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**« PROTECTIONISM, RESTRUCTURING, AND THE  
OPTIMUM STRATEGY FOR RUSSIA'S  
ACCESSION TO THE WTO »**

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# PROTECTIONISM, RESTRUCTURING, AND THE OPTIMUM STRATEGY FOR RUSSIA'S ACCESSION TO THE WTO

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ABSTRACT. Further opening of Russia's economy to the world markets, including WTO accession and deeper economic integration with the EU, becomes a strategic gradient of its economic policy. Yet the consequences of this move are still ambiguous and unclear, causing controversial assessments inside Russian society. These differences stem from the opposite interests of various pressure groups, as well as from the ability and readiness of different industries to modernize their productive technologies in order to compete in global markets. In this paper we explore the conditions under which the organized industrial lobbies, facing the prospect of WTO accession, would prefer to undergo such substantial restructuring rather than to maintain the existing rate of protection and monopolization in their home markets. We attack this political economy problem by means of a specific agency model, and address an important policy question: what is the optimum government policy that would stimulate restructuring rather than lobbying for protection?

## 1. PROBLEM STATEMENT

Speaking at a recent conference, one of the leading Russian businessmen with an interest in the national car industry explained his position towards opening Russia and joining the WTO. Naturally, he was not especially enthusiastic about that prospect, and the associated lowering of the tariff rates for imported cars. Yet more instructive was the argument he advanced in support of this position. "Are you really eager to have 5 million unemployed?" he asked rhetorically. The point is not that this argument is false, meaningless or even surprising *per se* - for virtually any industrial lobbies around the world would have raised

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similar arguments when facing a danger of higher international competition. More symptomatic and important is the fact that the need for extra time for restructuring of this technologically backward industry, so much wanted by many Russian economists and policymakers, was not even mentioned as an argument for maintaining the present level of protection of this market!

This fact is hardly puzzling; a little *economic* reasoning immediately suggest why. Marginal costs of the car factory owner's lobbying efforts (typically, a few days of meetings in Moscow plus some 'gifts' to the government officials in charge) are by far smaller than the efforts of restructuring, which amount to forcing some 30,000 people to work hard now and from now on. Inasmuch as the owner's marginal benefit (extracted rent) resulting from both kinds of activities is likely to be about the same, his preference for the former option is simply a matter of individual rationality, which looms larger than any moral suasion of the 'benevolent government' (or economists) which repeatedly push him towards the opposite decision.

The above considerations explain much, if not most of the controversies around the prospective accession of Russia to the WTO and other related moves, including closer economic links with the EU. The process of gradual 'opening of Russia' will probably be the last step of transition, pivotal for the pattern of this country's economic development in the coming decades. On the one hand, both the WTO and the EU are based on democratic principles, market freedom and the rule of law. Joining them would thus confirm Russia's status of a democratic and market economy, requesting at the same time a number of legislative and institutional changes. At the same time, this move would effectively put an end to relative isolation of Russia from the rest of the world, at least in economic sense. This isolation, inherited from the Soviet times, is being manifested in a number of ways, the most traditional of these being an import tariff. However, given the peculiarities of Russia, relaxing this tariff is unlikely to be the only way of protection. The car market with some 25% import tariff rates is an exception than a rule. Thus, according to the World Bank, the average (unweighted) tariff rate for 1999 was of just 13.9%, being typically yet lower. According to the same source, the weighted tariff rate across the 2-digit commodity groups varied in 2001 from 5.43% (for mineral and energy resources) to 20% (for precious stones), the weighted average being 10.92% (see Brunat, 2002 for yet another estimate of a similar order). Such tariff rates are hardly prohibitive, and cannot alone be responsible for a relative closeness of the Russian economy. Moreover, even these tariffs are often bypassed, for a substantial part

of traded goods is merchandized in violation of the customs legislation. According to the Russian customs office (which naturally tends to be a conservative estimate), the volume of 'gray' trade amounts to 25% of the total imports: goods are typically misreported, classified as cheaper, or just traded illegally.

Because of all these imperfections, the tariff measures of protection in Russia are hardly especially restrictive. At the same time, many Russian markets enjoy much more persistent, and thus also more efficient protection. To some extent this protection is natural - thus, Russian distances immediately lead to high transportation costs. But most substantial part of protection comes from artificial barriers, which set transaction costs at prohibitive level. Examples of these are poor protection of property rights, excessive degree of corruption, overregulation and inefficiency of the state bureaucracy, immaturity of business legislation, and substantial degree of state capture. Taken together, these features of 'wild' capitalism create a generally unfriendly and insecure business environment. Taken together with large macroeconomic and political risks, and keeping in mind relatively small size of Russia's GDP, which is half that of Spain, it is of no wonder that Russian markets are not especially attractive for Western businesspeople. And by the same token, the system of self-supporting institutional inefficiencies is quite important, if not vital for the Russian business elite, which makes use of little international competition to extract substantial rents.

Given the above considerations, one might suppose that decreasing the power and extent of the artificial trade barriers would constitute a definite step towards the true 'opening of Russia'. As a matter of fact, barriers-reducing measures are also set forth as a prerequisite for WTO accession and EU integration. If implemented, this move is likely to have quite significant consequences for most Russian industries and thus, indirectly, for every Russian citizen. Some of them would clearly gain from opening, and thus are supportive of WTO accession; yet the list of these industries, however, is quite short, and concentrated in exporting sector. Oil and gaz, ferrous and nonferrous metals, precious stones, timber and wood and petrochemicals jointly account for about 90% of the Russian exports. At the same time, these industries are not that large in the structure of the national economy, barely employing  $\frac{1}{4}$  of the industrial workforce, and less than 10% of the working population (about 4 mln. people). Moreover, Russia is extremely unlikely to have good export potential in any other industry (Soos e.a., 2002), unless it will uncover some means for massive modernization of its manufacturing sector.

Industries representing this latter are largely home-oriented, with small markets in developing countries, such as India, China or the CIS. Its member industries, such as car, aerospace, machinery or light, are most likely to be the main losers in the case of WTO accession. One reason for that is quite transparent: most of the Russian manufacturing goods are inferior (in a strict sense of the word), and thus even a marginal price decrease and/or welfare improvements of Russian customers would divert demand from homemade goods to better-quality imported ones. This hypothesis is further strengthened by the analysis of Russia's trade potential relative to global trade using the gravity model for the CIS-EU trade (Belianin, 2002). Projections made therein imply that opening of Russia towards the EU could cause a substantial (up to 7 times) increase in Russian imports, paralleled by only a marginal rise in its exports. According to this scenario, opening of Russia will lead to massive inflow of foreign goods, which will crowd out of the domestic ones. As a result, many, if not most local manufacturers will be forced to shut down, causing general impoverishment and possible social unrest, for they still employ most of the national workforce.

This perspective might have been less dramatic had the Russian industries been able to undertake proper restructuring and technological improvements as needed to meet increasing international competition. In reality most Russian firms, especially in manufacturing, have lost their competitiveness (if any) during the 1990s. By 2002, according to some estimates (Belousov, 2002), just under 15% of the remaining fixed capital in Russian industry is able to produce competitive goods. Economic recovery and growth of industrial production in the aftermath of the crisis of 1998 offered perhaps the last chance to launch a massive restructuring campaign. However, due to lack of will or capital, most Russian firms were unable to do it on their own, while the banking system remained reluctant to credit production, depriving them of this source of funds as well. As a result, the chance has been missed, and by 2002, the rates of growth are declining with no real instrument or procedure in hand to ensure a subsequent recovery. Symptomatically again, this same restructuring of national industry is badly needed to sustain the rates of growth, leaving little hope for positive competitiveness prospects of the national producers.

