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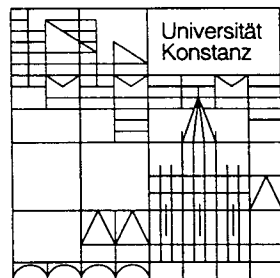
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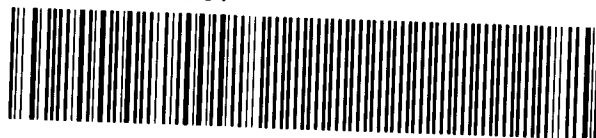
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**Trade Liberalization During Transition:  
A Political Economy Perspective**

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# **Trade Liberalization During Transition: A Political Economy Perspective\***

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## **Abstract**

Most transitional economies in Central and Eastern Europe have rather surprisingly resisted protectionist pressures – at least during early stages of reform – and adopted liberal trade policies. In this paper the course of trade policy during transition is explained from a political economy perspective. It is shown that trade liberalization can be a rational strategy of reform politicians maximizing the probability of electoral success. In this context it is also discussed how trade policy affects the restructuring of state firms, i.e. their transformation into private firms. It is shown that less protection of the state sector does not necessarily enhance restructuring.

JEL Classification: D 72, F 13, P21

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# 1 Introduction

One of the most puzzling facts of transition in Eastern Europe concerns the course of trade policy. Quite surprisingly, the state monopoly in foreign trade, which was prevalent during central planning, has given way to an extremely liberal trade policy with only minor deviations from free trade. Only after some time did governments in transitional economies become more responsive to protectionist pressures and introduced more protectionist policies.<sup>1</sup> Taking into account the overall economic situation in these economies, this pursuit of trade liberalization is still more surprising. Almost all transitional economies experienced output collapses that were unprecedented in economic history and were combined with huge increases in unemployment. Given this situation, how can the development of trade policies in transitional economies be explained?

Quite obviously, given the pervasive distortions in formerly centrally planned economies and the adjustment costs of transition as they are reflected in output collapse and unemployment, the usual explanation why free trade is adopted (or should be adopted) does not apply. In the light of these adjustment costs, it is highly questionable whether free trade is an optimal policy in some welfare theoretic sense. On the other hand, political economy explanations for trade policies typically suffer from some inherent “protectionist bias”, as their main objective is to explain why protectionism is still so prevalent given that the efficiency of free trade is so obvious (cf. the surveys by Hillman 1989 or Rodrick 1994).<sup>2</sup> This line of reasoning has also sometimes been applied to the situation in Eastern Europe: large and influential interest groups stand to lose from transition and therefore there exist strong tendencies to slow down reforms, e.g. by protectionist policies, in order to maintain political acceptance (cf. Dewatripont and Roland 1992, Roland 1993, 1994, Wyplosz 1993; for an overview on transition from a political economy perspective cf. Hillman 1994). The observed liberalization of international trade, however, stands in stark contrast to these arguments.

In this paper it is shown that pursuing trade liberalization can be interpreted as a rational strategy of reform politicians who maximize the probability of electoral success or more precisely: expected votes in elections. In transitional economies one can identify essentially two groups of voters: people employed in the state sector and people employed in the private sector. Workers in the state sector constitute a relatively large group of voters that stand to lose considerably from being exposed to foreign competition, either by losing their jobs or by suffering income losses. Under “normal” political conditions, politicians would take into account the interest of these voters at least to some extent in their trade policy formulation. Therefore, the larger

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<sup>1</sup>For an overview over trade policies during transition cf. Gács (1994) or Rosati (1993).

<sup>2</sup>One of the rare attempts to explain trade *liberalization* from a political economy perspective is Hillman and Moser (1995).

the state sector and the more adversely it is affected by trade liberalization, the more protectionist policies should be expected.

Nevertheless, what can be observed in reality is a considerable degree of trade liberalization. In order to solve this puzzle, one has to take a closer look at the characteristics of the political process at the outset of transition. What is specific to this situation is that reform politicians have a certain political leeway at their disposal, which they do not have under “normal” political conditions.<sup>3</sup> This again is largely due to the fact that there is only very weak political competition between opposing parties: While the old communist parties have become politically unacceptable as an alternative in elections almost throughout Central and Eastern Europe at the beginning of transition, reform politicians still constitute a fairly homogeneous and united group, with reform policies being formulated in a more or less consensual way.

There remains, however, the question, why this political leeway is used in order to pursue trade liberalization. Hillman and Ursprung (1995) have attributed this to the fact that reform politicians may be “principled” in pursuing liberal trade policies, because e.g. they want to gain access to foreign markets by opening up their own economy or because they want to realize efficiency gains from free trade. In this paper, an alternative explanation for the pursuit of liberal trade policies is derived explicitly from some utility maximizing calculation of reform politicians. It is argued that reform politicians will use their leeway for improving their political outlook in future elections by building up political constituencies. Although workers in the state sector may ultimately benefit from the transition from central planning to a market economy, at least in the short run they are bound to experience considerable costs as well. In contrast, workers in the private sector will be less negatively affected and therefore benefit more from transition. It is therefore argued that workers in the state sector will always remain more ambivalent towards reforms as will workers in the private sector. Accordingly, reform politicians will be more popular with voters employed in the private sector as compared to voters from the state sector. This, however, implies an incentive for reform politicians to dismantle the relics of central planning and cut down the state sector as soon as possible, e.g. by liberalizing foreign trade.

