режим роста.

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1. Introduction

An efficient legal system guaranteeing property and contract rights is commonly viewed as an important condition for economic development and growth. However, provision of the rule of law has become one of the major problems in transition economies. Both modern economic geography and economic history abound with examples that show divergent paths of institutional change. Two broad patterns can be discerned. In some countries institutional development that increases productivity and economic growth can be observed. This is contrasted by another pattern when political and economic actors overwhelmingly favor conditions that promote re-distributive rather than productive activities, that create monopolies rather than competitive conditions. The central puzzle is to account for the stability of these patterns. Why, in some cases, there is a continuous development of market-supportive institutions towards a rule of law society while in others the economy is hampered by stagnation of the institutional environment, characterized by weak protection of property rights and the law of rule. In this paper an attempt is made to answer this question in the framework of a dynamic theory of the legal development. The model that results accounts, at least in principle, for the two patterns of legal processes described above. It explains that the path chosen depends on two main factors. 1.The original state of law from which transition starts. 2.The political structure, measured by the broadness of representation of different interest groups in the political process.

The following plan of exposition is chosen. The main theoretical issues and empirical results that are the building blocks of the model are given as they are reflected in the literature and as they are linked to the present analysis. In the second section the syntheses of these ideas are made, and the general model is formulated and analyzed. Sections 3 and 4 contain two settings that provide the

microanalytic foundations for the general relations of the previous section, that are used to obtain and analyze the closed form solutions. Section 5 concludes.

Emergence of market-supportive institutions: possibility or destiny?

In the early 90's the leading reformers* argued that the process of institutional change is best driven by grass-roots demand with privatization and liberalization being pre-requisites for the establishment of the rule of law. Many prominent economists stipulated that institutional reform will emerge spontaneously as politically and economically powerful actors who appeared in the first two stages come to realize their needs and induce the government to create efficient market institutions. Nearly 10 years after these arguments were put forward, V. Putin, in his message to the Russian parliament, criticized the current legal environment as being highly deficient and called for profound legal reform. This episode clearly illustrates that the early-transition optimism was premature and that the grass-roots demand was not sufficient to guarantee the legal development.

The opposite view stresses that purely economic measures such as liberalization and privatization do not lead necessarily to institutional and legal reform, that these processes are complementary rather than sequential. This approach can be exemplified by the works of Olson (1992), Clague (1992), Murrell (1992). The assertion that efficient property rights emerge spontaneously is criticized by L. Polishchuk and A. Savvateev [6]. In the framework of a rent-seeking model the authors investigate the reasons why rational agents might not be interested in full protection of property rights. It is conjectured that with poor production possibilities and unequal distribution of resources, it may well be that some agents or even the majority of them prefer less than perfect protection of

* See, for instance, Boycko M.; A. Shleifer and R. Vishny (1995) "Privatizing Russia", MIT Press

property rights as in these conditions their benefits from rent-seeking opportunities outweigh the losses caused by the activities of other rent-seekers.

The conflict between rent-seeking and productive opportunities plays the central role in the models presented in this paper with rent-seeking taking the form of special interest policies carried out by the government in favor of interest groups.

General vs Special Interest policies

The policies carried out by a government fall into two broad categories

General policies

A government may aim at developing economic institutions that enhance productivity and growth in the economy at large. The definition and enforcement of property and contract rights constitute important examples. The institutions (constitutions, laws, property rights) that results from this activity can be characterized by two features: they have a long-term effect on economic development; they are formulated in general terms and treat all constituents of the economy on an equal basis.

Special interest policies

T. Persson and G. Tabellini (?) define the special interest policies as those that create benefits for a few well defined groups, with the cost diffused in society at large. Many policy decisions on regulation, public finance and trade policies bear these features. The model presented in section 3 is related to the regulation politics, while the model of section 4 is in the field of public finance. Regulation is a particularly interesting issue due to the great variety of regulation processes.

Many economists (Stigler(1971), Peltsman (1976), Wilson (1980)) recognize that regulation and regulatory objectives and outcomes respond to

complex interactions among interest groups that stand to benefit or lose from various types of government intervention. Price and entry regulation may lead to prices that are higher or lower than those that would emerge in the absence of such regulations. Regulation might protect firms from the threat of competition and lower prices. The structures that emerge are likely to reflect interest group policies rather than efficiency criteria.

One of the important effects of regulation policies is that it generates rent transfers to and from different groups. For example, Kalt (1981) estimates that crude oil price controls in the USA reduced the incomes of producers by \$19-65 billion annually over 1975-1980, and increased the income of refiners by roughly 60 percent of this amount. Regulation may transfer rents among factors of production affecting factor returns. Regulation may also benefit some segments of an industry more than (or at the expense) other segments. Pashigian (1984) finds that environmental regulations tend to benefit large firms relative to small firms within an industry. Similar results were obtained for pharmaceutical industry (Oster 1982) and the energy sector (Braeutigam and Hubbard (1986), Kalt (1981)

Some theoretical works that model regulation as a form of rent-seeking should be mentioned. Brock (1983) argues that a dominant firm's activity in the regulatory arena can be modeled as an investment in barrier-to-entry capital in political form. Salop and Scheffman (1983) also treat investment in political activity as a method of raising a rival's costs. In their setting the rival's costs depend on output and on the value of the regulatory parameter and the profits of a dominant firm depends positively on the rival's costs thus making it interested in the regulation. However, both models are not closed because the supply side of regulatory action that reflects the political reality is not specified. This analysis clarifies the linkage between the individual incentives of firms to engage in rent-seeking activities through regulation.

A. Tonis (2001) explores the setting in which firms can gain competitive advantages over their rivals through the state guardianship. Among other issues, the author addresses the question of how interests of a government affects its patronage policy and finds that a benevolent government implements no patronage whereas a mercenary government pursues patronage policies and is likely to give more privileges than is socially optimal.

Interest groups and government: their interaction

Citizens can create an organization that will monitor political activities and influence policy by virtue of its status or by providing contributions to favored politicians. This mitigates the problems of lack of power and informational imperfections that a single voter faces (Olson(1965), Moe(1980)).

There are a few important theoretical premises and predictions that are consistent with an empirical study and findings, as well as with intuition.

1. All things being equal, organized citizens are more likely to be influential in controlling the decisions of political actors than are unorganized ones. Generally, represented groups should favor actions that maximize the rents available (Becker(1985)).
2. If all interests affected by a decision were given roughly equal weight, circumstances would favor a relatively efficient outcome (Becker (1983)).
3. If not, circumstances favor a policy which creates rents for represented interests. The resulting policy will be efficient only if an efficient arrangement is available which maximizes the joint rents of the represented interests.

An important analytical issue is how to model interaction between government and various interest groups. The first approach, exemplified by G.

Stigler (1971), A. Hillman (1982), use the reduced-form political support function.

They assume that the government has an objective function that attaches different weight to the welfare levels of individuals, organized in interest groups, and those who are not, so that organized individuals receive greater weight than unorganized ones. In this formulation campaign contributions and re-election concerns do not enter directly into the analysis and the reduced-form political support function represents the net result of the interaction of these factors. In contrast to this, G. Grossman and E. Helpman derive the reduced-form function from microanalytic foundations. This is achieved in the framework of an menu auction model. Although this setting is somewhat specific, their analysis greatly clarifies the process by which a government comes to pay special attention to the concerns of interest groups.

In the current paper the first approach is followed and the reduced-form function is used as a starting point for analysis.

Incremental nature of legal reform in the context of the Polishchuk-Savvateev model, a social decision about the state of property right protection is made once and for all. This is not how one might imagine the development of a legal system. The key fact to observe is that this system does not emerge all of a sudden, but rather evolves gradually over a significant period of time. Legislative bodies do not choose between some given systems of laws but rather devote their efforts to building such a system step by step. D. North (1990) devotes much attention to this feature of institutional development in his seminal work. Arguably, the idea of complementary institutional reform has become so unpopular among the theorists of the big bang emergence of the best of worlds because of their recognition that legal and institutional changes require too much time.

The idea of the gradual evolution of laws constitutes one of the basic assumptions of the present analysis. As the interaction between law and economy is

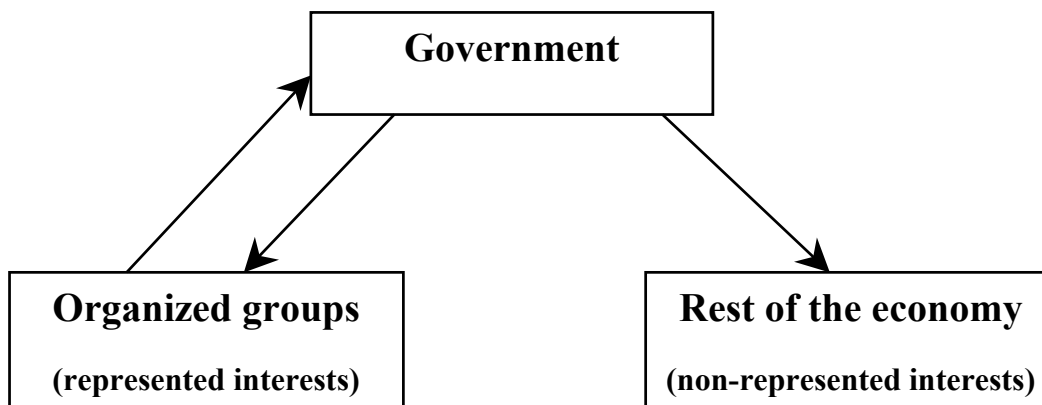
of prime interest, this system is taken to be one-dimensional, i.e. built up of market-supportive laws. The dynamics are introduced by assuming that government faces a certain effort-constraint: at any moment it can devote only a limited amount of effort to perfecting laws and the outcome of its effort is limited as well.