Finally, one might cherish hope that the impetus for restructuring could come from the state, who could provide the industries with both stimuli and necessary funds, acting as a lender of last resort. But - even if the Russian government had enough will to do so,- the state is poor, and paralysed at large by substantial governance problems. In early 1990s, the Yeltsin government itself had initiated concentration of the

most profitable national assets, such as energy and metals, in hands of powerful industrial lobbies, which got enough power to influence governments' decisions on a variety of issues. Under these circumstances, when the government realized that the national manufacturing sector is technologically backward, and became willing, in words at least, to support its restructuring by all available means - it turned out that doing this is not easy at all. First of all, the government resources, as well as moral authority, are relatively low, reflecting poor state of the national economy in general and public finance, in particular. In addition, a substantial part of budget revenues come from the exporting industries, whose present owners are not that keen to see *their* money flowing out to support the backward manufacturing, even if this latter is potentially more important in the long term. The government has to listen to these effective 'donors' who hold a proper position to bid for the opportunities they want, including opening of Russia. By contrast, most manufacturing industries are increasingly playing the role of 'poor relatives', who can play on government's distaste for backwardness and social unrest, but hardly for more than a moderate subsidy. Given these constraints, the government's task in early 2000s is challenging indeed: it should find a proper balance between export- and home-oriented industries, while maintaining balanced budget, social stability, and paying proper attention to its domestic and strategic political interests.

The present paper is set to address these issues by means of a political economy model of a small emerging market economy (Russia) which considers relaxing protective barriers of all kinds while facing the aforementioned incentives of the economic agents, as well as a number of institutional constraints. The latter ones are, of course, of outmost importance: after a decade of reforms, Russia is still struggling for an efficient market system and civil society, without which it is hard to be optimistic with respect to the long-term prospects for national development. A crucial step on the way is of course continuation of far-reaching institutional reforms, aimed at both extraction of private rents of all kinds, and their transformation into public gains. The package of such measures includes, among others, the tax reform, tariffs of natural monopolies, formation of an effective banking system, reduction of corruption and elimination of excessive regulatory barriers, efficient bankruptcy law, the land reform and others. The theme and scope of these reforms for today's Russia is extremely diverse, and goes far beyond the size of a single paper. That is why we do not go deep into this issue, assuming that, alongside with the sustainable and consistent economic policy, the government is willing to implement the package

of the above structural reforms. Given this general vector of government's preferences, we concentrate on the system of incentives of the industrial lobbies, and seek for an optimal policy that would channel private resources into modernization and development rather than in lobbying for rent-seeking and isolation.

This is a challenging task, not least because both export-oriented and import-substituting industries currently are engaged in extensive rent-seeking activities, and have very little incentives to restructure, while the government still has little real tools to stimulate this latter. And, alongside with this lack of incentives, both industrial lobbies have real arguments and channels of any kind to bargain with the government. The strength and validity of the lobbying arguments is normally observable and/or verifiable by the government; yet the real restructuring abilities of the specific industries are normally not observable. Accordingly the bargaining process is likely to take place under asymmetric information, which strengthens further the bargaining power of the home-oriented industries. These latter can safely argue, if they wish, that they have absolutely no resources or potential to restructure and thus need further protection of their markets unless the government is willing to assume all risks of the forthcoming economic and social collapse.

Note however that the WTO accession and openness of the national economy offers the Russian policymakers a unique chance and tool that is immune against this - or, in fact, any other kind of domestic pressure - the world market. Inasmuch as Russia is a small country, its industrial lobbies can affect no single world market; at the same time, even potential contestants from outside of the country can create real incentives for restructuring at the level of industries. The policy problem is thus to put this economic force to work, while striving to make sure this will not be detrimental for the national economy as a whole. This latter decision is of course a matter of choice of the proper strategy of negotiations with foreign partners - members of the WTO or the EU. Selection of this bargaining strategy again remains beyond the scope of this paper, together with that with the national industrial lobbies. Below we concentrate on the policy mechanism which accounts for a combination of two characteristics of any given industry - its (observable) potential to extract higher degrees of expected protection from the government, and its (unobservable) ability to restructure. The mechanism itself consists of a combination of domestic tax policy and tariff proposals in Russia's negotiations with the WTO. The latter policy instrument affects the market conditions, that is, the volume of rent extracted by the relatively closed industry in comparison to a more

open one. The former affects the (net) income of the industry, be it willing to open or not. The optimum mechanism would stipulate self-selection of the industries with respect to the simple dichotomy: those who are not able to restructure are to enjoy higher protection (expected tariff rates), but will be forced to pay higher profit taxes, while those who have higher restructuring potential should receive relatively less tariff protection, coupled with tax concessions.

This argument is developed through a simple model in two-types static settings (with dynamic version and some more details to follow) inspired, on the one hand, by the mechanism design literature (Laffont and Tirole, 1993), and on the other - by the political economy literature (Grossman and Helpman, 1994; 1995; Bagwell and Staiger, 1999; 2000). For the sake of analytical tractability, we omit some details and second-order effects of the latter models, such as the distribution of the appropriated private rent, the population welfare and the strategic interactions between various domestic industries. In our model, decisions of industries (as represented by the respective lobbies) are independent on each other, which fact is common knowledge. Under these settings, the lobbying strategy of any industry depends on the government response, but not the way in which it might affect the market of other industries at home. Finally, we also abstain from explicit consideration of the role played by foreign governments. This last assumption is made on purpose: on the one hand, Russia, being a small economy, hardly can be said to possess strong bargaining position in WTO or any other kind of multilateral negotiations with the major world powers, such as the US or EU. Yet more importantly, actions of big international players are most likely to be governed by their own interests rather than by those of any other party - or even by theoretical efficiency of any specific allocation. Recent decisions of the US administration, such as introduction of the new steel and agricultural tariffs, clearly indicate that even international agreements within the frame of WTO in some cases are not necessarily binding. An important lesson to be drawn out of that is that a single country cannot and should not rely on foreign benevolent aid: the only effective source of growth is to be sought inside Russia.

## 2. THE MODEL

Following the general spirit of political economy models a la Grossman and Helpman (1994; 1995), we consider a small economy (also called 'home', and exemplified by Russia), whose active population is partitioned into  $m$  groups associated with specific import-substituting

industry each. Every individual possesses a single asset (physical capital or personal skills), which is idiosyncratic to industry  $i = 1, 2 \dots m$ . In addition, she possesses her own labour which costs 1 and brings 1 to her, serving thus as a numeraire. In case of Russia, this labour income can be conveniently interpreted as just sufficient to secure for its owner the basic consumption level consisting of, e.g., a cheap shelter and a survival minimum of consumption goods. By contrast, idiosyncratic assets, be these professional (lawyers, economists), sectoral (oil extracting, nonferrous metals) or other endowment, are used in a single industry producing a single good and bringing to its owner a demand-driven economic rent.