The paper proceeds as follows: In chapter 2, a stylized model of an economy in transition is developed. This chapter focusses on the question of how trade policy affects the decision to restructure, the size of the private and the state sector and the sectoral income distribution. Chapter 3 discusses the political process of trade policy formulation in transitional economies on the basis of a simplified probabilistic voting model. It is shown that in the presence of only weak political competition, reform politicians will pursue trade liberalization. The final part of the paper (chapter

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<sup>3</sup>Hillman and Ursprung (1995) have e.g. characterized this stage of reform as a period of “extraordinary policies”. Similarly, this initial phase of transition has also been described as a situation that offers a “window of opportunity” for radical reforms (cf. Roland 1994).

4) is devoted to a short discussion concerning the (sub-)optimality of endogeneously determined trade policies. It will especially be shown that more political leeway for reform politicians at the outset of transition need not be something positive.

## 2 A Stylized Model of an Economy in Transition

### 2.1 The Basic Structure

As the main interest of this paper lies in pointing out the political-economic logic of sectoral adjustment and trade policy in a dynamic setting, the economic structure of the model has to be kept as simple as possible in order to facilitate the analysis. With regard to the production side it is assumed that there are three, perfectly competitive sectors: a “state” sector, a “private” sector, and a “restructuring” sector. Private sector and restructuring sector produce an identical good (or bundle of goods). However, as will become evident below, they produce with different technologies. The state sector produces a different good or bundle of goods. The only factor of production is labour. Labour supply is perfectly inelastic, each household owns one unit of labour and labour is only very imperfectly immobile between the sectors. Concretely, labour can move from the state sector to the private sector only via the restructuring sector.

Output in the three sectors is given by the following production functions with  $X$  representing private sector output,  $Y$  public sector output and  $Z$  output of the restructuring sector:<sup>4</sup>

$$X = N^X x \tag{1}$$

$$Y = N^Y y \tag{2}$$

$$Z = N^Z [x - c(N^Z)] \tag{3}$$

$N^X$ ,  $N^Y$  and  $N^Z$  denote employment in the private sector, the state sector and the restructuring sector.  $x$  and  $y$  denote labour productivity (in physical units) in the private and the state sector. In the restructuring sector, the level of productivity in the private sector is not achieved due to adjustment costs  $c(N^Z)$ . Although the restructuring sector produces the same good as the private sector, the existence of these adjustment costs implies that the good is produced with a different “technology”. These adjustment costs arise because e.g. specific knowledge, management

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<sup>4</sup>A similar framework for discussing restructuring in Eastern Europe, although in a one sector context, has been used by Wyplosz (1993). Related models discussing the restructuring of state-owned enterprises and the mobility of labour between the state sector and the private sector have been formulated by Aghion and Blanchard (1994) and by Aghion, Blanchard and Burgess (1994). The idea of one special sector facilitating adjustment has – somewhat differently – also been developed in Mussa (1982).



skills and other know-how must be acquired. The type of good produced changes and information on the production process must be acquired as well as information on potential customers etc. It is assumed that these costs are convex in the level of restructuring ( $\frac{\partial c}{\partial N^Z} = c_N > 0$ ,  $\frac{\partial^2 c}{\partial N^Z^2} = c_{NN} > 0$ ). The idea is that restructuring becomes increasingly costly, because acquiring the necessary skills and finding out about profitable production possibilities becomes increasingly difficult when many firms start to restructure simultaneously.<sup>5</sup>

It is further assumed that the economy in transition is a small open economy and that both goods are tradable goods. Therefore, the international price of the state sector good in terms of the private sector good is exogenously given by  $p$ .<sup>6</sup> It is assumed throughout that labour productivity in the state sector (in terms of value added) is lower than in the private sector ( $py < x$ ). Perfect competition in all sectors finally ensures that prices are equal to average costs. This implies different wage rates and incomes in the three sectors. (The idea applied here is essentially that firms are owned by the workers and that revenue is distributed equally among the workers in each firm.)

#### Period 0, Initial Situation:

In the initial period, employment – and thus output – is determined by the central planner. No restructuring is taking place in this period and the whole workforce is allocated to the state sector and (indirectly) to the private sector by the central planner:<sup>7</sup>

$$X_0 = N_0^X x \quad (4)$$

$$Y_0 = N_0^Y y \quad (5)$$

$$Z_0 = 0 \quad (6)$$

Aggregate income (at international prices),  $I_0^w$  then is:

$$I_0^w = N_0^X x + N_0^Y py \quad (7)$$

Under central planning, domestic prices are administratively set by the central planner, which is more or less equivalent to the imposition of a tariff  $t_0$  on state sector

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<sup>5</sup>Assuming convex adjustment costs ensures a certain continuity in the level of restructuring. Assuming constant or even concave adjustment costs (i.e. increasing returns to scale in restructuring) would lead to situations where either no restructuring takes place at all, or where the whole state sector restructures at once. Both cases appear to have only limited relevance for reality.