2. The basic model

This section is aimed at formalizing the basic ideas that lie at the foundation of the models that follow.

2.1 Structure of the economy

There are three structural units in the economy depicted below:



Arrows show the directions of influence between the government, politically represented interest groups and the rest of the economy. Organized interest groups through their lobbies, influence the activity of a government, which, in its turn, affects the whole of the economy.

In this model a government is treated as a unified body characterized by its possibilities and preferences that, in their interrelation, determine the policy chosen.

2.2 Policies

The timing of the model is multiperiod with an infinite time horizon. In each period a government is endowed with a unit of resource (effort) that it employs in

its best interest. It is assumed that in each period a government can allocate its unit of effort between two types of activity.

General policies

Almost by definition, general policies are aimed at developing market-supportive institutions that enhance productivity and growth. In this model the history starts at $t=0$. Denote h_t as a government's effort in period t aimed at the perfection of the legal system and imagine that T periods have preceded. Then $\sum_{t=1}^T h_{t-1}$ is the cumulative effort devoted by a government to legal reform throughout its history. Denote θ_0 as the accumulated previous effort in legal reform up-to the moment $t=0$, when the incumbent government came on the stage and the new history began. Referring to the transition economies, θ_0 can be interpreted as the institutional heritage, the initial level of development from which the transition starts. Then $\theta_t = \theta_0 + \sum_{i=1}^t h_{i-1}$ stands for the stock of effort that has been expended up to the moment t . This is one of the key parameters of the model. It is assumed that economic efficiency, measured in the models that follow by the marginal productivity A_t in period t is positively related to the stock of efforts θ_t :

$$A_t = A(\theta_t), \quad A_{\theta} > 0$$

Special interest policies

A government may pursue special interest policies that create concentrated benefits for politically organized groups. It is assumed that the efficiency of a government's effort in special interest policies decreases, in a certain sense, with the development of the legal system. This assumption reflects the idea that the

ability of a government to grant advantages to its favorites at the expense of others becomes increasingly restricted with the development of the rule of law. However, one should be careful in formalizing this general idea. For, there are two forces in play. First, rent-seeking opportunities are bound to the establishment of the rule of law. On the other hand, an efficient institutional environment contributes to the growth of welfare and, thus, opportunities to favor special interests, however restricted, may give greater rewards, as the stake gets bigger. Thus, decreasing efficiency of effort aimed at special interests should always be understood in relative rather than absolute terms, and should mean the reduced standard variation of welfare brought about by this type of effort.

2.3 Government's preferences

In the models that follow, special interest policies always lead to a loss in egalitarian social welfare. Thus, a government that treats all social groups alike would never apply such measures. However, this ideal exists only in the dreams of political philosophers. In reality, a government attaches different weight to the welfare levels of different groups. Together with G. Stigler (1971) and A. Hillman (1982), it is assumed that the government's objective function evaluates differently the welfare levels of organized groups and the rest of society, attaching greater weight to the organized groups. Denote W^g, W^o, W^u respectively the welfare of a government, the organized and the unorganized sector. They are related as follows:

$$W^g = (1+a)W^o + aW^u, \quad a \geq 0$$

The higher a , the more egalitarian a government. The case of $a=0$ relates to the situation when a government is fully captured by the interests of organized groups. This case plays an important role in the analysis presented in this paper.

Although special interest policies may be harmful to the economy as a whole, it benefits those groups in favor of which they are carried out. If the welfare

of politically organized groups influence heavily the preferences of a government (a is small) then, all else equal, a government will be interested in making an effort in their favor. Denote d_t as the effort in special interest policies in period t . The welfare level of a government in period t is a function of the stock variable θ_t and flow variable d_t :

$$W^g = W(\theta_t, d_t)$$

In view of the above remarks this function may increase in both arguments. For the rest of the exposition, it is assumed that this is the case:

$$W_\theta(\theta, d) > 0, \quad W_d(\theta, d) > 0$$

In these circumstances a government faces the problem, basic for this model, of allocating its limited resource between legal development and special interest policies. The conflict between the two types of activities stems from two factors. First, as the resources are limited, any increase in special policy activity leads to a slow down in legal development. Secondly, as was noted above, legal development reduces efficiency of effort devoted to special interests.

2.4 The dynamic problem

A government optimizes inter-temporally its discounted welfare subject to the budget constraints:

$$\begin{aligned} V^g &= \sum_{t=0}^{\infty} W^g(\theta_t, d_t) \cdot \delta^t \rightarrow \max_{\{h_t, d_t\}} \\ \text{s.t.} \quad & h_t + d_t \leq 1 \\ & h_t, d_t \geq 0 \\ & \theta_t = \theta_0 + \sum_{\tau=1}^t h_{\tau-1} \end{aligned}$$

where δ is the discount rate; h_t and d_t are respectively efforts devoted to legal reform and special interest policies in period t ; the last equation determines how the stock of effort in legal development is accumulated.

The solution to this problem is called the optimal policy path. It determines how the government behaves in respect to legal development and special interests in each period.

It proves to be useful, in what follows, to introduce the notion of a steady state. In a steady state a government devotes continuously all its effort to special interest policies and the stock θ_t stays constant: $h_t = 0; d_t = 1; \forall t$. Thus, a steady state is characterized by the absence of legal and, consequently, economic development. The following necessary condition of a steady state can be formulated:

Proposition 2.1

In a steady state
$$\frac{\delta}{1-\delta} \cdot W_\theta|_{d=1} \leq W_d|_{d=1} \quad (2.1)$$

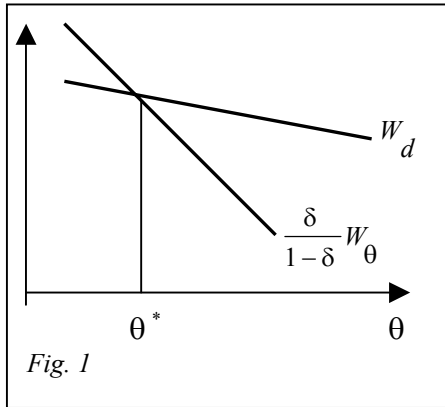
This expression has a clear intuitive meaning. It shows that in a steady state the discounted capitalized marginal gain from a small additional effort in legal reform should be less or equal to the one-time gain from the same effort devoted to the special interests of organized groups, with both gains measured at the level of a maximum discriminating effort, i.e. at $d=1$. As an increase in the legal development effort in the current period has a permanent effect on the welfare, beginning with the next period, the capitalized gain should be discounted by δ to the current moment. How simple it is, this relation can give much insight on the determination of the realized policy paths.

2.5 Path dependence

Consider two benchmark cases of the behavior of the functions $\frac{\delta}{1-\delta} W_\theta(\theta, d)|_{d=1}$ and $W_d(\theta, d)|_{d=1}$ in respect to the stock of effort θ .

1. There is such $\theta^* > 0$ that $\frac{\delta}{1-\delta} W_\theta|_{d=1} > W_d|_{d=1}$ for $\theta < \theta^*$ and

$$\frac{\delta}{1-\delta} W_{\theta} \Big|_{d=1} < W_d \Big|_{d=1} \text{ for } \theta > \theta^*$$



This means that for low values of θ the capitalized marginal gain exceeds the one-time gain, whereas for high values of θ the relation is reverted and the two functions cross only once. Fig.1 illustrates this condition.

In this case the following result holds:

Proposition 2.2

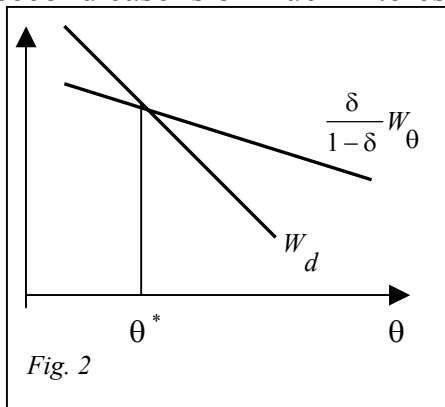
If the above condition holds and $W(\theta, d)$ is convex (not strictly) in d , i.e. $W_{dd} \leq 0$ then:

If $\theta_0 < \theta^*$ then the only possible steady state is $\theta = \theta^*$

If $\theta_0 \geq \theta^*$ then the only possible steady state is $\theta = \theta_0$

This proposition stipulates that if the initial level is low, i.e. $\theta_0 < \theta^*$, the development of the legal system will occur, but it might be halted when condition (2.1) is satisfied as equality, i.e. when the capitalized gain from further legal development is equal to the marginal gain from special interest policies. In this case initially underdeveloped economies will all go through the process of legal reform.

One of the main purposes of this study is to explore the possibility of the path dependence for initially legally underdeveloped economies. In this respect the second case is of much interest.