To idiosyncratic assets correspond  $m$  specific goods, such as cars, gasoline, garments or foodstuff. These goods may be either imported or exported. Production of one unit of any good  $i$  requires elementary labour and specific factors owned by the population. Production technology in our economy is very simple: both labour and the specific factors abound and are supplied inelastically, and production occurs under constant returns to scale - conditions which are satisfied, e.g., by linear homogeneous production functions.

Treating all factor owners in any industry as identical (which essentially amounts to the assumption of representative individuals), we define individual profit (rent) on his assets in industry  $i$  as a function of market price,  $\pi_i(p_i)$ . The industrial profit function  $\Pi_i(p_i)$  is a direct sum of the individual ones. Derivative of this last function with respect to price gives (via Hotelling's lemma) the industry supply function,  $Q_i(p_i)$ , for which we stipulate a simple linear form,  $Q_i(p_i) = A_i + B_i p_i$ . For modelling purposes, we assume that productive efficiency of all industries is captured by the intercept parameter  $A$  of this supply function, with higher values corresponding to higher competitiveness. This is of course a simplification, for the key factor of competitiveness in today's global economy is quality of goods, not their quantity. However, as a first approximation, companies able to produce higher-quality goods are exactly those which possess better technologies, and thus also more productive.

With these definitions, the import function for good  $i$  is naturally defined as  $M_i(p_i) = D_i(p_i) - Q_i(p_i) \geq 0$  depending on whether good  $i$  is imported or exported. The market demand function  $D(\cdot)$  in our model is also linear,  $D_i(p_i) = c_i - d_i p_i$ . Both imports and domestic production depend on domestic price level, which equals the world (offshore) price  $P_i$  times the factor  $\tau_i$  which captures protection of the domestic market. When greater than unity, this factor corresponds to higher domestic prices; when less than unity, to lower (subsidized)

domestic prices. In either case  $p_i = \tau_i P_i$  for all traded goods. Specific industries adopt alternative strategies of domestic market protection, including tariff and non-tariff measures, as well as other barriers to foreign goods, such as sustainability of corruption in licensing organizations, or impediments to lowering transaction costs. Selection of the optimal combination of these measures comes out of a solution of the special optimisation task by the industry. Explicit consideration of this task is beyond the scope of this paper; for tractability, we assume its solution is given by a number  $\xi \in [0, 1]$ . The fraction  $\xi$  of  $\tau$  is attributed to tariff protection, and thus, constitutes income to the government (later on, we shall see that it can also be interpreted as *measure of institutional imperfection*). The rest of  $\tau$  is due to non-tariff measures of all kind, which add nothing to the budget, but contribute to the industry's profits. Under these definitions,  $(\tau - 1)\xi$  represent the *ad valorem* rate of import tariff and export subsidy, while  $(1 - \tau)\xi$  correspond to export tariff or import subsidy.

Thus defined, tariff proceeds  $\sum_{i=1}^m (\tau_i - 1)\xi_i P_i M_i(p_i)$  constitutes one of the sources of government revenues (recalling that the home economy is small, the government revenues from trade will depend on tariffs only). Besides them, the government also receives income from profit taxation, which, given our specification, also encompasses estate tax and individual income tax. This tax is imposed at a rate  $\iota_i$  (allowing for cross-industry differences). In line with the above definition, we also assume that the fraction of industry's income that remains undisclosed is proportional (for simplicity, equal to)  $\xi_i$ , so that the actual profit tax paid is  $\iota_i \xi_i$ .

Combining these definitions, and using boldface letters to denote vectors, we represent the net government revenues from foreign trade operations and domestic taxation as

$$(1) \quad g(\boldsymbol{\tau}, \boldsymbol{\iota}) = \sum_{i=1}^m (\tau_i - 1)\xi_i P_i (D_i(P_i \tau_i) - (A_i + B_i P_i \tau_i)) \\ + \sum_{i=1}^m (A_i + B_i P_i \tau_i) P_i \tau_i \iota_i \xi_i$$

For simplicity assume that the government distributes its revenues uniformly across population, which is a standard assumption in the literature. Such government transfers are not distortionary, and their effect on the lobbies' welfare is of smaller order importance than their factor incomes (rents). Because of this, we ignore the second-order effect of the state budgeted policy, and concentrate on lobbying activity

*per se*. Finally, we also make an assumption that the industries' decisions are independent on each other, so that individual tariff and tax contributions enter additively into the government's revenue function (1). This assumption implies that the industries do not interact with each other but only with the government, and thus the value function of this latter is additive across industries.

This last function  $G(\cdot)$  is defined along the lines of Grossman and Helpman with some modifications. Their models are motivated by Western democracies, while we have in mind Russia, a country where government's interests are often quite distant from the social welfare maximization. Alongside the legal government revenues,  $G(\cdot)$  also depends on lobbying contributions  $b_i$ , which in our model corresponds to transformation of private rent into the permanent income of the present government officers. This definition encompasses first of all, instantaneous pecuniary transfers (bribes), but also other forms of accepted remuneration, such as political commitment and support to the government during forthcoming election campaigns. In this sense, the  $G(\cdot)$  function describes the 'real' utility as obtained by the government, and distinct from the state budget in that it also takes into account the private interests of the government officials. Finally, the last component of this utility function describes the state preferences in seeing the national industry globally competitive in some key sectors. The structural weights attributed by the benevolent government to some specific industries are denoted through  $\chi_i$  applied to the respective productive efficiencies  $A_i$ . In total, utility function of the government is as follows:

$$(2) \quad G(\boldsymbol{\tau}, \boldsymbol{\iota}) = \sum_{i=1}^m (b_i + \chi_i A_i) + g(\boldsymbol{\tau}, \boldsymbol{\iota})$$

Having defined the government's utility, let us now turn out to the industries whose interests are represented by the organized industrial lobbies.<sup>1</sup> Since lump-sum changes of individual welfare do not affect lobbies' decisions, the net profit of these latter depend on the industry-specific protection (including tariffs) and the tax policy, as well as on their lobbying abilities  $\beta$  and restructuring abilities  $\theta$ , which are to be defined shortly:

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<sup>1</sup>In our model, no firm is left ungrouped - in the sense that even if any small company does not explicitly take part in the lobbying activity of the industry, it still has to bear the same consequences as the rest of the lobby. Because of this, we simply ignore competition between firms on the local markets, and suppose that all firms in a given industry have the same and common interest.

$$(3) \quad V_i(\beta_i, \theta_i, \tau_i, \iota_i) = (A_i + B_i P_i \tau_i) P_i \tau_i (1 - \iota_i \xi_i) - b_i - \theta_i - \psi(A_i, \theta_i)$$

Here the first term on the right-hand side corresponds to idiosyncratic factor income net of taxation  $(1 - \iota_i \xi_i)$ . The last three terms are behavioural parameters that characterise the processes of lobbying and restructuring. The second term in (3) refers to industry-specific lobbying costs, the third - to restructuring costs, and the last term - to the disutility of restructuring.

Lobbying and restructuring are the two nontrivial tasks that jointly determine the industries' type and attitudes towards opening. For the time being we limit our attention to the case of two-dimensional types, so that  $\beta = \{\underline{\beta}, \bar{\beta}\}$  and  $\theta = \{\underline{\theta}, \bar{\theta}\}$ , lowerbars referring to lower lobbying abilities and abilities to restructure, respectively; the allocation of these parameters is assumed to be independent across industries. The true value of the parameter  $\theta$  is unobservable for the government, which assumption is rather natural given that this latter hardly can properly assess the explicit and hidden potential of several hundred thousand firms all over Russia. The government, however, can have a proper estimate of the relative shares of industries of both types, which we denote through  $\nu$  (share of the  $\underline{\theta}$  type) and  $1 - \nu$  (share of the  $\bar{\theta}$  type).