<sup>6</sup>This implies that a world market really exists for the state sector output. One could argue whether this is the case. It appears, however, reasonable to assume that it is in principle possible to sell this output at world markets at a sufficiently low price.

<sup>7</sup>Subscripts indicate the respective period.

output. Measured at domestic prices, aggregate income ( $I_0^d$ ) therefore is:<sup>8</sup>

$$I_0^d = N_0^X x + N_0^Y (p + t_0)y \quad (8)$$

It is finally assumed that workers in both sectors receive a share,  $\alpha_0^j, j = x, y$ , of the aggregate income that corresponds to their contribution to the value of production (measured at domestic prices). With  $i_s^j$  generally denoting individual incomes of workers in sector  $j$  in period  $s$ , individual incomes in period 0 are given by:

$$\begin{aligned} i_0^x &= \alpha_0^x I_0^w, & \alpha_0^x &= \frac{x}{I_0^d}, \\ i_0^y &= \alpha_0^y I_0^w, & \alpha_0^y &= \frac{(p + t_0)y}{I_0^d}. \end{aligned}$$

#### Period 1:

In period 1 reforms start and restructuring takes place. For the sake of simplicity it is assumed that restructuring simply implies state firms becoming private firms. Output of state firms, private firms and restructuring firms is:

$$X_1 = N_0^X x \quad (9)$$

$$Y_1 = [N_0^Y - N_1^Z] y \quad (10)$$

$$Z_1 = N_1^Z [x - c(N_1^Z)] \quad (11)$$

Aggregate incomes at international prices and at domestic prices are

$$I_1^w = N_0^X x + (N_0^Y - N_1^Z) py + N_1^Z [x - c(N_1^Z)] \quad (12)$$

and

$$I_1^d = N_0^X x + (N_0^Y - N_1^Z) (p + t_1)y + N_1^Z [x - c(N_1^Z)]. \quad (13)$$

#### Period 2:

In period 2, the firms that restructured in period 1 have become part of the private sector. For the sake of simplicity it is assumed that no new firms start to restructure in period 2, i.e.  $N_2^Z = 0$ . Allowing for additional restructuring in period 2 offers no additional insights for trade policy formulation during transition and would complicate the analysis considerably. An additional justification for this assumption is that

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<sup>8</sup>It should be noted that the only kind of protection considered in this paper is protection of the state sector. A potential interest of the private sector in being protected as well is neglected.

the adjustment costs need not only depend on the flow of restructuring in each period but can also depend on the stock of restructuring that has already taken place.<sup>9</sup> Sectoral outputs in period 2 are then given by:

$$X_2 = (N_0^X + N_1^Z)x \quad (14)$$

$$Y_2 = (N_0^Y - N_1^Z)y \quad (15)$$

$$Z_2 = 0 \quad (16)$$

and aggregate incomes measured at international and domestic prices are

$$I_2^w = (N_0^X + N_1^Z)x + (N_0^Y - N_1^Z)py \quad (17)$$

and

$$I_2^d = (N_0^X + N_1^Z)x + (N_0^Y - N_1^Z)(p + t_2)y. \quad (18)$$

The consumption side of the economy, finally, is represented by an identical indirect utility function,  $V$ , for all households  $j$ ,  $j = 1, \dots, n$  and all periods  $s$ , depending on domestic prices and individual incomes of workers  $i_s^j$ :

$$\begin{aligned} V_s^j &= V_s^j(p + t_s, i_s^j) \\ &= V_s(p, i_s^j) \end{aligned} \quad (19)$$

## 2.2 Restructuring

Incentives for restructuring exist as long as the income to be earned in restructuring firms exceeds the income in the state sector. Restructuring will come to an end when there are no more incentives for additional restructuring, i.e. when the income of workers in restructuring firms equals that of workers in firms that remain in the state sector. One additional problem arises with regard to the time horizon of “investors”, i.e. of workers deciding on restructuring. In the case of short-sighted investors, the restructuring decision is governed only by the relative incomes in the period where restructuring is undertaken. In contrast, forward-looking investors also take into account future income differentials.

### Case I: Short-Sighted Investors

Assuming that investors are short-sighted may appear somewhat artificial, amounting to nothing else but assuming “irrational” behaviour (or formation of expectations).

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<sup>9</sup>A way to introduce this would be to allow for heterogeneous labour in the state sector in the sense that not all workers are equally well adept to enter the private sector. Restructuring in period 1 then implies a certain positive selection and the adjustment costs for the workers that remained in the state sector can be prohibitively high in the second period.