2. Consider now the situation in which there

is $\theta^* > 0$ so that $\frac{\delta}{1-\delta} W_{\theta} \Big|_{d=1} > W_d \Big|_{d=1}$ for $\theta < \theta^*$

and $\frac{\delta}{1-\delta} W_{\theta} \Big|_{d=1} < W_d \Big|_{d=1}$ for $\theta > \theta^*$ (Fig.2)

Proposition 2.3

If the above condition holds and $W(\theta, d)$ is convex in d , i.e. $W_{dd} \leq 0$ then:

If $\theta_0 \leq \theta^*$ then there are two possible paths:

a) Stagnation: *status quo* is preserved and $h_t = 0; d_t = 1; \theta_t = \theta_0 \quad \forall t$.

b) Growth: there is no convergence to any value of θ and $h_t > 0, \quad \forall t$

If $\theta_0 > \theta^*$ then there is no convergence to any value of θ and $h_t > 0, \quad \forall t$.

This proposition opens the possibility for divergence of economies with initially low levels of θ_0 . Intuitively, the dependence of the realized path on the original condition might occur in a poor legal environment, as special interest policies offer high present rents to its beneficiaries, and the only justification for legal development to occur is that it can bring considerable gains to the interest groups in the future. However, if the future gains are too distant (or are heavily discounted), a government that incorporates special interests in its preferences might prefer the *status quo* to legal development. On the other hand, for higher levels of initial legal development, when efficiency of effort in special interest policies is considerably suppressed, it might pay for a government to develop the legal environment further. If this is the choice made then, as the future unfolds, the gains from legal development become more pronounced as compared with those from special interest policies and, thus, the growth is self-sustained.

The form of dependence of a government's objective function on its arguments depends on how the economy is described and what the special interest policies consists in. The following two sections are aimed at providing microanalytic settings from which the government's objective function can be derived. Two models that will be analyzed can be treated independently, both, however, lie within the framework of the model described above. One of the

models refers to special interest politics in regulation, while the other is about special interests in public finance. It will turn out that these different economic settings boil down to very similar relations and lead to results that can be understood within the general framework.

3. Model with production costs regulation

3.1 Two historic examples

The Spanish Crown and the sheep raisers

In 17th century Spain farming suffered from the activities of the Mesta, the privileged royal sheep raiser's monopoly. The Mesta had rights to drive sheep across farmland throughout much of the country, and the damage caused by the animals discouraged improvements in farming. There is no doubt that definition and enforcement of property rights in land would contribute greatly to the growth of productivity in agriculture, the largest and most important sector of the 17th century economy. But the state was reluctant to resolve this problem and the property rights in land remained inefficient. There are two reasons why the Spanish Crown didn't act in favor of long-term growth. First, behind the Mesta stood a powerful pressure group, whereas farmers lived dispersed and were unorganized. Secondly the Mesta was an important source of tax revenue and restricting it would have hurt the crown financially. As a result, the government was captured by the interests of the sheep raisers and acted in their favor. P. Hoffman and J-L. Rosental (1997) argue that preservation of inefficient property rights throughout the 17th century accounts for the grave economic underdevelopment of Spain in comparison to other countries like England or the Netherlands.

To complete this story one should understand why the Mesta wouldn't allow the development of property rights in land. The reason is clear. Such development would inevitably increase the value of land. This would lead to higher production

costs, in as much as land is a factor of production for sheep raisers. Thus, the Mesta's opposition to property rights was an efficient instrument of regulation that made it possible to keep costs low.

President Bush and the gas emitters.

In March 2001 President George W. Bush declared his opposition to the 1997 Kyoto Protocol, which introduced legally binding for greenhouse-gas emissions cuts. This reverse creates serious obstacles on the way to bringing the treaty into force. A move away from binding commitments could have devastating consequences for the global economy. The United States produce 25% of the world's carbon dioxide, a gas that is the main contributor to global warming. Rising global temperatures change conditions and are believed to alter crop yields, forests and water supplies, threaten human health and harm many types of ecosystems.

The US administration has rejected the Kyoto Protocol on the pretext that the effects of gas emission are not yet clear and may be overestimated and that implementation of the treaty would have a negative impact on the US economy. However, it is well known that this opposition is led by powerful lobbyists for the coal and oil industries who have urged the administration to move away from obligatory ceilings and targets towards voluntary goals.

This story has much in common with that of the Mesta in 17th century Spain. Not surprisingly, the emitters of green-house gases want to see the treaty dead: its implementation would result in additional costs as coal and oil industries will be forced to pay for emissions. More surprising, perhaps, is their power to control decisions of the government. However, there may be an explanation why the interests of a dozen of companies outweigh those of the whole of humanity. The former have two serious advantages over the latter: they are politically organized and they pay for the presidential campaign.

The following model consider the case when an organized group of producers in one sector of the economy can lower its production costs through regulation of another sector.

3.2 The economy

Consider a small open economy that is populated by individuals with identical preferences and different endowments of production factors.

Utility function is quasilinear: $U(x_0; x_1 \dots x_n) = x_0 + u(x_1 \dots x_n)$

where x_0, \dots, x_n is consumption of different goods and $u(x_1 \dots x_n)$ is strictly convex in its arguments.

Good x_0 is produced by competitive firms with one-factor linear technology: $y_0 = A_0 \cdot f_0$, where A_0 is the marginal productivity and f_0 -the input of the factor labeled "0".

There are n sectors producing goods $x_1 \dots x_n$. Production technology in these sectors exhibits constant returns to scale and requires two factors. One factor is f_0 that is employed in all sectors. The other factor is specific to each sector. Production functions are taken to be of the following Cobb-Douglas form:

$y_i = A_i \cdot f_0^\alpha \cdot f_i^{1-\alpha}$, $i = 1, \dots, n$ where A_i is the marginal productivity and f_i -the specific factor employed in sector i .

Let F_i denote the total endowments of the factors $i = 0, \dots, n$ in the economy. Without the loss of generality the world prices for all consumption goods are equal to unit. The total endowment of the basic factor f_0 is also normalized to unity.

It is assumed for simplicity's sake that the ownership of specific factors is not diversified, i.e. each individual is endowed at best with a portion of one specific factor f_i . All individuals are assumed to have equal endowments of the basic factor

f_0 . Let γ_i denote the fraction of population that owns the total endowment of i 's factor, F_i .

The price of the factor f_0 equals to its marginal productivity A_0 and firms that operate in this sector generate zero profit.

Output, factor employment and profits in other sectors are given by solution of the profit maximization problem: $\pi_i = A_i \cdot f_0^\alpha \cdot F_i^{1-\alpha} - A_0 f_0 \rightarrow \max_{f_0} \quad i = 1, \dots, n$

It is easy to verify the following expressions for:

Input of the basic factor f_0 employed in each sector:

$$F_{0,i} = \left(\alpha \frac{A_i}{A_0} \right)^{\frac{1}{1-\alpha}} F_i \quad i = 1, \dots, n \quad (3.1)$$

Output in each sector:

$$Y_i = \left(\alpha^\alpha \frac{A_i}{A_0^\alpha} \right)^{\frac{1}{1-\alpha}} F_i \quad i = 1, \dots, n \quad (3.2)$$

Profit, i.e specific factor return in each sector:

$$\pi_i = (1-\alpha) \left(\alpha^\alpha \frac{A_i}{A_0^\alpha} \right)^{\frac{1}{1-\alpha}} F_i \quad i = 1, \dots, n \quad (3.3)$$

It follows from the last expression that return from the specific factor in each of the two-factor sectors are positively related to the production efficiency of this sector (A_i) and, in contrast, have negative dependence on the efficiency of production in the one-factor sector (A_0). This is what one should expect, as long as the cost of factor f_0 employed by all sectors is equal to its marginal productivity in the one-factor sector.

3.3 Social welfare

Social welfare is composed of factor returns and consumer surplus:

$$W^s = A_0 + \sum_{i=1}^n \pi_i + S(p_0, \dots, p_n)$$

Consumer surplus S depends on the world prices of consumption goods. In what follows no price changes will be considered. This term is then a constant and can be omitted. Thus, reduced social welfare is just the sum of factor returns:

$$W^s = A_0 + \sum_{i=1}^n \pi_i$$

3.4 Legal development vs special interest politics

The basic framework opens two channels of activity for a government.

First, in each period it can devote its limited resources to the development of the legal system. This leads to an incremental change in the stock θ that enhances economic efficiency in all sectors of the economy. This idea can be captured by the positive dependence of the productivity parameters A_i on the stock θ_t in period t :

$$A_i = A(\theta_t), \quad A_0 > 0 \tag{3.4}$$

Secondly, a government can pursue policies that favor politically organized sectors of the economy. In the context of the model described in this section special interest policies consist in regulation aimed at dampening the productive efficiency in the one-factor sector. It is clear from expression (3.3) that, all things being equal, owners of specific factors are interested in lowering the cost of the basic factor f_0 and this can be achieved by reducing marginal productivity in the one-factor sector. In this simple setting the only ground for conflict of interests is the dependence of returns from specific factors on the cost of the basic factor. Accordingly, regulation that dampens production in the one-factor sector, but raises profits and production in each of the two-factor sectors occurs when a government resolves this conflict in favor of specific-factor interests.

As regulation has opposite effects for one-factor and two-factor sectors the overall effect on egalitarian social welfare is in question. Intuition suggests that discrimination should result in welfare loss. In the next subsection it will be shown that this conjecture proves to be true.