By contrast, the bargaining ability of any given industry is observable, for when the lobby approaches the government, the set and force of possible arguments it can justifiably raise (including the social and strategic arguments) are both evident and verifiable. This instance of the agency problem is most commonly understood when the industry is treated as the principal which 'hires' the government for a contribution  $b_i$  in order to get the desired level of protection. Grossman and Helpman, who pinpoint the passive role of the government, tell exactly this story. In reality, however, the government is not that passive, for it knows too not only how far any given industry can push it, but also how much it can request from the industry in exchange for this protection. Inasmuch as the value functions of both players are convex, and the industry maximizes its tariff protection given the contribution it can commit itself to, the government may equally well come to the same solution by maximizing the contribution solicited from the lobbies in exchange for a given level of protection. Using this 'dual' formulation of the bargaining problem is more convenient for our purposes, so we shall stick to it in what follows.

With this dual formulation, the solicited rate of protection,  $\tau_i$  depends on the industry's efforts and on its lobbying abilities,  $\tau_i =$

$\tau_i(b_i, \beta_i)$ . For the sake of determinateness, we explicitly define this function as  $\tau_i = \beta_i \varphi(b_i)$  where  $\varphi$  is the cost-of-lobbying function, monotone increasing and convex in  $b$  ( $\varphi'_b > 0, \varphi''_b > 0$ ), in recognition of the higher lobbying costs required to extract promises of larger protection. Last, we also assume that disutility of lobbying efforts is growing with  $p$  at a greater rate than the profit function.<sup>2</sup>

Thus far we have described a variant of rather canonical political economy of trade. Now we translate these definitions into an agency problem for both lobbying and restructuring tasks, making on this way a number of standard assumptions. In particular, it is natural to suppose that the sorting condition will hold for the lobbying task under all possible values of parameters and all  $i$ :

$$\frac{\partial \left( \frac{\partial V_i(\cdot)/\partial b}{\partial V_i(\cdot)/\partial \tau} \right)}{\partial \beta} > 0.$$

In our case, this condition says that the marginal rate of substitution of the lobbying efforts  $b$  for unit increase in the rate of protection is lower for the worst (less efficient) type. The typical indifference curves in  $\tau - b$  space are depicted in Fig.1. Analogous condition can be defined for the restructuring task in  $A - e$  space, with qualitatively the same indifference map. There,  $A$  would correspond to the efficiency parameter captured by the intercept of the supply function, and  $e$  - to the level of restructuring efforts, the interpretation being that the type which is less suitable for restructuring needs more efforts to achieve the same value of  $A$ .<sup>3</sup> More restructuring in this way is tantamount to higher efficiency, but also requires larger efforts, the optimum level of which will also depend on the industry's suitability for restructuring  $\theta$ . Large value of this last parameter corresponds to relative readiness, and thus leads to *lower* restructuring cost; its low value means low ability to restructure and higher restructuring costs. This definition allows us associate the value of  $\theta$  directly with the (lump-sum) restructuring costs. We stipulate for all three variables a simple linear relationship

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<sup>2</sup>Inasmuch as the actual tariff rate depends also on the other side in trade negotiations (e.g. the WTO member countries), the value of  $\tau_i$  is more correctly interpreted as the *expected* rate of protection, i.e. the one agreed between the industry and the home government, but not necessarily the one to be actually realized. This does not entail any loss of generality inasmuch as all decisions of the home actors depend on their expectations.

<sup>3</sup>Lower restructuring is most appropriately interpreted as the 'background' rate of restructuring which any firm takes place anyway in order to maintain its current operations. The cost of this activity also has to be subtracted from the industry's (gross) profit function.

$A = e - \theta$ . By contrast, disutility of restructuring efforts is nonlinear, and represented by a function  $\psi(e) \equiv \psi(A + \theta)$ , which is increasing and convex in efforts ( $\psi'_e > 0, \psi''_e > 0$ ). Finally, we assume that both  $\psi$  and  $\theta$ , as well as the  $\varphi$  function, are independent of the characteristics of other industries.

The above specifications complete the description of lobbying and restructuring parameters as used in (3). Equipped with these definitions, we may proceed with the characteristics of the equilibrium strategies of the government given the industries' abilities to lobby and restructure. Generally, this is not an easy task because our types space turns out to be two-dimensional, so the resulting solution is likely to be rather messy. In our present application, however, things are greatly simplified by the fact that the  $\beta$  types are observable, and by our assumption of additivity of (2) across industries.

We solve the problem in three steps, first separately for the lobbying and the restructuring tasks, and then for a combination of these. For an arbitrarily selected industry, fix all variables and parameters pertinent to restructuring at any predetermined level, and consider first the task of profit maximization (3) for both types of  $\beta$ . Focusing on deterministic contracts, and appealing to the revelation principle (Myerson, 1978), we confine ourselves to the case of direct mechanisms. In this case, the government's task is to solicit, from each type  $\beta$ , the optimal contribution  $b$  in exchange for a profit level that will be 'given up' to the industry by the expected protection level  $\tau$  (whose provision is costless to the government). This optimum combination of contribution and expected protection should, for all industries and world prices  $P$ , satisfy two incentive compatibility constraints:

$$(4) \quad \begin{aligned} [A + BP\tau(\bar{\beta}, \bar{b})]P\tau(\bar{\beta}, \bar{b})(1 - \iota\xi) - \bar{b} - \theta - \psi(\cdot) &\geq \\ [A + BP\tau(\bar{\beta}, \underline{b})]P\tau(\bar{\beta}, \underline{b})(1 - \iota\xi) - \underline{b} - \theta - \psi(\cdot) & \end{aligned}$$

$$(5) \quad \begin{aligned} [A + BP\tau(\underline{\beta}, \underline{b})]P\tau(\underline{\beta}, \underline{b})(1 - \iota\xi) - \underline{b} - \theta - \psi(\cdot) &\geq \\ [A + BP\tau(\underline{\beta}, \bar{b})]P\tau(\underline{\beta}, \bar{b})(1 - \iota\xi) - \bar{b} - \theta - \psi(\cdot) & \end{aligned}$$

where the industry-specific indices are omitted to simplify notation, and  $\bar{b}$  and  $\underline{b}$  denote the values of  $b$  the government optimally solicits from the respective lobby. With these values, and under our assumptions the expected rates of protection are also uniquely determined, and denoted  $\bar{\tau} \equiv \bar{\beta}\varphi(\bar{b})$  and  $\underline{\tau} \equiv \underline{\beta}\varphi(\underline{b})$ . Similarly, two individual rationality constraints are

$$(6) \quad \bar{V}_i \equiv [A + BP\tau(\bar{\beta}, \bar{b})]P\tau(\bar{\beta}, \bar{b})(1 - \iota\xi) - \bar{b} - \theta - \psi(\cdot) \geq 0$$

$$(7) \quad \underline{V}_i \equiv [A + BP\tau(\underline{\beta}, \underline{b})]P\tau(\underline{\beta}, \underline{b})(1 - \iota\xi) - \underline{b} - \theta - \psi(\cdot) \geq 0$$