In the specific situation of transition, however, there are strong reasons, why investors may have a very limited time horizon. The whole transition process is bound up with an extremely high level of uncertainty concerning the course of reform. There exists always a certain possibility that reforms are reversed altogether and that private economic activities are restricted again. It can therefore not at all be taken for granted that potential gains from restructuring in period 2 are finally realized and it may be rational to base the decision to restructure only on the benefits and costs of restructuring in the present period (i.e. the discount factor for discounting future income streams becomes 0). Restructuring would thus continue until:<sup>10</sup>

$$i_1^z = i_1^y \quad (20)$$

Individual incomes of workers in the three sectors in period 1 depend on the tariff protecting the state sector and are generally given by:

$$\begin{aligned} i_1^x(t) &= \alpha_1^x I_1^w, & \alpha_1^x &= \frac{x}{I_1^d}, \\ i_1^y(t) &= \alpha_1^y I_1^w, & \alpha_1^y &= \frac{(p + t_1)y}{I_1^d}, \\ i_1^z(t) &= \alpha_1^z I_1^w, & \alpha_1^z &= \frac{x - c(N_1^Z)}{I_1^d}, \end{aligned}$$

with  $\alpha_1^j$  denoting the income share of a worker in sector  $j$  ( $j = x, y, z$ ) in period 1.

In the absence of any trade restrictions ( $t_1 = 0$ ),  $I_1^d$  equals  $I_1^w$  and the level of restructuring is implicitly determined by the following equation:

$$x - c(N_1^Z) = py \quad (21)$$

It should be noted that in this case  $I_1^w = I_0^w$ , i.e. that during transition aggregate income at international prices does not fall as compared to the situation under central planning. Of course, when measured at domestic prices, aggregate income does fall compared to central planning. What changes also is the distribution of income. When the productivity in the private sector is considerably higher than in the state sector ( $x > py$ ) and workers in the state sector were heavily protected during central planning ( $(p + t_0)y > py$ ), adopting the international price structure may imply huge income losses for state sector workers and corresponding gains to private sector workers.

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<sup>10</sup>In this formulation it is assumed that there do not exist additional adjustment costs in the case of reversal of reforms in period 2. If there are additional costs for the investors, waiting with restructuring until the second period has a certain option value. This could be taken into account in the present context by allowing for some mark-up factor  $\lambda$  by which the income in restructuring firms has to exceed the income in the state sector in period 1 in order to induce restructuring ( $i_1^z = \lambda i_1^y$ ,  $\lambda > 1$ ).

In the case of positive levels of protection, restructuring comes to an end when

$$x - c(N_1^Z) = (p + t_1)y \quad (22)$$

It can be directly seen that the level of restructuring depends negatively on the level of protection ( $\frac{\partial N_1^Z}{\partial t_1} = -\frac{y}{c_N} < 0$ ). Higher tariffs increase the income share of the state sector and thus reduce the incentive to restructure.

For later discussions of trade policy it is also important how tariffs affect individual incomes. The effects here are ambiguous (for a formal derivation see the appendix). From equation (20) it follows that the income of workers in restructuring firms always equals that of workers in state firms. What can also be shown is that the *income share* of state sector workers ( $\alpha_1^y$ ) rises when tariffs are imposed and that the income share of private sector workers ( $\alpha_1^x$ ) decreases ( $\frac{d\alpha_1^x}{dt_1} I_1^w < 0$ ,  $\frac{d\alpha_1^y}{dt_1} I_1^w > 0$ ). Tariffs have, however, – by changing the level of restructuring – ambiguous effects on the level of aggregate income at international prices ( $I_1^w$ ): for “small” tariffs ( $t_1 y < c_N N_1^Z$ ), which reduce the level of restructuring slightly as compared to free trade, aggregate income rises ( $\frac{dI_1^w}{dt_1} > 0$ ), whereas for “larger” tariffs ( $t_1 y > c_N N_1^Z$ ) – inducing a considerably larger decline in restructuring – aggregate income decreases ( $\frac{dI_1^w}{dt_1} < 0$ ). The reason for this is that restructuring firms neglect the marginal effects of restructuring on the total costs of restructuring ( $c_N N_1^Z$ ).<sup>11</sup> The effect of additional restructuring on aggregate income is given by

$$\frac{dI_1^w}{dN_1^Z} = x - c(N_1^Z) - py - c_N N_1^Z.$$

Under free trade,  $x - c(N_1^Z) - py = 0$ , and therefore reducing the level of restructuring by a small tariff raises aggregate income. Beyond a point where  $(x - c(N_1^Z) - py) - c_N N_1^Z = 0$ , however, additional protection clearly lowers aggregate income.

The overall effect of a tariff on private and state sector incomes thus remains ambiguous. Protection can raise the income of private sector workers when a positive effect via changes in aggregate income dominates the negative effect via changes in income shares, whereas protection can reduce the income of state sector workers when a negative effect on aggregate income more than compensates the positive effect via income shares.

### Case II: Forward-Looking Investors

In the case of forward-looking investors, costs and benefits from restructuring in future periods are also taken into account in the decision to restructure. Restructuring now comes to an end when the *present value* of income in the restructuring sector equals the present value of income in the state sector. With  $\rho$  as the discount rate, restructuring ends when

$$i_1^z + \rho i_2^z = i_1^y + \rho i_2^y \quad (23)$$

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<sup>11</sup>This is discussed in more detail in chapter 4.