Denote d_t as the effort on regulation of productivity in the one-factor sector undertaken by the government in period t . The idea that oppressive policy lowers productivity in this sector can be reflected as follows:

$$A_0 = A(\theta_t) \cdot (1 - M(\theta_t, d_t)) \quad (3.5)$$

The second term in brackets depicts the negative effect of effort on regulation on productivity. This term meets the following conditions:

$$0 \leq M(\theta, d) \leq 1 \quad (a)$$

$$M(\theta, d)|_{d=0} = 0 \quad (b)$$

$$M_d > 0 \quad (c)$$

$$M_\theta < 0 \quad (d)$$

Condition (a) requires that any level of effort on regulation should not result in negative marginal productivity, i.e. however oppressed the one-factor sector is, there will always be some production. Condition (b) states that when effort on regulation is absent, there is no loss in production efficiency. Condition (c) stipulates that the more intensive regulation, the bigger the reduction in productivity. With this last condition it is assumed that the more developed the legal system, the less efficient effort on regulation. Note that efficiency should be taken in a relative sense: the higher θ , the more effort d is required from a government to achieve a given standard variation in marginal productivity.

3.5 Social optimum

A benevolent government chooses its optimal policy in order to maximize egalitarian social welfare. In this case it solves the following problem:

$$\begin{aligned}
V^s &= \sum_{t=0}^{\infty} W^s(\theta_t, d_t) \cdot \delta^t \rightarrow \max_{\{h_t, d_t\}} \\
s.t. \quad & h_t + d_t \leq 1 \\
& h_t, d_t \geq 0 \\
& \theta_t = \theta_0 + \sum_{\tau=1}^t h_{\tau-1}
\end{aligned}$$

where $W^s = A_0(\theta_t, d_t) + \sum_{i=1}^n \pi_i(\theta_t, d_t)$

This shows that the chosen policy should maximize the NPV of aggregate income in the economy. The following proposition determines a socially optimal policy:

Proposition 3.1

$\{h_t = 1, d_t = 0, \forall t\}$ is a socially optimal policy.

This shows that the losses caused by regulation outweigh its benefits. In order to maximize social welfare a government should not regulate and devote all its effort to legal development.

3.6 Lobbying

Some of the specific-factor sectors may be politically organized and can influence the decisions taken by a government.

In order to simplify calculations, consider the case when $n=1$, i.e. there is only one specific-factor sector in the economy and the owners of this specific factor are politically organized. The results that will be obtained can be easily generalized for $n>1$.

The joint capitalized welfare of all the owners of a specific factor takes the

form: $V^o = \sum_{t=0}^{\infty} (\gamma \cdot A_0 + \pi) \cdot \delta^t$

where γ represents the fraction of the population owning the specific factor.

In this case a government is induced to maximize the social welfare function that attaches different weight to different groups, with the group of specific factor owners receiving a weight $1+a$ and the rest of society receiving the smaller weight of a .

$$V^g = (1+a) \cdot V^o + a \cdot V^u = \sum_{t=0}^{\infty} [(\gamma + a) \cdot A_0 + (1+a) \cdot \pi] \cdot \delta^t$$

This expression shows that, in contrast to a perfectly egalitarian government, this objective function values incomes on different factors differently, with income on the specific factor (π) being given greater weight than income on the basic factor (A_0). Notice that the higher the concentration of the specific factor (the smaller fraction of society owns the total endowment of this factor), the greater the weight which the specific factor is given in comparison to the basic factor.

The government faces the following maximization problem:

$$\begin{aligned} V^g &= \sum_{t=0}^{\infty} W^g(\theta_t, d_t) \cdot \delta^t \rightarrow \max_{\{h_t, d_t\}} \\ \text{s.t. } & h_t + d_t \leq 1 \\ & h_t, d_t \geq 0 \\ & \theta_t = \theta_0 + \sum_{\tau=1}^t h_{\tau-1} \end{aligned}$$

where $W^g = (\gamma + a) \cdot A_0(\theta_t, d_t) + (1+a) \cdot \pi(\theta_t, d_t)$ (3.6)

Given that the interests of different groups are not of equal importance, the policy chosen by a government can deviate from the social optimum. It is of interest to investigate under what conditions such deviation occurs. The following propositions help to determine the cases when a government is likely to implement policies that are not socially preferable.

Proposition 3.2

1. There is some threshold level of the specific factor concentration $\gamma^* < 1$, so that for any γ above this threshold a socially optimal policy is chosen by a government.

2. There is some threshold level a^* , so that for any a above this threshold a socially optimal policy is chosen by a government.

This proposition states that if the owners of a specific factor constitute a substantial part of the population, a government will not be induced to deviate from optimal policy that consists in no regulation and full devotion to legal development. Similarly, if a government is tendentiously egalitarian then it chooses a socially optimal policy.

It follows that regulation might occur only if two conditions coincide: a) a specific factor is owned by a small fraction of the population; b) a government is strongly captured by a politically organized group.

In accordance with this result, in order to analyze deviations from a socially optimal policy, it suffices to investigate the limiting case, when a specific factor is not dispersed ($\gamma = 0$) and a government is fully captured by the group ($a=0$). Then a government cares solely for the welfare of the specific factor owners who, in their turn, care only for income from a specific factor. Expression (3.4) simplifies to:

$$W^s = \pi(\theta_i, d_i)$$

In the next subsection the possibility of not socially optimal behavior is demonstrated. It can be shown that when a not socially optimal policy is chosen in the limiting case then the social optimum is not restored for small enough a and γ . This means that results obtained for the limiting case are valid for the case of a highly unequal distribution of the specific factor and of a government highly influenced by the politically organized group.

3.7 Path dependence

The government maximizes the NPV of specific factor return. In order to simplify the expressions and without loss of generality, the production function in the two-factor sector is taken to be symmetric in both factors, i.e. $\alpha = 1/2$. Using the expressions (3.3, 3.4, 3.5) the flow of the specific factor return can be written as:

$$W^s = \pi(\theta_t, d_t) = \frac{F_1}{4} \cdot \frac{A(\theta_t)}{(1 - M(\theta_t, d_t))}$$

In this expression the nominator expresses the positive relation of profit on productivity (A) that, in its turn, is positively related to the current level of the stock of effort devoted to legal development (θ_t). The denominator reflects the costs determined by the price of the basic factor used in production. This relation captures the ambivalence of interests of specific factor owners in respect to legal development. On the one hand, they are interested in a more efficient legal system that raises productivity in their sector. On the other, they gain from regulation of the other sector as it lowers their production costs.

In order to simplify the analysis and obtain the closed form solutions, the function $M(\theta, d)$ that depicts the effect of discrimination on production costs, is taken to be linear in effort d : $M(\theta, d) \equiv \mu(\theta) \cdot d$, where $\mu(\theta)$ is positive and decreasing in θ function reflecting the decreasing efficiency of effort in regulation in respect to the legal development.

As was shown in the section 2 the most important feature that determines the process of legal development is the relation between the discounted capitalized marginal gain from a small additional effort in legal reform and the one-time gain from the same effort devoted to regulation with both gains measured at the level of maximum effort in regulation, i.e. at $d = 1$.

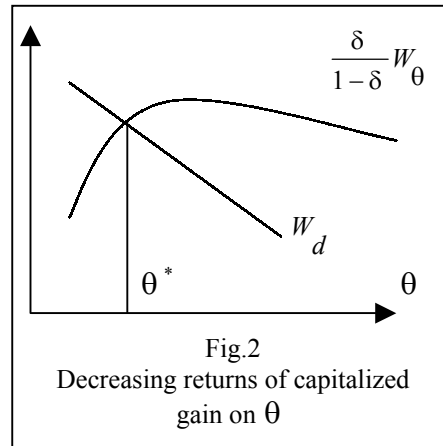
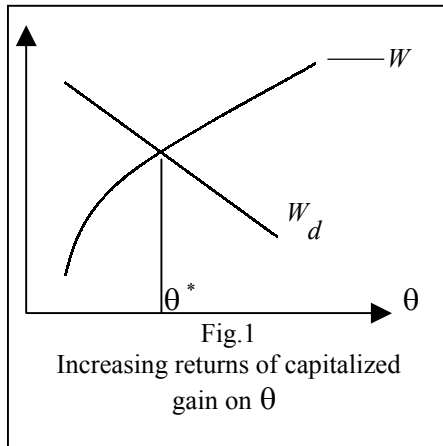
In the framework of this model both types of gains normalized by a coefficient take the form:

$$\frac{\delta}{1-\delta} \cdot W_{\theta}(\theta, d) \Big|_{d=1} = \frac{\delta}{1-\delta} \left(\frac{A_0}{A} (1 - \mu \cdot d) + \mu_{\theta} \cdot d \right) \Big|_{d=1} \quad (3.7)$$

$$W_d(\theta, d) = \mu(\theta) \quad (3.8)$$

The aim is to demonstrate the possibility of the dependence of the policy path on the original condition measured by the initial stock θ_0 . As is shown in Proposition 2.3 this dependence might occur when for low values of θ the one-time marginal gain from an effort in regulation exceeds the capitalized marginal gain from this effort in legal development, whereas for the high values of θ this relation is reversed. It should be noted that this does not require W_{θ} to be increasing in θ , and that both gains may exhibit decreasing returns to the scale of θ . Formally, there is such θ^* that $\frac{\delta}{1-\delta} W_{\theta} \Big|_{d=1} < W_d$ for $\theta < \theta^*$ and $\frac{\delta}{1-\delta} W_{\theta} \Big|_{d=1} > W_d$ for $\theta > \theta^*$

Fig.1 and Fig.2 illustrate these relations.