These last conditions require that in equilibrium both types of industries are better off if involved in lobbying activities than if not. Applying the standard arguments, it is easy to show that condition (6) is implied by (4) and (7):

$$(8) \quad \begin{aligned} & [A + BP\tau(\bar{\beta}, \bar{b})]P\tau(\bar{\beta}, \bar{b})(1 - \iota\xi) - \bar{b} - \theta - \psi(\cdot) \geq \\ & [A + BP\tau(\bar{\beta}, \underline{b})]P\tau(\bar{\beta}, \underline{b})(1 - \iota\xi) - \underline{b} - \theta - \psi(\cdot) \geq \\ & [A + BP\tau(\underline{\beta}, \underline{b})]P\tau(\underline{\beta}, \underline{b})(1 - \iota\xi) - \underline{b} - \theta - \psi(\cdot) \geq 0 \end{aligned}$$

where the first and the last inequality follows from (4) and (7), respectively, and the middle is a direct consequence of the sorting condition which says that the  $\bar{\beta}$  type is more efficient in getting tariff concessions than the  $\underline{\beta}$  type. Developing this last argument, we can define the efficient type's *utility rent* as

$$(9) \quad \begin{aligned} r(\bar{\beta}, \underline{\beta}, \underline{b}) & \equiv [A + BP\tau(\bar{\beta}, \underline{b})]P\tau(\bar{\beta}, \underline{b})(1 - \iota\xi) - \underline{b} - \theta - \psi(\cdot) \\ & \quad - [A + BP\tau(\underline{\beta}, \underline{b})]P\tau(\underline{\beta}, \underline{b})(1 - \iota\xi) - \underline{b} - \theta - \psi(\cdot) \\ & = [\Pi(\tau(\bar{\beta}, \underline{b})) - \Pi(\tau(\underline{\beta}, \underline{b}))](1 - \iota\xi) \\ & = P\varphi(\underline{b})(\bar{\beta} - \underline{\beta})(1 - \iota\xi)[A + BP\varphi(\underline{b})(\bar{\beta} + \underline{\beta})] > 0, \end{aligned}$$

where the last equality follows from our definition of the negotiated expected protection level. Note that this function is always positive, as is its derivative with respect to  $\underline{b}$ , which equals  $(1 - \iota\xi)\varphi'(\underline{b})P(\bar{\beta} - \underline{\beta})[(A + 2BP\tau)(\bar{\beta} - \underline{\beta})]$

Applying again the standard arguments, we observe that only (7) and (4) are binding in equilibrium, for otherwise the government could increase the respective values of  $b$  and keep all constraints satisfied.<sup>4</sup> Since both types are observable, and the government's utility is additive across industries, it may directly maximize the relevant part of (2) by soliciting the level of contribution  $b$  that is appropriate for each type. The simplest way to solve the problem is obtained by equating the binding constraint to zero, expressing  $\underline{b}$  from (7) and re-writing the government's utility function when dealing with the less-efficient type as

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<sup>4</sup>The fourth constraint, (5), can easily be shown to hold in equilibrium

$$(10) \quad \underline{G} = \underline{b} + \chi A + g(\underline{\tau}) = \chi A - \theta - \psi(\cdot) \\ + (A + BP\underline{\tau})P\underline{\tau} + (\underline{\tau} - 1)P\xi(D(P\underline{\tau}) - Q(P\underline{\tau}))$$

Making use of (5), (9), and using the same expression for  $\underline{b}$ , the value function for high-type industry becomes

$$(11) \quad \bar{G} = \bar{b} + \chi A + g(\bar{\tau}) = \chi A - \theta - \psi(\cdot) \\ + (A + BP\bar{\tau})P\bar{\tau} + (\bar{\tau} - 1)P\xi(D(P\bar{\tau}) - Q(P\bar{\tau}) - r(\bar{\beta}, \underline{\beta}, \underline{b}))$$

Omitting the irrelevant constants and using the fact that types are observable, the first-order conditions for (10) and (11) are obtained from the maximization of

$$(12) \quad \max_b \Pi(P\varphi(b)\beta) + (\varphi(b)\beta - 1)P\xi[D(P\varphi(b)\beta) - Q(P\varphi(b)\beta)]$$

for the respective levels of efforts and industries' types. Since the government revenue depends on the market demand, the first-order conditions generally will depend on the property of the demand function. Recalling linearity of supply and demand, and assuming that the equilibrium is stable (so that  $|d| > |B|$ ), the first-order conditions return:

$$(13) \quad \varphi(\underline{b}) = \frac{A + \xi[c + P(B + d) - A]}{2P\underline{\beta}[d\xi - (1 - \xi)B]}$$

$$(14) \quad \varphi(\bar{b}) = \frac{A + \xi[c + P(B + d) - A]}{2P\bar{\beta}[d\xi - (1 - \xi)B]}$$

and the second-order conditions also shall hold provided  $\xi$  is close enough to 1. The optimal levels of contributions resulting from (13) and (14) are denoted  $\underline{b}^*$  and  $\bar{b}^*$ , respectively; note that for both these values,  $\beta$  is the only type-specific determinant of the industries' lobbying activities. The first-order conditions, jointly with the properties of the  $\varphi$  function, imply that, inasmuch as  $\bar{\beta} > \underline{\beta}$ ,  $\varphi(\bar{b}) < \varphi(\underline{b})$ , so that under the optimum schedule the high-type industry will spend less efforts than the low-type industry. The negotiated rate of protection, however, may still be larger in the former case if  $\bar{\beta}$  is sufficiently large in comparison to  $\underline{\beta}$ , which we assume henceforth. A combination of these conjectures immediately shows that (5) also holds, completing the solution of the lobbying problem.

Now let us turn to the other problem: find an optimum government policy that would stimulate restructuring of an arbitrarily selected industry given any admissible level of protection it might have. In this paper we exemplify this optimum policy by fiscal policy tools, searching for an optimum industry-specific tax level. There is nothing specific in this policy instrument: from what follows it will become clear that any other policy or institution that affect industries' profits in a discriminative way, such as specific credits, targeted subsidies or provision of cheaper resources, would fare equally well.<sup>5</sup> The government-principal again seeks to maximize the relevant part of the same functional (2) subject to the standard incentive-compatibility and individual rationality constraints. This time the government solicits the desired level of restructuring  $A$  implicitly, by 'giving up' some profit tax income at a rate  $\iota$ , and relying on the industries' autonomous incentives to undertake such restructuring in order to meet increased international competition. Types  $\theta$  are now uncertain; for both of them, the incentive-compatibility constraints are

$$(15) \quad \begin{aligned} (\bar{A} + BP\tau)P\tau(1 - \bar{\iota}\xi) - b - \bar{\theta} - \psi(\bar{A} + \bar{\theta}) &\geq \\ (\underline{A} + BP\tau)P\tau(1 - \underline{\iota}\xi) - b - \bar{\theta} - \psi(\underline{A} + \bar{\theta}) &\geq \end{aligned}$$

$$(16) \quad \begin{aligned} (\underline{A} + BP\tau)P\tau(1 - \underline{\iota}\xi) - b - \underline{\theta} - \psi(\underline{A} + \underline{\theta}) &\geq \\ (\bar{A} + BP\tau)P\tau(1 - \bar{\iota}\xi) - b - \underline{\theta} - \psi(\bar{A} + \underline{\theta}) &\geq \end{aligned}$$