Individual incomes in period 2 are given by:

$$\begin{aligned} i_2^x(t) &= \alpha_2^x I_2^w, & \alpha_2^x &= \frac{x}{I_2^d}, \\ i_2^y(t) &= \alpha_2^y I_2^w, & \alpha_2^y &= \frac{(p + t_2)y}{I_2^d}, \\ i_2^z(t) &= \alpha_2^z I_2^w, & \alpha_2^z &= \frac{x}{I_2^d}, \end{aligned}$$

with  $\alpha_2^j$  denoting the income share of group  $j$  in period 2.

Under free trade in periods 1 and 2, the level of restructuring is determined by

$$x - c(N_1^Z) + \rho x = (1 + \rho)py \quad (24)$$

or equivalently:

$$x - c(N_1^Z) - py = -\rho(x - py) \quad (25)$$

For an interior solution to exist, i.e. precluding  $N_1^Z = 0$  and  $N_1^Z = N_0^Y$ , this expression states that the loss to workers in restructuring firms compared to workers in state firms in period 1 has to equal the present value of the gain of the restructuring sector relative to the state sector in period 2. Contrary to the case of short-sighted investors “real” costs arise from restructuring in period 1 because  $x - c(N_1^Z) - py < 0$ , which implies that aggregate income at international prices in period 1 declines relative to central planning.

Identifying the impact of trade policy on restructuring decisions and individual incomes becomes considerably more intricate with forward-looking investors. Rewriting equation (23), the level of restructuring is now implicitly given by the following condition:

$$(\alpha_1^z - \alpha_1^y) I_1^w = -\rho(\alpha_2^z - \alpha_2^y) I_2^w \quad (26)$$

The analysis gets significantly more complicated because changes in tariffs affect the level of restructuring not only by changing the *distribution* of income in a certain period, but additionally by changing the *level* of income in both periods.

In this case it can generally not even be concluded that the level of restructuring declines with rising tariffs.<sup>12</sup> Tariffs in period 1 and 2 change the income differential between the state sector and the restructuring sector in favour of the state sector: The relative loss to workers in the restructuring sector in period 1 increases ( $\alpha_1^z - \alpha_1^y$  becomes more negative) and the relative gain to these workers in period 2 decreases ( $\alpha_2^z - \alpha_2^y$  becomes smaller). The imposition of tariffs looked at in isolation therefore increases the incentives to remain in the state sector.

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<sup>12</sup>A detailed and more formal discussion of the relation between restructuring and trade policy is given in the appendix.

It is however not evident how the level of restructuring has to change so that equation (26) holds again: The income differential can be changed in favour of the restructuring sector a) by increasing the relative gain in period 2 or b) by decreasing the relative loss in period 1. With regard to the former, it is evident that higher levels of restructuring increase aggregate income in period 2 ( $\frac{dI_2^w}{dN_1^Z} = x - py > 0$ ). Because in this period the income share of workers in the restructuring sector is higher than the income share of state sector workers ( $\alpha_2^z > \alpha_2^y$ ), this increases the relative gain of the restructuring sector in period 2. In order for equation (26) to hold, higher levels of protection must therefore be accompanied by higher levels of restructuring.

With regard to the income differential in period 1, the effects of restructuring are ambiguous. Lower levels of restructuring reduce the income differential ( $\alpha_1^z - \alpha_1^y$ ) by lowering adjustment costs. At the same time, however, it is possible that aggregate income in period 1 rises when the level of restructuring falls, which in turn increases the relative loss in the restructuring sector. Therefore, in order to decrease the relative loss of workers in restructuring firms in period 1, more or less restructuring can be necessary.

On the whole, rather counterintuitively, protection of the state sector may in effect induce *more* restructuring although, taken in isolation, the attractiveness of staying in the state sector rises with more protection of the state sector. This result depends on whether the income differential between the restructuring sector and the state sector can more effectively be reduced by more restructuring (which increases the relative gain in period 2 and may under certain circumstances also reduce the relative loss in period 1 via the effect on aggregate income) or by less restructuring (which reduces adjustment costs in period 1). A “perverse” reaction of restructuring to protection in this sense becomes more likely, when a) the time horizon is “long” ( $\rho$  is high) or when b)  $t_2$  is “small” and therefore the gain to the restructuring sector in period 2 is large.

### 3 Trade Policy during Transition

#### 3.1 Trade Policy in a Static Setting

In order to clarify the structure of the model for the political process, it will first be developed for a static setting. The model is a highly simplified version of a probabilistic voting model (cf. Calvert 1986, Coughlin 1992, Austen-Smith 1987, 1991, Mayer and Li 1994 and also Grossman and Helpman 1994) without interest group competition. This kind of model seems to be particularly apt for the situation during transition because it emphasizes the fundamental uncertainty of the political process, which is a crucial characteristic of transitional economies. In these countries well-established structures of the political process do not yet exist. Parties as well as interest groups

are only just developing. Even electoral laws, institutions and procedures of policy-making are still subject to repeated and fundamental changes. There is no settled party system and lacking experience with elections or party affiliations of the electorate. In effect, politicians in these economies have only very limited knowledge of the voting behaviour of the electorate.