With the above specifications the optimal policy path has the following property:

Proposition 3.3

There are only two potentially optimal paths:

1. Stagnation: $(h_t = 0, d_t = 1) \quad \forall t$
2. Growth: $(h_t = 1, d_t = 0) \quad \forall t$

This proposition shows that the choice of a government is really stark: it has to choose between two corner solutions. In the first case, a government devotes continuously all its resources to regulation and there is no legal development. The second possibility represents the exact opposite: a government devotes all its effort to legal reform and does not pursue special interest policies. Naturally, the choice is made in favor of the path that yields the highest value to the government.

In what follows two examples with closed form solutions are provided that correspond to the cases depicted in Fig 1 and Fig 2.

Example 1. Increasing returns to the stock of θ .

In this case it is assumed that the marginal productivity A exhibits increasing returns to scale of θ : $A_{\theta\theta} > 0$. Specifically, let

$$A(\theta) = a^\theta, \quad a > 1$$

$$\mu(\theta) = \mu^\theta, \quad \mu < 1$$

Substituting these expressions into (3.7), (3.8):

$$\begin{aligned} \frac{\delta}{1-\delta} \cdot W_\theta(\theta, d) \Big|_{d=1} &= \frac{\delta}{1-\delta} \left((1-\mu^\theta) \cdot \ln a + \mu^\theta \cdot \ln \mu \right) \\ W_d(\theta, d) &= \mu^\theta \end{aligned}$$

These functions behave as is shown in Fig.1.

The next step is to calculate the NPV for both potentially optimal paths and to compare them.

1. Stagnation
$$V_{st}(\theta_0) = \sum_{t=0}^{\infty} \frac{F_0}{4} \cdot \frac{a^{\theta_0}}{1-\mu^{\theta_0}} \cdot \delta^t = \frac{F_0}{4(1-\delta)} \cdot \frac{a^{\theta_0}}{1-\mu^{\theta_0}}$$

2. Growth For this path: $d_t = 0 \quad \forall t$ and $\theta_t = \theta_0 + t$

$$V_{gr}(\theta_0) = \sum_{t=0}^{\infty} \frac{F_0}{4} \cdot a^{\theta_0+t} \cdot \delta^t = \begin{cases} \frac{F_0}{4(1-a\delta)} \cdot a^{\theta_0}, & \text{if } a\delta < 1 \\ \infty, & \text{if } a\delta \geq 1 \end{cases}$$

If $a\delta \geq 1$ then the growth path is always chosen.

Consider the case of $a\delta < 1$. Then the relation of the NPV for the stagnation

and growth paths:
$$\frac{V_{gr}}{V_{st}} = \frac{1-\delta}{(1-a\delta)}(1-\mu^{\theta_0})$$

Two conclusions are derived from the last expression:

1. For a given discount rate δ there exists the threshold of initial level of the $\theta_0^* > 0$ so that:

For $\theta_0 < \theta_0^*$ the optimal choice of a government is stagnation.

For $\theta_0 > \theta_0^*$ the optimal choice of a government is the growth path.

2. For a given initial level of the stock θ_0 there exists the threshold of discount rate $0 < \delta^* \leq 1$ so that:

For $\delta < \delta^*$ the optimal choice of a government is stagnation.

For $\delta > \delta^*$ the optimal choice of a government is the growth path.

This means that with an initially poor legal environment and a short time horizon the government is likely to adopt a socially harmful policy that consists in the absence of legal reform and the presence of regulation.

Example 2. Decreasing returns to the stock of θ_0 .

The following example provides an illustration of multiple equilibrium in the case when marginal productivity $A(\theta)$ exhibits decreasing returns to scale, i.e.

$A_{\theta\theta} < 0$. Consider the following specification:

$$A(\theta) = k - a\theta, \quad a < 1, \quad k > 1$$

$$\mu(\theta) = \mu\theta, \quad \mu < 1$$

$$a. > \mu$$

Substituting these expressions into (3.7) and (3.8):

$$\frac{\delta}{1-\delta} \cdot W_\theta(\theta, d) \Big|_{d=1} = \frac{\delta}{1-\delta} \left(\mu^\theta \cdot \ln \mu - (1 - \mu^\theta) \cdot \frac{\ln a}{k - a^\theta} \right)$$

$$W_d(\theta, d) = \mu^\theta$$

These functions correspond to the case depicted in Fig.2.

The NPV for both potentially optimal paths are:

1. Stagnation $V_{st}(\theta_0) = \sum_{t=0}^{\infty} \frac{F_0}{4} \cdot \frac{k - a^{\theta_0}}{1 - \mu^{\theta_0}} \cdot \delta^t = \frac{F_0}{4(1-\delta)} \cdot \frac{k - a^{\theta_0}}{1 - \mu^{\theta_0}}$

2. Growth

For this path: $d_t = 0 \forall t$ and $\theta_t = \theta_0 + t$

$$V_{gr}(\theta_0) = \sum_{t=0}^{\infty} \frac{F_0}{4} \cdot (k - a^{\theta_0+t}) \cdot \delta^t = \frac{F_0}{4(1-\delta)} \left(k - \frac{1-\delta}{1-a\delta} \cdot a^{\theta_0} \right)$$

Then the relation of the NPV for the stagnation and growth paths:

$$\frac{V_{gr}}{V_{st}} = \left(k - \frac{1-\delta}{1-a\delta} \cdot a^{\theta_0} \right) \frac{1 - \mu^{\theta_0}}{k - a^{\theta_0}}$$

Conclusions derived from this expression are similar to those of example 1:

1. For a given discount rate δ there exists the threshold of an initial level of legal development $\theta_0^* > 0$ so that:

For $\theta_0 < \theta_0^*$ the optimal choice of a government is stagnation.

For $\theta_0 > \theta_0^*$ the optimal choice of a government is the growth path.

2. For a given initial level of the stock θ_0 there exists the threshold of discount rate $0 < \delta^* \leq 1$ so that:

For $\delta < \delta^*$ the optimal choice of a government is stagnation.

For $\delta > \delta^*$ the optimal choice of a government is the growth path.

4. A model with direct redistribution of factor returns

4.1 Historic example

The institution of serfdom in 17th century Russia.

An important period in Russian history began when, after the Troubled Times, a new dynasty came to power with the elevation of Michael Romanoff. Two features that characterized the political and economic situation at the time make this period extremely interesting for the history of institutional development.

First, the absolutism of Imperial power was seriously shaken. V. Klutchevski finds that the Troubled Times contributed greatly to the growing self-awareness of the Russian people. During this transitional period when the whole social structure was put in motion, the National Assembly received real power to make crucial political decisions. Indeed, it was by assent of the National Assembly that Michael Romanoff was elevated to the Imperial throne. The decentralization of power and its division between the Tsar and the representative body was unprecedented in Russian history. If the political structure that emerged by historic chance had been preserved, Russia would have come closer to progressive European states where parliaments played a decisive role in shaping the new history of social development. However, that possibility was not realized, the creative forces of society were suppressed and Russia was thrown back to an autocratic regime. To understand why this could happen one has to look at the economic situation at this time.

The Troubled Times had ruined the country, the whole economic system had disintegrated and the Russian Crown had no money. In order to avoid the collapse of the state, the government had to find a way to political and financial stabilization. This way was found and it was as efficient as it was dreadful: stabilization was obtained by establishing the legal system of serfdom.

Until the middle of the 17th century when the new laws concerning the status of peasants were enacted, the relations between peasants and landlords had been based on free contracts. With the new laws the vast majority of free peasants (and, hence, the majority of the population) was turned into serf. A serf had no civil rights and his labor and life was the property of the landlord. This arrangement was nothing but an inhuman deal between the Crown and the landlords. In return to the right of exploitation of their peasants, the landlords took responsibility for collecting taxes on behalf of the crown. Thus, while the peasants were turned into subjects without rights, the landlords became the fiscal agents of the state. The Crown received an efficient system of tax collection and loyalty of the noblemen. The latter received huge rents from serfdom. The peasantry and the future of social development were the victims. The National Assembly lost all its independence and was subjugated to the will of the Crown. An autocratic regime based on feudal serfdom was established and, once established, this system became unshakeable and was abolished only in 1861.

Serfdom can be viewed as a legal system that provides redistribution of income between different production factors with the landlords receiving the product of the labor of the peasants. Redistribution of factor-returns is in the center of attention of the model that follows. In this model redistribution is achieved by a government through fixing different taxes and transfers for different factors.

4.2 The economy

Consider a small open economy that has two industries producing two consumption goods. The economy is populated by individuals with identical preferences but different factor endowments. Utility function is quasilinear:

$$U(x_1, x_2) = x_1 + u(x_2)$$

where $u(x_2)$ is an increasing and strictly concave function.

World prices for each good is taken to be unity.

Production of each good requires a sector-specific input. The technologies for these goods exhibit constant returns to scale.

$$y_i = A_i \cdot f_i \quad i=1,2$$

where A_i is marginal productivity and f_i is input of specific factor i . Inputs are supplied inelastically.

It is assumed that each individual is endowed with one type of specific factor. Without the loss of generality assume that the total endowment of each factor in the economy is equal to unity.

The aggregated reward for the specific factor used in producing good i :
 $\pi_i = A_i$

4.3 Taxation

In each period a government sets taxes on the reward for specific factors. The tax-rates need not be equal for two factors. The only purpose of taxation is transfers to the owners of specific factors. It is assumed that a government can discriminate between sectors by setting different taxes and transfers to the two groups of specific factor owners. However, it is not possible to discriminate between different owners of the same factor.

Assume that taxation leads to a deadweight loss: one unit collected in taxes turns into γ units in transfers, with $\gamma < 1$.