and the individual-rationality constraints are:

$$(17) \quad \bar{V}_i \equiv (\bar{A} + BP\tau)P\tau(1 - \bar{\iota}\xi) - b - \bar{\theta} - \psi(\bar{A} + \bar{\theta}) \geq 0$$

$$(18) \quad \underline{V}_i \equiv (\underline{A} + BP\tau)P\tau(1 - \underline{\iota}\xi) - b - \underline{\theta} - \psi(\underline{A} + \underline{\theta}) \geq 0$$

where uppercase tilde ( $\tilde{\cdot}$ ) refers to the restructuring task. Applying the same reasoning as in (8), we easily conclude that only (18) and (15) are binding. Next, from (15) we may also derive the *utility rent* of the efficient type,  $R(\bar{\theta}, \underline{\theta}, \underline{A})$  which in this instance is

$$(19) \quad R(\bar{\theta}, \underline{\theta}, \underline{A}) \equiv \underline{\theta} - \bar{\theta} + \psi(\underline{A} + \underline{\theta}) - \psi(\underline{A} + \bar{\theta})$$

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<sup>5</sup>Taxation, though, may be judged as the most politically neutral form of structural policy, and may be preferred on that ground.

Note that this expression is also positive, for the cost of  $\underline{\theta}$  is higher, as is its derivative with respect to  $\underline{A}$ , which equals  $\psi'(\underline{A} + \underline{\theta}) - \psi'(\underline{A} + \bar{\theta})$ . The binding constraint (18) implies that

$$(20) \quad \underline{\iota} = \frac{1}{\xi} - \frac{\underline{\theta} + b + \psi(\underline{A} + \underline{\theta})}{\xi(\underline{A} + BP\tau)P\tau}.$$

Finally, using (15) and the definition of the utility rent, we express the analogous value for the high type as

$$(21) \quad \bar{\iota} = \frac{1}{\xi} - \frac{\bar{\theta} + b + \psi(\bar{A} + \bar{\theta}) + R}{\xi(\bar{A} + BP\tau)P\tau}.$$

Substituting these back into the relevant component of the government's utility (2), we obtain the following objective function of the government dealing with both types of industries:

$$(22) \quad \underline{\tilde{G}} = b + \chi\underline{A} + (\tau - 1)P \left( D(P\tau) - (\underline{A} + BP\tau) \right) + (\underline{A} + BP\tau)P\tau\underline{\iota}\xi$$

$$(23) \quad \bar{\tilde{G}} = b + \chi\bar{A} + (\tau - 1)P \left( D(P\tau) - (\bar{A} + BP\tau) \right) + (\bar{A} + BP\tau)P\tau\bar{\iota}\xi$$

where  $\underline{\iota}$  and  $\bar{\iota}$  are given by (20) and (21), respectively. The government overall objective function for  $A = \{\underline{A}, \bar{A}\}$  is a linear combination of these two, weighted by the respective probabilities:

$$(24) \quad \begin{aligned} \max_{\{\underline{A}, \bar{A}\}} \tilde{G} &= \nu \underline{\tilde{G}} + (1 - \nu) \bar{\tilde{G}} \\ &= \nu \left( \chi\underline{A} + (\tau - 1)P\xi D(P\tau) - (\underline{A} + BP\tau)P[\xi + \tau(1 - \xi)] - \underline{\theta} - \psi(\underline{A} + \underline{\theta}) \right) \\ &\quad + (1 - \nu) \left( \chi\bar{A} + (\tau - 1)P\xi D(P\tau) - (\bar{A} + BP\tau)P[\xi + \tau(1 - \xi)] \right. \\ &\quad \left. - \bar{\theta} - \psi(\bar{A} + \bar{\theta}) - R(\bar{\theta}, \underline{\theta}, \underline{A}) \right) \end{aligned}$$

after substitution for the  $\iota$ 's and some rearrangements. The first-order conditions for  $\underline{A}$  and  $\bar{A}$  return respectively

$$(25) \quad \psi'(\underline{A} + \underline{\theta}) = \chi + P[\xi + \tau(1 - \xi)] - \frac{1 - \nu}{\nu} R'$$

for the low-efficiency type, and

$$(26) \quad \psi'(\bar{A} + \bar{\theta}) = \chi + P[\xi + \tau(1 - \xi)]$$

for the high-efficiency type. Given that  $R'' > 0$ , the second-order conditions are clearly satisfied, so that in both cases we have maxima.

The last two expressions are quite similar. They reveal that the optimal restructuring effort the government wants to impose upon the industries will depend on the weight which the government puts on restructuring in a particular industry, the world price of its output, and also the negotiated level of protection. Note that, unlike the lobbying task, where the optimum rate of protection was independent of the level of taxation, the solution to this program depends on the solution of the other task encompassed in  $\tau$ . This is not an accident: lobbying for protection would take place anyway and regardless of the specific parameters of official economic policy, which warrants subsuming this solution to one additional constraint, as shall be done in a while. Note however that the effect of protection vanishes if  $\xi = 1$  - in that way,  $\xi$  may be interpreted as a measure of institutional imperfections.

Since  $R'$  is uniformly positive, for any given value of  $\xi$  and nondegenerate  $\nu$  the derivative on the left-hand side is lower for the less efficient type, which implies that  $\bar{e} \equiv \bar{A} + \bar{\theta} > \underline{A} + \underline{\theta} \equiv \underline{e}$  by the properties of the  $\psi$  function. Thus, with this equilibrium portfolio of restructuring and incentives, the more efficient type exercises more efforts. Furthermore, since  $A = e - \theta$  for both types, higher efforts and lower costs of the efficient type unambiguously imply that it will undertake more restructuring. Thus, denoting the solutions to (25) and (26) by asterisks (\*), we obtain that  $\bar{A}^* > \underline{A}^*$ , and inserting these back into the definitions of  $\iota$ , we also obtain that  $\bar{\iota}^* < \underline{\iota}^*$ , i.e. that more efficient industry should optimally be taxed at a lower rate. This last point also shows that (16) also holds in this equilibrium, completing this problem's solution.

Things are rather different if one takes into account the effect of  $\tau$  on the second terms on the right-hand sides of (25) and (26). These terms may be interpreted as the burden of institutional imperfections in the way of restructuring: if  $\xi$  is small and  $\tau$  is large, then the degree of institutional protection of the interior market is high, the extent of tax evasion is substantial, and the state budget receives little income from import tariffs. The right-hand side in this case will be larger than if  $\xi$  is small, raising the optimum level of restructuring and efforts for both types of industries. This fact immediately poses the main policy problem: given the power and extent of the real state capture, the optimal incentive scheme should increase the attractiveness of restructuring relatively to lobbying for protection. Our analysis immediately

suggest the fiscal mechanism for that: the government should decrease the net profit of unstructured industries relative to that of restructured ones, setting this distortionary tax in connection with the extent of protection solicited by the respective industry

It is instructive to consider first a geometric illustration of the proposed mechanism, provided in Figs. 2-4. On these figures, total profit is plotted against the (negotiated domestic) price of a typical import-substituting industry. The solid line on Fig.2 depicts the profit function  $\Pi(p)$  of the (unstructured) industry, and the two dashed lines denote lobbying costs  $\varphi(\beta)$  of the industries with higher and lower lobbying abilities. The vertical sums of these two functions are the lobbies' utilities - they are labelled  $V(\cdot)$  for both types, and represented by the dark solid lines. These rise at first, and then decline in recognition of the increasing disutility of lobbying. The profit function for more efficient lobbyists always lies above that for the less efficient ones, which fact reflects the difference in lobbying costs.