At least to some extent, this uncertainty is depicted in probabilistic voting models. Candidates – or parties for that sake – make policy announcements in order to maximize expected votes. The political process is characterized by an inherent uncertainty because candidates have only limited information on the voting decision by voters. They know the preferences of voters with regard to different policies but they cannot be sure how these preferences together with their own policy announcements transform into votes. Candidates realize, however, that the probability of getting the votes of a certain group are the higher the closer they are to the policy preferences of the group.

The policy announcement analysed here concerns trade policy: the choice of a tariff. Preferences with regard to trade policy are, however, only one dimension in the set of policy preferences of voters. In the following it is assumed, that all these other policy dimensions can be aggregated into a “reform bias” term,  $\beta$ . Different groups have different preferences with regard to the course and extent of reforms. Similarly, parties differ in their reform inclination, i.e. to what extent and at what pace they intend to pursue reforms. The “reform biases” then indicate to what extent the reform policy of the reform party is preferred by a certain group of voters to that one of the competing party. Put differently, for  $\beta = 0$ , a voter is just indifferent between the candidates’ reform policies and, everything else being equal, the probabilities for getting the vote of this voter are  $1/2$  for both candidates.

It is assumed that the position of candidates with regard to reforms is given exogenously and is not itself part of a competitive process. In the specific context of transitional economies, this seems to be an acceptable simplification. There are mainly two opposing groups in the beginning: the old communist party on the one hand and reformers on the other. Both inherit their positions with regard to reforms from history and these positions are fixed in the eyes of voters. It may be possible to gradually change these positions, but this aspect will be neglected in the current paper.

In the present context there are essentially two different groups of voters: workers in state firms and in private firms. Workers in restructuring firms can always be assigned to one of these groups. As long as restructuring has not yet begun, they still belong to the state sector. They therefore cast their vote in the same way as all other workers in the state sector. In the following elections, some restructuring will have taken place, and these restructuring firms have become part of the private sector. Workers in these restructured firms now cast their vote as any other worker in the private sector would.



The probability of getting the vote of a specific member of these groups is described by a function  $q^j, j = X, Y$  for the reform party and  $1 - q^j$  for the opposition. The probability that the reform party gets a specific vote depends positively on the voter's utility resulting from the reformers' trade policy announcement, positively on the group's reform bias  $\beta$  and in some non-observable way on stochastic influences that are captured by the term  $\mu$ .

In the elections at the beginning of period 1, no restructuring has yet taken place and the size of the state sector ( $N_0^Y$ ) and of the private sector ( $N_0^X$ ) is inherited from central planning. The optimization problem for the reform party thus is to choose a trade policy announcement,  $t_1$  which maximizes expected votes (EV):

$$\begin{aligned} \max_{t_1} EV &= N_0^X q^X \{ V[p + t_1, i_1^x(t_1)], \beta^X, \mu \} + N_0^Y q^Y \{ V[p + t_1, i_1^y(t_1)], \beta^Y, \mu \} \\ &= N_0^X q^X(t_1, \beta^X, \mu) + N_0^Y q^Y(t_1, \beta^Y, \mu) \end{aligned} \quad (27)$$

$\beta^X$  and  $\beta^Y$  reflect the "reform bias" of members of group  $X$  and  $Y$  respectively. It is assumed throughout that  $\beta^X > \beta^Y$ , i.e. – loosely speaking – that workers in the private sector are more in favour of reforms (and thus the reform politicians) as are workers in the state sector. It should be noted, that  $\beta^X$  and  $\beta^Y$  can in principle also be negative in the case of a group *opposing* reforms.

As has already been seen in the preceding section, the preferences with regard to trade policies of different groups are not straightforward. The income of both workers in the state and the private sector may rise or decline when the degree of protection increases. Moreover, both groups are adversely affected from protection as consumers. Therefore, there is considerable ambiguity with regard to trade policy preferences. As the "normal" case, however, it is assumed that the state sector, as the sector that has been heavily protected under central planning, will benefit from protection and that the private sector will lose from protection of the state sector, i.e. that the direct effect of protection on the income shares dominates all other effects.

Announcing protection of the state sector then increases the probability that the reform candidate gets the votes of the workers in the state sector ( $\frac{\partial q^Y}{\partial t} > 0$ ). The effectiveness of protectionism as an instrument for increasing this probability will decrease with higher levels of protection ( $\frac{\partial^2 q^Y}{\partial t^2} < 0$ ). Similarly, it is also assumed that the marginal effect of protection on the election probability is lower when  $\beta^Y$  is higher ( $\frac{\partial^2 q^Y}{\partial t \partial \beta^Y} < 0$ ). When  $\beta^Y$  is "large", the probability that state sector workers vote in favour of reform parties is already "large" as well. Increasing this probability still further by protection will then be more difficult.