Let (τ_i, b_i) be the tax-rate and transfers for sector i . Reduced (not counting consumer surplus) aggregate welfare of the owners of input i :

$$W_i = (1 - \tau_i) \cdot A_i + b_i \quad i=1,2 \quad (4.1)$$

Budget constraint for transfers:

$$b_1 + b_2 = \gamma \cdot (\tau_1 A_1 + \tau_2 A_2) \quad (4.2)$$

4.4 Social welfare

Using expressions (4.1) and (4.2):

$$W^s = W_1 + W_2 = (1 - (1 - \gamma)\tau_1) \cdot A_1 + (1 - (1 - \gamma)\tau_2) \cdot A_2$$

It follows from the last expression that the socially optimal decision is not to tax.

However, if a government attaches different weight the welfare levels of different groups, it might choose to set positive taxes and transfers in order to favor one group at the expense of another.

4.5 Policies

In the general framework a government allocates its limited resources in each period between two types of activity.

First, in each period it can devote its effort to the development of the legal system. This leads to an incremental change in marginal productivity in all sectors of the economy. This is reflected by the positive dependence of the productivity parameters A_i on the stock of effort θ_i in period t : $A_i = A(\theta_i)$, $A_0 > 0$

Secondly, the government can pursue policies that favor the politically organized sectors of the economy, possibly, at the expense of the non-organized sectors. In the context of the current model, the special interest policy is aimed at providing a net-transfer to the organized sector. This transfer is financed through taxation. It is clear from expression (4.1) that, other things equal, the owners of one specific factor are interested in a low tax-rate for their industry and a big transfer financed by a high tax-rate for another factor. As was shown above if a government were to implement this policy, it would lead to a loss in egalitarian social welfare.

Denote t_i the net-transfer to the industry i : $t_i = b_i - A \cdot \tau_i$

Then the relative difference in the net-transfers for both industries is introduced as:

$$\Delta = \frac{1}{A} |t_1 - t_2|$$

This parameter measures the difference in income variation between two groups caused by the tax-transfer policy. It shows to what extent this policy favors one group at the expense of another.

It is assumed that an effort is required on the part of the government in order to produce a given level of relative net-transfer difference. This is what is treated in this section as an effort in special interest politics. Denote d_t the effort devoted to special interest undertaken by a government in period t . This effort brings about a relative net-transfer difference Δ according to the government's production function:

$$\Delta = \Delta(\theta_t, d_t) \quad (4.3)$$

The following conditions should be met:

$$\begin{aligned} \Delta(\theta, d)|_{d=0} &= 0 & (a) \\ \Delta_d &> 0 & (b) \\ \Delta_\theta &< 0 & (c) \end{aligned}$$

Condition (a) states that when an effort in special interest policy is absent, no difference in transfers occurs. Condition (b) stipulates that the more intensive the effort, the bigger the difference produced. With the last condition it is assumed that the more developed the legal system, the less efficient becomes the effort in producing the relative net-transfer difference.

Imagine that a government has some target level of the relative net transfer difference Δ_0 and it aims at maximizing the net transfer to the first group. It will prove useful in what follows to determine the optimal structure of tax-rates and transfers for both groups conditioned by the government's target level Δ_0 . This problem can be stated formally as:

$$\begin{aligned}
t_1 &= b_1 - A\tau_1 \rightarrow \max_{\tau, b} \\
s.t. \quad &\frac{1}{A}(t_1 - t_2) = \Delta_0
\end{aligned} \tag{4.4}$$

The following proposition determines the optimal tax/transfer structure

Proposition 4.1

Solution of the problem (4.4) is:

$$\begin{aligned}
\tau_1 &= 0; & b_1 &= \gamma \cdot \frac{A}{1+\gamma} \cdot \Delta_0 \\
\tau_2 &= \frac{\Delta_0}{1+\gamma} & b_2 &= 0
\end{aligned} \tag{4.5}$$

This proposition says that in order to maximize net-transfer to the first group the government should tax only the second group and direct all tax-revenue to the first one. Notice that expression (4.3) shows how the government’s effort is translated in the difference of relative net-transfers to both groups, while expression (4.5) determines what taxes and gross-transfers stand behind this difference. Substituting (4.5) into (4.3) the government’s production function can be expressed in terms of τ_2 : $\tau_2 = \frac{\Delta(\theta_t, d_t)}{1+\gamma} \equiv \tau_2(\theta_t, d_t)$

4.6 Lobbying

Consider the case when the first group is politically organized and influence the decisions taken by a government.

Then the government maximizes intertemporally the social welfare function that attaches different weight to different groups, with the group of the first factor owners receiving a weight $1+a$ and the second factor owners receiving the smaller weight of a .

$$V^g = V^l + a \cdot V^s = \sum_{t=0}^{\infty} [(1+a) \cdot W_1 + a \cdot W_2] \cdot \delta^t$$

Substituting (4.1) and (4.5) this expression can be rewritten as:

$$V^g = \sum_{t=0}^{\infty} [(1+a)(1+\gamma\tau_2) + a(1-\tau_2)] \cdot A \cdot \delta^t \tag{4.6}$$

As was already noted, a socially optimal policy consists in legal development and absence of taxation. However, given that interests of different groups are assessed differently, the policy chosen by the government might deviate from egalitarian social optimum. It is clear from expression (4.6) that for high values of a a government will pursue a socially optimal policy, as the objective function depends negatively on τ_2 . Thus, the deviation can occur only for small values of a . In what follows the case when a government is totally captured by the interest group is considered. This case corresponds to $a=0$. Then a government cares solely of the welfare of the first group. The problem that faces the government can be stated as follows:

$$\begin{aligned}
V^g &= \sum_{t=0}^{\infty} A(\theta_t) \cdot (1 + \gamma \cdot \tau_2(\theta_t, d_t)) \cdot \delta^t \rightarrow \max_{\{h_t, d_t\}} \\
s.t. \quad & h_t + d_t \leq 1 \\
& h_t, d_t \geq 0 \\
& \theta_t = \theta_0 + \sum_{\tau=1}^t h_{\tau-1}
\end{aligned} \tag{4.7}$$

4.7 Path dependence

The objective function in (4.7) captures the dual nature of a government's concern for legal development. On the one hand, it is interested in a more efficient system of laws that raises productivity. On the other, it gains from special interest politics that provides the favored group with transfers. As was noted in the framework of the previous model, the conflict between legal development and special interest policies is based on two factors. First, as a government has limited resources, an increase in special interest activity leads to a slow-down in legal development. Secondly, legal development reduces the efficiency of effort in transfer provision.

In order to simplify the analysis and obtain closed form solutions, the function $\tau_2(\theta, d)$ that reflects the effect of discrimination, is taken to be linear in effort d : $\tau_2(\theta, d) \equiv \tau(\theta) \cdot d$, where $\tau(\theta)$ is positive and decreasing in θ function that captures the decreasing efficiency of discriminating effort in respect to the legal development.

As has already been noted in the previous sections, the dependence of the realized path on the original state θ_0 can occur when for low values of θ the one-time marginal gain from an effort in tax-transfer policy exceeds the capitalized marginal gain from this effort devoted to legal development, whereas for high values of θ this relation is reversed. In the framework of the current model these gains normalized by the income A take the form:

$$\begin{aligned} \frac{\delta}{1-\delta} \cdot W_\theta(\theta, d) \Big|_{d=1} &= \frac{\delta}{1-\delta} \left(\frac{A_\theta}{A} (1 + \gamma \cdot \tau(\theta) \cdot d) + \gamma \cdot \tau_\theta \cdot d \right) \Big|_{d=1} \\ W_d(\theta, d) &= \gamma \cdot \tau(\theta) \end{aligned} \quad (4.8)$$

These expressions are very similar to those obtained in the previous model. In what follows the property of the optimal path is stated and an example of path dependence is given.

Proposition 4.2

If there is such an $\theta^* > 0$ that: $\frac{\delta}{1-\delta} W_\theta \Big|_{d=1} < W_d$ for $\theta < \theta^*$ and

$$\frac{\delta}{1-\delta} W_\theta \Big|_{d=1} > W_d \text{ for } \theta > \theta^*$$

then there are only two potentially optimal paths:

1. Stagnation: $(h_t = 0, d_t = 1) \quad \forall t$
2. Growth: $(h_t = 1, d_t = 0) \quad \forall t$

Example. Increasing returns to θ .

In this case it is assumed that the marginal productivity A exhibits increasing returns to scale in respect to θ : $A_{\theta\theta} > 0$. Specifically, let

$$A(\theta) = a^\theta, \quad a > 1$$

$$\tau(\theta) = \tau^\theta, \quad \tau < 1$$

$$\tau a \leq 1$$

Substituting these expressions into (4.8):

$$\frac{\delta}{1-\delta} \cdot W_0(\theta, d) \Big|_{d=1} = \frac{\delta}{1-\delta} (\ln a + \gamma \cdot \tau^\theta \cdot \ln \tau a)$$

$$W_d(\theta, d) = \gamma \cdot \tau^\theta$$

The next step is to calculate the NPV for both potentially optimal paths and to compare them.