In parallel we consider the profit functions with respect to restructuring problem, which are labelled  $V(\cdot)$  and depicted on Fig.3 in dark solid lines. Since restructuring costs in this case are unrelated with market prices, all disutilities are captured by the intercept of these functions with the vertical axis - this intercept will be higher for the more 'suitable' industry, corresponding to the lower restructuring cost. Resulting profit functions for both tasks are combined in Fig.4: in geometric terms the strategic choice of an industry (whether to invest in restructuring or in greater protection of its domestic market) will at any price depend on which of the two dark lines will have higher ordinate at the point corresponding to the domestic market price level. In general, this will depend on the shape of the profit function, but in either case, the higher are the lobbying abilities, the greater are chances the industry will select protection, and the higher are the restructuring aptitudes the more likely is it to select modernization.

It follows from this geometric illustration that the government implementing an optimum mechanism should strive to 'drive a wedge' between the two lines by raising the profit in the case of restructuring and lowering it in the case of protection (as indicated by the arrows). The latter aim can be reached by decreasing the extent of state capture and by lowering the interest of the government's officials in raising their own permanent income. This task, however, is not just challenging in general, but also specifically aggravated by the institutional circumstances of the Russian transition. By contrast, affecting the net profit of the industry, which decides to restructure rather than to invest in protection, can be achieved relatively easily by changing the profit

tax rate. The implied mechanism is thus quite straightforward: the government announces to any potential lobbyist that a higher degree of promised market protection will lead to higher corporate profit tax, leaving it up to the industry to decide which of the two strategies it wants to pursue.

Algebraically the respective solution requires combining both lobbying and restructuring equilibria into a single solution, which is the third step of our program. Consider first the optimum solution where the industry has high restructuring abilities  $\bar{\theta}$  and high lobbying abilities  $\bar{\beta}$ . Starting from the solution to (23), and assuming henceforth that indifference is resolved in favour of the government (perhaps as a matter of moral suasion), we solve again the same problem subject to (15), (18) and an additional constraint

$$(27) \quad V(\bar{\theta}, \bar{\beta}, \bar{A}, \underline{b}) \geq V(\bar{\theta}, \bar{\beta}, \bar{A}, \bar{b})$$

The latter is needed to make sure that this highly-suitable industry selects restructuring rather than lobbying. If, according to our earlier assumption, the industry's disutility of lobbying  $b$  grows faster than the resulting profits,  $\bar{t}$  will be decreasing in  $b$ . Thus, to make sure (27) holds it suffices to set  $\iota$  at a level when it holds for  $\underline{b}$ . Substituting into (26) the definitions of  $\underline{\tau}^* = \underline{\beta}\varphi(\underline{b})$  and rearranging, we obtain the following expression for (26):

$$(28) \quad \psi'(\bar{A} + \bar{\theta}) = \chi + P\xi + \frac{(1 - \xi)(\underline{A} + \xi[c + P(B + d) - \underline{A}])}{2[d\xi - B(1 - \xi)]}$$

from which results a specific value of  $\bar{t}^*$  that will respect the additional constraint (27). Values of all parameters on the right-hand side are observable, and depend on the 1) parameters of the demand function and the supply function for the unstructured industry; 2) offshore price; 3) structural policy parameter  $\chi$  and 4) measure of institutional imperfections  $\xi$ . As soon as these are estimated, the entire solution can be implemented in practice.

Alongside this case, consider the parallel conditions for the  $\underline{\beta}$  type:

$$(29) \quad V(\bar{\theta}, \underline{\beta}, \bar{A}, \underline{b}) \geq V(\bar{\theta}, \underline{\beta}, \bar{A}, \bar{b})$$

Inasmuch as optimal lobbying efforts are independent of taxes, the industry of this type will not be willing to implement the level of protection  $\bar{t}$  because of (5) - thus, in view of (15) our earlier solution will remain unaffected in this case. The government, in fact, might select a higher level of taxation stipulated by (25) and extracting the utility

rent  $R$ . In this case the government can choose the greater of the two tax rates, for it knows this industry will not defect to higher lobbying activities anyway. At the same time, from a policy viewpoint it might be more advisable to leave this utility rent to the industry, as it could be a useful resource for the sake of restructuring, thus sticking at the solution (28).

Two other cases are more problematic. The industries of the  $\underline{\theta}$  type are less likely to be willing to restructure, albeit their exact decision will depend on the parameter values. In this case, the government should make use of the solution given by (25), extracting all utility rent and raising its current revenues. The prospects of these industries, however, are rather poor: given the level of their technological development, after opening they will probably plunge into the process of gradual decline, leading to their complete dissolution or outside takeover. For that sake, an effective mechanism of bankruptcy and ownership transfer to an efficient outsider (most desirably, foreign investor) is badly needed. Specification of this problem is left for further research.

### 3. CONCLUSION

We have considered a two-types model of the current dilemma facing most Russian industries on the eve of an ultimate opening of Russia. For those industries that possess some potential for restructuring (which may be unobservable for the government), and a large range of parameter values that can be estimated empirically [to be specified!], the optimum policy mechanism was shown to combine lowering the relative profit tax rate for those industries which agree to undertake restructuring instead of higher protection of the internal market. At the same time, those industries which still opt for larger degree of protection should be forced to pay relatively higher profit taxes, giving up all utility rents to the society represented by the benevolent government. One might argue that 'benevolence' is still not entirely appropriate when speaking of today's Russia; however, in our framework, the mere desirability of restructuring as captured by the parameter  $\chi$  is meaningless without a spirit of this assumption.

The present version of the model is quite stylistic. Besides many institutional details, we exclude a few substantial issues, such as 1) the interests of exporting industries, 2) the composition of industrial lobbies; 3) the timing of restructuring and 4) the role of foreign investment. These issues are going to be explored within the framework using continuum-type and dynamic models.