Costs of protection arise for the reform politicians in the form of a decreasing probability that voters employed in the private sector vote for them ( $\frac{\partial q^X}{\partial t} < 0$ ). It is also assumed that there are "increasing costs" of protection in terms of lost votes by workers in the private sector ( $\frac{\partial^2 q^X}{\partial t^2} < 0$ ). As in the case of the state sector it is further assumed that with a high reform bias of private sector workers, the voting

decision is less sensitive to increasing protection ( $\frac{\partial^2 q^X}{\partial t \partial \beta^X} > 0$ ). In other words, if the reform politician is very popular with the private sector, protection will have a smaller marginal effect as compared to a case where the reform politician is less popular.

#### Politically Optimal Trade Policy:

An optimal trade policy announcement is characterized by equating marginal losses and marginal gains from protection (in terms of lost votes or additional votes):

$$N_0^Y \frac{\partial q^Y}{\partial t_1} = -N_0^X \frac{\partial q^X}{\partial t_1} \quad (28)$$

It is quite evident that the level of protection announced by reform parties is the higher, the more people are employed in the state sector at the beginning of transition. This result in isolation corroborates the idea mentioned above that there are large and influential groups in transitional economies (the workers in the state sector) that lose from liberalizing trade and that the larger this group is, the more protectionist policies will be pursued. An interesting feature resulting directly from the above assumptions is that the announced level of protection increases with increasing reform biases of the private sector and decreases with a higher reform bias in the state sector. More liberal trade policies could therefore be expected in countries where the reform inclination is high in the whole economy, i.e. especially in the state sector. This alone, however, cannot explain the course of trade policy during transition. High reform inclinations of the population may explain the adoption of liberal trade policies in some countries and the failure to adopt liberal trade policies in countries where the reform bias is low and reforms proceed altogether fairly slow. What can, however, not be explained is a) the switch to more protectionist policies in countries where during early stages of reform liberal policies were adopted and b) that liberal trade policies are adopted also in countries, where on the whole reforms proceed very slowly and the reform inclination in the state sector appears to be fairly low.

### **3.2 Trade Policy in a Dynamic Setting**

In the above setting, the formulation of trade policies has been treated as a static problem. Trade policies are influenced exclusively by the circumstances in the present period. Parties do not take into account effects that their policies may have in later periods. This may be attributed to an extremely short time horizon of politicians. It may, however, also simply reflect perfect political competition. Any deviation from the policy announcement which is politically optimal given the present parameters will only favour the opposing party (parties). Strong political competition thus implicitly leads parties to neglect longer term effects and to concentrate only on the effects in the current period.

Given the situation in transitional economies at the start of reforms, however, one observes only very weak political competition. The political cleavage typically separates reform parties from the formerly ruling communist or bloc parties. In the case that the latter lost power, they lost it completely, which means that given the policies they had pursued over decades, they have become politically unacceptable. On the other side of the political spectrum, reform “forces” still form a fairly homogeneous bloc and try to formulate policies in a consensual way – a tendency that was reflected in “round tables” in various countries or the foundation of a “civic forum” in the former CSFR.

By now the situation has changed in most countries. One could observe a split-up of the reformers into several competing parties, while at the same time the “old” parties were obviously successful in convincing voters that they succeeded in internal reforms and that they now stand for different policies. The “return” of many “reform communist” parties to power is a clear manifestation that by now many of these parties have become politically acceptable again. In short, what has obviously taken place is a certain normalization of the political process with increased political competition. The above model of trade policy formation in a static setting may therefore be a more accurate description of the present situation of “normal policies”. It may be less adequate for the initial phases of “extraordinary policy”.

Lacking political competition provides reform governments with political leeway. One can think of many ways in which politicians may use this political leeway, like pursuing some (economically) optimal policy, pursuing ideological objectives or maximizing their own income. The most obvious and consistent assumption, however, is that reform politicians can now afford to formulate policies not only with a view to present political popularity but also with regard to their political fate in future periods.

The politically optimal policy should maximize the probability of electoral success in more than one period. The simplest representation of the reform party’s objective (for the two periods explicitly considered here) would thus be:

$$\max_{t_1, t_2} [\delta EV_1 + (1 - \delta) \rho EV_2] \quad (29)$$

with

$$EV_1 = N_0^X q^X(t_1, \beta^X, \mu) + N_0^Y q^Y(t_1, \beta^Y, \mu) \quad (30)$$

and

$$EV_2 = (N_0^X + N_1^Z) q^X(t_2, \beta^X, \mu) + (N_0^Y - N_1^Z) q^Y(t_2, \beta^Y, \mu) \quad (31)$$

The parameter  $\delta$  is a measure of the degree of political competition. If reform governments can be sure of being elected in the present period whatever policy they

announce,  $\delta$  equals 0. The formulation of trade policy in period 1 will then only care for the effects of this policy on the election outlook in period 2. Perfect political competition implies that  $\delta = 1$ , i.e. politicians can take into consideration only the effects of trade policy on political popularity in the present period. Finally, the discount factor  $\rho$  is applied here for measuring the time horizon of politicians.