1. Stagnation $V_{st}(\theta_0) = \sum_{t=0}^{\infty} a^{\theta_0} (1 + \gamma \cdot \tau^{\theta_0}) \cdot \delta^t = \frac{a^{\theta_0} (1 + \gamma \tau^{\theta_0})}{1 - \delta}$

2. Growth

For this path: $d_t = 0 \quad \forall t$ and $\theta_t = \theta_0 + t$

$$V_{gr}(\theta_0) = \sum_{t=0}^{\infty} a^{\theta_0+t} \cdot \delta^t = \begin{cases} \frac{1}{(1-a\delta)} \cdot a^{\theta_0}, & \text{if } a\delta < 1 \\ \infty & \text{if } a\delta \geq 1 \end{cases}$$

If $a\delta \geq 1$ then the growth path is always chosen.

Consider the case of $a\delta < 1$. Then the relation of the NPV for stagnation and growth

paths is: $\frac{V_{gr}}{V_{st}} = \frac{1-\delta}{(1-a\delta)} \frac{1}{(1+\gamma\tau^{\theta_0})}$

Two conclusions similar to those of the previous model are derived from the last expression:

1. For a given discount rate δ there exists the threshold of an initial level of the $\theta_0^* > 0$ so that:

For $\theta_0 < \theta_0^*$ the optimal choice of a government is stagnation.

For $\theta_0 > \theta_0^*$ the optimal choice of a government is the growth path.

2. For a given initial level of the stock θ_0 there exists the threshold of discount rate $0 < \delta^* \leq 1$ so that:

For $\delta < \delta^*$ the optimal choice of a government is stagnation.

For $\delta > \delta^*$ the optimal choice of a government is the growth path.

This means that with an initially poor legal environment and a short time horizon, a government is likely to adopt a socially harmful policy that is marked by the absence of development and discrimination of one group in favor of another.

5. Conclusion

This paper aims at building a dynamic model of legal development that accounts for divergent patterns of institutional change observed in reality. In this model the political process is driven by a government whose resources are limited and whose actions are influenced by politically organized interest groups.

It was shown in the framework of this model that the process follow two patterns.

1. Legal reform. In this case the government employs its resources to develop market-supportive institutions and the economy enjoys long-term economic growth.
2. Stagnation. The government devotes all its resources to special interests and society is trapped in permanent institutional and economic stagnation.

The analysis throws light on the conditions that determine the realization of one of these patterns. It is shown that, if society starts transition in a poor legal environment, and, if a government is captured by the interests of a narrow group, it will be very difficult for the society to pursue the path of legal reform. The present model indicates that both the original state of the legal environment and the

political structure that determines decision making by a government play a crucial role in the choice of future institutional and, hence, economic development.

Perhaps it would be incorrect to talk here about the policy implications as the policy is an endogenous parameter which can't be altered without underlying change of political structure or the government preferences. However, this model allows for an expansion according to which a different government with a different discount rate is elected in every period. In this case, the analysis explains further why the behavior of a single government can be really decisive for the whole future development. Indeed, by confronting narrow interests and concentrating all efforts on the creation of market-supportive institutions, a single government can succeed in pushing institutions above the threshold level and, thus, provide a basis for continuous development in the future.

References:

- Becker, G.S. (1983) "A theory of competition among pressure groups for political influence", *Quarterly Journal of Economics*, 98:371-400
- Becker, G.S. (1985) "Public policies, pressure groups, and dead weight costs", *Journal of Public Economics*, 28:329-347
- Boycko M.; A. Shleifer and R. Vishny (1995) "Privatizing Russia", MIT Press
- Braeutigam, R.R. and Hubbard, R.G. (1986) "Natural gas: The regulatory transition", Boston: Little, Brown
- Brock, W.A. (1983) "Prices, predation, and entry barriers in regulated industries", in: D.S. Evans, ed., *Breaking up Bell*. New York: North Holland, 191-229
- Drazen A. (2000) "Political Economy in Macroeconomics", Princeton University Press
- Grossman G and E. Helpman (1994) "Protection for sale", *AER* 84:833-850

- Hillman A. (1982) “Declining Industries and Political-Support Protectionist Motives”, *American Economic Review*, Dec.1982, pp. 1180-87
- Hoffman P. and J-L. Rosenthal, “The Political Economy of Warfare and Taxation in Early Modern Europe”, in: J.Drobak and J.Nye, ed, “The Frontiers of the New Institutional Economics”, Academic Press, 1997.
- Kalt,J.P(1981)”The economics and politics of oil price regulation”Cambridge:MIT Press
- Klutchevski, V, “Russian History”, v.2, isdatelstvo Misl, 1995
- Libecap G.(1989) “Contracting for Property Rights”, Cambridge University Press
- Moe, T(1980) “The organization of interest” Chicago: University of Chicago Press
- Mueller D.(1997) “Perspectives on Public Choice”, Cambridge university Press
- Murrell, P; Y.Wang (1993) “When Privatization Should Be Delayed”, *Journal of Comparative Economics*, June 1993,17(2),pp. 385-406
- North, D. “Institutions, Institutional Change and Economic Performance”, Cambridge University Press, 1990
- Olson, M(1965)”The logic of collective action”Cambridge: Harvard university Press
- Olson, M.(1992) “The Hidden path to a Successful Economy.” In Clague, Christopher and Gordon c. Rausser, eds. “Emergence of Market Economies in Eastern Europe”, Blackwell Publishers,1992
- Olson, M. “The Power and Prosperity” (2000)
- Pashigian,B.P.(1985)”Environmental regulation: whose self-interests are being protected?”, *Economic Inquiry*,23:551-584

- Peltsman,S.(1976)”Toward a more general theory of regulation”, *Journal of Law and Economics*,19:211-240
- Persson T. and G. Tabellini “Political Economy and Macroeconomic Politics”, *NBER W6329*
- Polishchuk L. and Savvateev A. “Spontaneous Emergence of Property Rights: a Critical Analysis”, Paper presented at the GET conference, Moscow, Sept.1997
- Salop, S.C and Scheffman,D.T (1983) “Raising rivals’ costs”, *American Economic Review*, 73:267-271
- Shleifer, Murphy and Kevin. “Why is Rent-seeking so costly for growth?” *American economic Review*, May 1993, pg 409-14
- Stigler,G.J.(1971)”The theory of economic regulation”, *Bell Journal of Economic and Management Science*, Spring 1971, 2:3-21
- Tonis A. (2001) “State patronage over firms: a model of endogenous regulation”, Publications of New Economic School 2001
- Williamson, O. “The New Institutional Economics: Taking Stock, Looking Ahead”, *Journal of Economic Literature*, Sept.2000, pp. 595-613
- *Wilson,J.Q (1980) ”The politics of regulation” New York:Basic Books*

Proofs

Proposition 2.1

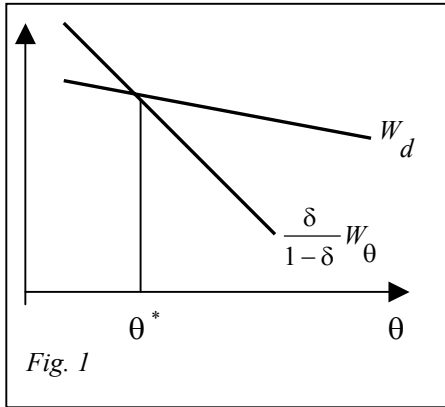
Suppose $\theta = \theta^{ss}$ is a steady state, i.e. $(h_t = 0, d_t = 1, \theta_t = \theta^{ss}) \forall t$. Consider that in period T effort in special interest politics d_T is decreased by some small value ε : $\tilde{d}_t = 1, \forall t \neq T$; $\tilde{d}_T = 1 - \varepsilon$. The corresponding sequence of θ_t :

$\tilde{\theta}_t = \theta^{ss}$ for $t = 0, \dots, T$; $\tilde{\theta}_t = \theta^{ss} + \varepsilon$ for $t = T + 1, \dots, \infty$. This induces the following change

in the value function: $\Delta V = V - \tilde{V} = \delta^T \left[\sum_{t=1}^{\infty} W_{\theta}(\theta^{ss}, d)|_{d=1} \cdot \delta^t - W_d(\theta^{ss}, d)|_{d=1} \right] \cdot \varepsilon$

It is clear from this expression that if $\frac{\delta}{1-\delta} \cdot W_{\theta}|_{d=1} > W_d|_{d=1}$ then this change leads to a positive gain in the value function and, thus, $\theta = \theta^{ss}$ is not a steady state.

Proposition 2.2



Consider the case $\theta_0 < \theta^*$.

First note that there can not be convergence to $\theta^{ss} < \theta^*$ as the necessary condition of Proposition 2.1. is not satisfied.

Suppose that there is convergence to the steady state with $\theta^{ss} > \theta^*$. There can be two types of convergence to θ^{ss} :

1st type: $\theta_t < \theta^{ss}, \forall t$.

Then, consider the following variation of efforts in period T when θ_T is close enough to θ^{ss} and d_T is close enough to 1. Decrease effort h_T in period T by some small value ε and increase effort d_T by the same value. New sequences of d_t and θ_t

are as follows: $\tilde{d}_t = d_t, \forall t \neq T$; $\tilde{d}_T = d_t + \varepsilon$

$\tilde{\theta}_t = \theta_t$ for $t = 0, \dots, T$; $\tilde{\theta}_t = \theta_t - \varepsilon$ for $t = T + 1, \dots, \infty$.