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Appendix: Figures

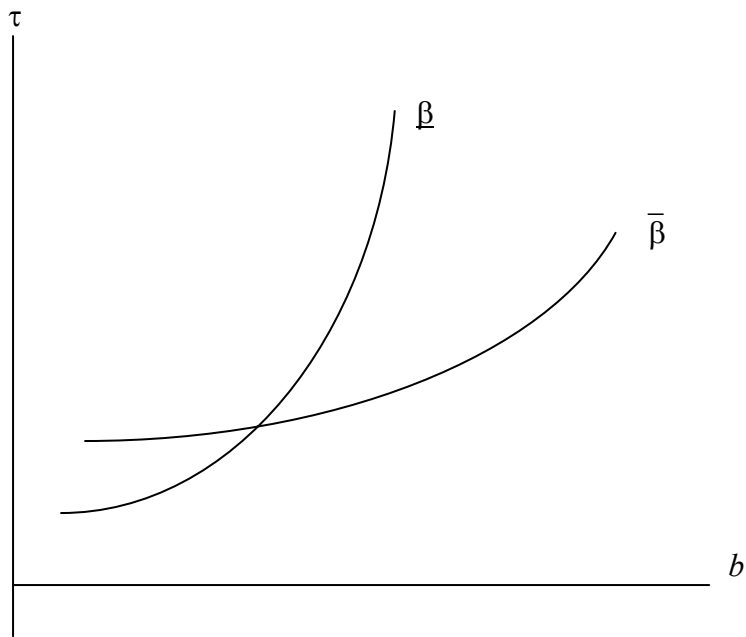


Fig.1. Indifference curves in  $(\tau-b)$  space

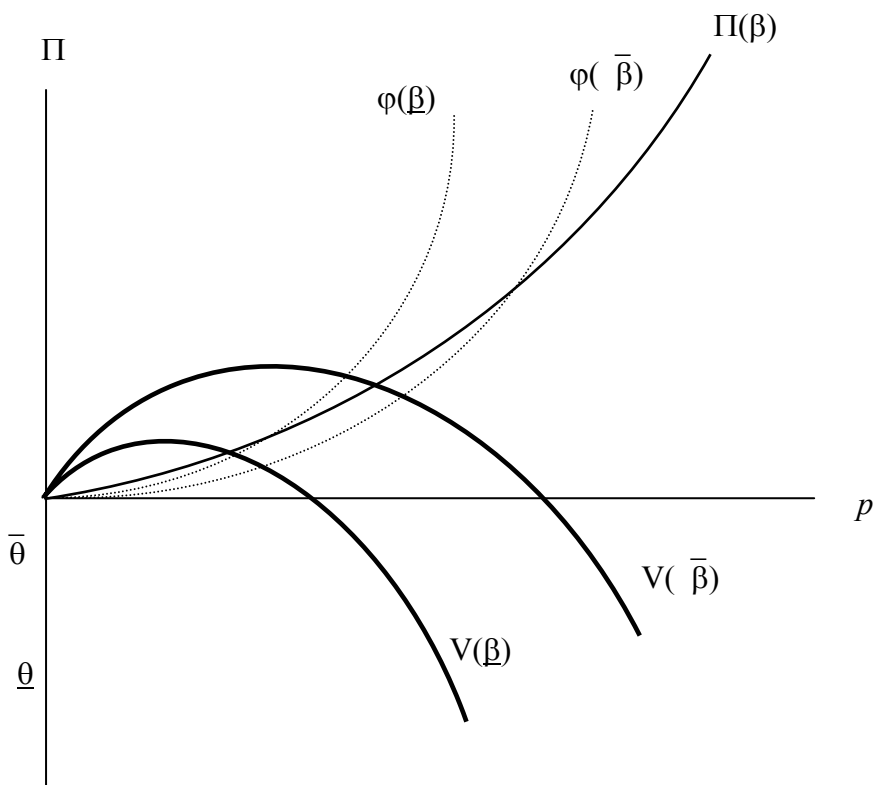


Fig.2. Profit function for the lobbying task

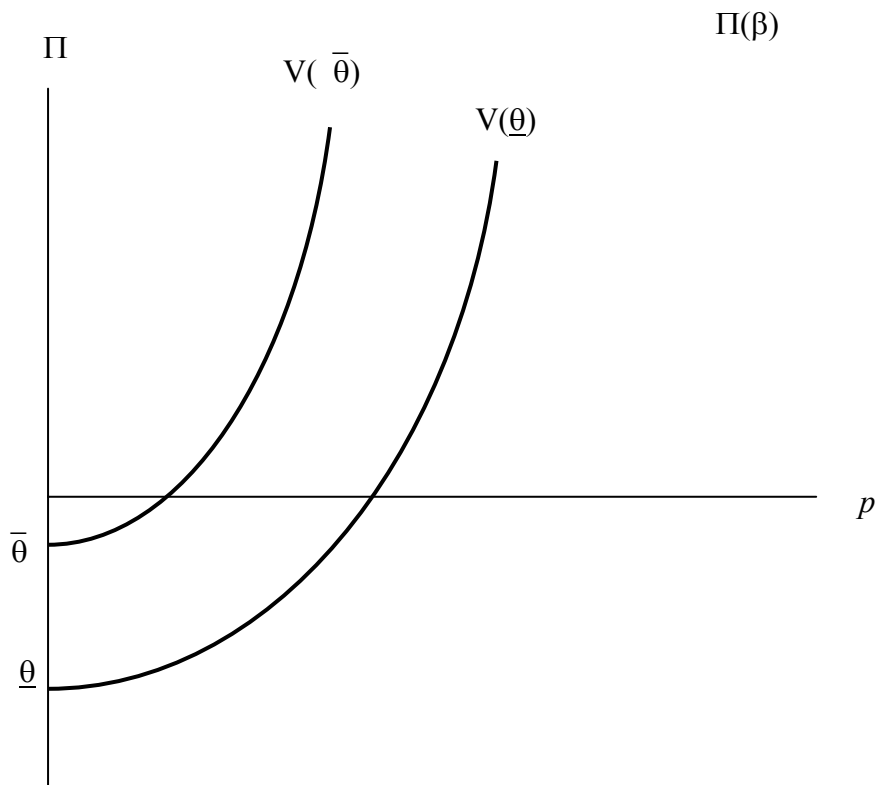


Fig.3. Profit function for the restructuring task

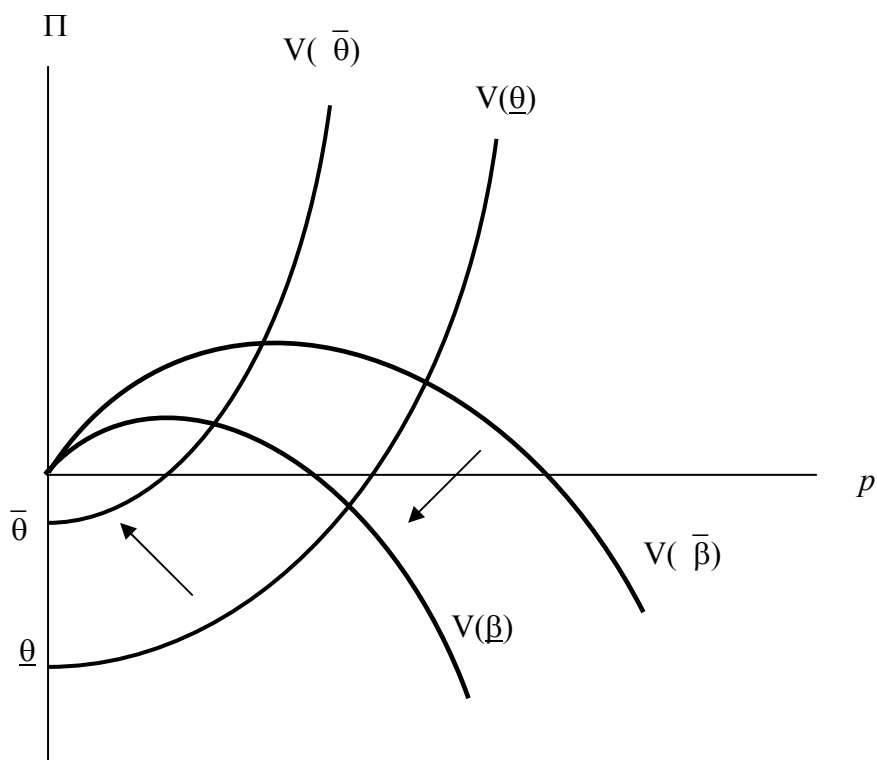


Fig.4. The problem of mechanism design

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