The change in the value function induced by this variation:

$$\Delta V = V - \tilde{V} = \delta^T \left[- \sum_{t=T+1}^{\infty} W_{\theta}(\theta^{ss}, d) \Big|_{d=1} \cdot \delta^{t-T} + W_d(\theta^{ss}, d) \Big|_{d=1} + O(1-d_T) + O(\theta^{ss} - \theta_T) \right] \cdot \varepsilon$$

as $\frac{\delta}{1-\delta} \cdot W_{\theta}(\theta^{ss}, d) \Big|_{d=1} > W_d(\theta^{ss}, d) \Big|_{d=1}$, expression in brackets is positive for big enough T . This means that this variation increases the value function and, thus, $\theta^{ss} > \theta^*$ can not be a steady state.

2nd type of convergence: $\exists T : \theta_t = \theta^{ss}, \forall t > T$ and $\theta_t < \theta^{ss}, \forall t \leq T$

Decrease effort h_T in period T by some small value ε and increase effort d_T by the same value. This induces the following change in the value function:

$$\Delta V = V - \tilde{V} = \delta^T \left[- \sum_{t=T+1}^{\infty} W_{\theta}(\theta^{ss}, d) \Big|_{d=1} \cdot \delta^{t-T} + W_d(\theta^{ss}, d_T) \right] \cdot \varepsilon \geq$$

$$\delta^T \left[- \sum_{t=T+1}^{\infty} W_{\theta}(\theta^{ss}, d) \Big|_{d=1} \cdot \delta^{t-T} + W_d(\theta^{ss}, d) \Big|_{d=1} \right] \cdot \varepsilon$$

The last inequality follows from concavity of $W(\theta, d)$ in d . E

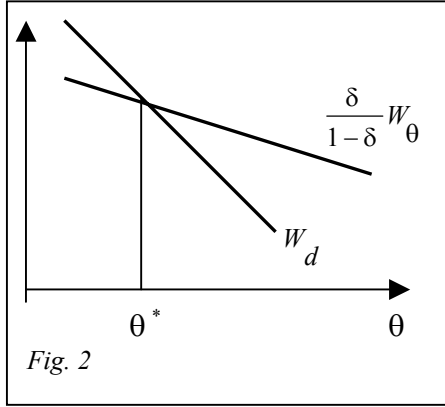
The expression in brackets is positive. This means that this variation increases the value function and, thus, $\theta^{ss} > \theta^*$ can not be a steady state.

It follows that the only steady state to which the system can converge is $\theta^{ss} = \theta^*$.

If $\theta_0 > \theta^*$ then repeating the above argument it can be shown that $\theta > \theta_0$ can not be a steady state and the only steady state possible is $\theta = \theta_0$

Proposition 2.3.

Consider the case $\theta_0 < \theta^*$.



Note that there can not be convergence to $\theta^{ss} > \theta^*$ as the necessary condition of Proposition 2.1. is not satisfied.

Suppose that there is convergence to the steady state with $\theta_0 < \theta^{ss} < \theta^*$. There can be two types of convergence to θ^{ss} :

1st type: $\theta_t < \theta^{ss}, \forall t$.

Consider the following variation of efforts in period T with θ_T close enough to θ^{ss} and d_T close enough to 1. Decrease effort h_T in period T by some small value ε and increase effort d_T by the same value. New sequences of d_t and θ_t are as follows:

$$\tilde{d}_t = d_t, \forall t \neq T; \quad \tilde{d}_T = d_T + \varepsilon$$

$$\tilde{\theta}_t = \theta_t \text{ for } t = 0, \dots, T; \quad \tilde{\theta}_t = \theta_t - \varepsilon \text{ for } t = T + 1, \dots, \infty.$$

The change in the value function induced by this variation:

$$\Delta V = V - \tilde{V} = \delta^T \left[- \sum_{t=T+1}^{\infty} W_{\theta}(\theta^{ss}, d) \Big|_{d=1} \cdot \delta^{t-T} + W_d(\theta^{ss}, d) \Big|_{d=1} + O(1-d_T) + O(\theta^{ss} - \theta_T) \right] \cdot \varepsilon$$

as $\frac{\delta}{1-\delta} \cdot W_{\theta}(\theta^{ss}, d) \Big|_{d=1} > W_d(\theta^{ss}, d) \Big|_{d=1}$, expression in brackets is positive for big enough T . This means that this variation increases the value function.

2nd type of convergence: $\exists T : \theta_t = \theta^{ss}, \forall t > T$ and $\theta_t < \theta^{ss}, \forall t \leq T$

Decrease effort h_T in period T by some small value ε and increase effort d_T by the same value. This induces the following change in the value function:

$$\Delta V = V - \tilde{V} = \delta^T \left[- \sum_{t=T+1}^{\infty} W_{\theta}(\theta^{ss}, d) \Big|_{d=1} \cdot \delta^{t-T} + W_d(\theta^{ss}, d_T) \right] \cdot \varepsilon \geq$$

$$\delta^T \left[- \sum_{t=T+1}^{\infty} W_{\theta}(\theta^{ss}, d) \Big|_{d=1} \cdot \delta^{t-T} + W_d(\theta^{ss}, d) \Big|_{d=1} \right] \cdot \varepsilon$$

The last inequality follows from concavity of $W(\theta, d)$ in d .

The expression in brackets is positive. This means that this variation increases the value function and, thus, $\theta^{ss} > \theta^*$ can not be a steady state.

It follows that the only possible steady state is $\theta^{ss} = \theta_0$. Either the stock θ_t stays at the initial level, or it grows without convergence.

If $\theta_0 > \theta^*$ then θ_t can only grow without convergence. Indeed, there is no steady state in this case as the necessary condition of Proposition 2.1. is not satisfied.

Proposition 3.1

Suppose that in the period T the government devotes some small effort in special interest politics: $d_T = \varepsilon$. This will lead to the reduction of aggregate income from the basic factor in period T by $F_0 \cdot A_d(\theta_T, d)|_{d=0} \varepsilon$, where F_0 is the total endowment of the basic factor. Using the envelope theorem, the increase of the aggregate profit in two-factor sectors is $f_0 \cdot A_d(\theta_T, d)|_{d=0} \varepsilon$, where f_0 is the total quantity of the basic factor employed in all two-factor sectors. As $f_0 < F_0$ this change in policy leads to a loss in social welfare. Thus, a benevolent government should not pursue special interest politics.

Proposition 3.2

Suppose that in the period T the government devotes some small effort in special interest politics: $d_T = \varepsilon$. Using the changes in factor returns from the previous proof and expression (?), the change of the government's welfare in period T is:

$$\Delta W_T^g = [(1+a) \cdot f_0 - (\gamma + a) \cdot F_0] \cdot (-A_d(\theta_T, d)|_{d=0}) \cdot \varepsilon \Rightarrow$$

$$\Delta W_T^g < 0 \Leftrightarrow (1+a)f_0 - (\gamma + a)F_0 < 0$$

As $f_0 < F_0$ this change is negative for γ close enough to 1 or a big enough.

Proposition 4.1

$$t_1 = b_1 - A\tau_1 \rightarrow \max_{\tau, b}$$

The problem is:

$$s.t. \quad \frac{1}{\Lambda}(t_1 - t_2) = \Delta_0$$

$$b_1 + b_2 = \gamma \cdot (\tau_1 A_1 + \tau_2 A_2)$$

These constraints can be re-written as:

$$\frac{1}{A}(b_1 - b_2) - (\tau_1 - \tau_2) = \Delta_0 \quad (1)$$

$$b_2 = \gamma \cdot (\tau_1 A_1 + \tau_2 A_2) - b_1 \quad (2)$$

Substituting (2) into (1): $\frac{2}{1+\gamma} \cdot b_1 - A \cdot \tau_1 + \frac{1-\gamma}{1+\gamma} \cdot A \cdot \tau_2 = \frac{\Delta_0}{1+\gamma} \cdot A$

Comparing this expression with objective function and noticing that $\frac{2}{1+\gamma} > 1$, one

concludes that it is optimal not to tax the first group, i.e. $\tau_1 = 0$. The last expression

can be re-written in terms of b_1 and b_2 : $b_1 + \frac{1-\gamma}{\gamma} b_2 = \Delta_0 \cdot A$ and it follows that it is

optimal not to subsidize the second group, i.e. $b_2 = 0$. The solution is easily

$$\tau_1 = 0; \quad b_1 = \gamma \cdot \frac{A}{1+\gamma} \cdot \Delta_0$$

obtained:

$$\tau_2 = \frac{\Delta_0}{1+\gamma} \quad b_2 = 0$$

Propositions 3.3 and 4.2

The proofs of both propositions are identical and it suffices to prove one of them, say 4.2

1st step

On the optimal path: if $h_T = 0$ for some T , then $h_t = 0 \quad \forall t > T$.

Indeed, the government solves the same problem in the period $T+1$ as it solved in period T , because the stock has not changed: $\theta_{T+1} = \theta_T + h_T = \theta_T$. Thus, if the choice

of $h_T = 0$ was optimal in the period T , then the same choice is optimal in the period $T+1$ and so forth.

2nd step

On the optimal path $\forall t$ either $d_t = 1$ or $d_t = 0$.

This follows from the fact that the objective function is linear in d , and, thus, the corner solutions are realized.

3rd step

On the optimal path: if $h_0 > 0$ then $h_t = 1 \forall t$.

If $h_0 > 0$ then, by proposition 2.3, there can not be convergence to any θ . It follows that $h_t > 0, \forall t$ (if not, and $h_T = 0$ for some T , then, by the 1st step, there is convergence). By the 2nd step $h_t = 1 \forall t$.

It follows that only two possibilities are left:

- 1) $h_t = 0 \forall t$
- 2) $h_t = 1 \forall t$