In the above formulation, it has also been assumed that the probability of getting the votes of a specific group depends only on the trade policy announced for the present period. In the elections at the beginning of period 1 voters take into consideration only the announcements  $t_1$  and in the elections at the beginning of period 2 they care exclusively for  $t_2$ . In other words, voters are not forward-looking at elections, i.e. they do not calculate some present value of all present and future policy announcements by a certain politician to base their voting decision on. In more stable political systems with well-established party systems one should think that voters can take into account these longer term aspects in their voting decision. In the situation of transitional economies, however, voters cannot even be sure that a specific party will still exist when elections take place in the future. Again, given this extreme level of uncertainty, where virtually everything is in a state of flux, the assumption that voters care only for the present period seems reasonable.

Under these assumptions, the optimization problem of the politician can be analysed separately for both periods. The optimal policy announcement for the elections in period 2,  $t_2$ , is simply determined as in the static case discussed above. With regard to the policy announcement for period 1,  $t_1$ , the politician can, however, take into account that the level of restructuring  $N_1^Z$  depends on the level of protection:

$$N_1^Z = N_1^Z(t_1) \quad (32)$$

It has been shown above that protection may either increase or decrease the level of restructuring. Concentrating on the presumably more relevant case of short time horizons of investors, however, restructuring can be accelerated by trade liberalization ( $\partial N_1^Z / \partial t_1 < 0$ ).

The condition for an politically optimal trade policy announcement in the first period then is:

$$\delta \left\{ N_0^X \frac{\partial q^X}{\partial t_1} + N_0^Y \frac{\partial q^Y}{\partial t_1} \right\} + (1 - \delta) \rho \left\{ \frac{\partial N_1^Z}{\partial t_1} [q^X(t_2, \beta^X, \mu) - q^Y(t_2, \beta^Y, \mu)] \right\} = 0 \quad (33)$$

The difference to the static case of trade policy formulation from above is that the reform politicians now take into account the effect of trade policy on the size of the state sector and the private sector in the second period. As long as  $q^X(t_2, \beta^X)$  remains larger than  $q^Y(t_2, \beta^Y)$  the level of protection in period one will decrease compared to a situation where there is perfect political competition. The smaller  $\delta$  and the higher the sensitivity of restructuring to changes in protection ( $\frac{\partial N_1^Z}{\partial t_1}$ ), the

lower will be protection in period 1. By forcing restructuring, reform politicians can build up political constituencies because this increases the size of the private sector in period 2 which in turn increases their probability of electoral success. In period 2 there is no more political leeway and depending on the size of the state sector in the second period the policy announcement of reform politicians may now reintroduce protectionist policies.

## 4 Optimal Restructuring and Trade Policy

It has been shown in the preceding section that a lack of political competition during early stages of transition provides reform politicians with political leeway and that it can be an optimal strategy for them to use this leeway in order to pursue liberal trade policies, regardless of any adjustment costs that are incurred by this strategy. A standard political economy analysis could stop at this point. Some additional interesting insights can, however, be derived from a discussion of some normative issues concerning “optimal” levels of restructuring and trade policy.

It should be emphasized that it is extremely problematic to address issues of “optimal” policies in the present context. The political economy analysis starts off from the assumption that non-distortionary redistribution cannot be achieved and that therefore decisions on trade policy are driven in the first place by distributional issues and only in the second place by “efficiency” aspects. Given the simple structure of the present paper with identical utility functions of households, an aggregated utility function  $V^* = V_1(p + t_1, I_1^w) + \rho V_2(p + t_2, I_2^w)$  that depends on aggregate incomes, may appear to suggest itself as a measure of welfare and as a guideline for the evaluation of trade policies. Strictly speaking, however, this is inconsistent with the preceding analysis and offers only a very hypothetical measure for the evaluation of trade policies.<sup>13</sup>

There are mainly two reasons why it may nevertheless be well worth carrying out this policy evaluation exercise. Firstly, the traditional view on transitional economies emphasizes that political leeway for reform politicians is something desirable because reformers can use it for the pursuit of a “big bang” strategy that enhances transition and makes it irreversible (cf. Lipton and Sachs 1990 or IMF et al. 1990). The preceding analysis has shown that accelerating transition may indeed be a rational strategy for reform politicians. There remains, however, the question whether this also constitutes the “best” possible policy. Secondly, and from a more theoretical point of view, the political economy of trade policy typically concentrates on showing how the political process leads to protectionist policies and thus to Pareto-inferior outcomes. The analysis in this paper illustrates that the relation between endogenous trade policies and optimal policies may be by far subtler than this.

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<sup>13</sup>Similar problems have been addressed e.g. by Rodrick 1986.

Accepting the above mentioned aggregated utility function as a measure for policy evaluation and assuming constant marginal utility of income, the optimal level of restructuring should maximize the present value of aggregate income:<sup>14</sup>

$$I^* = N_0^X x + (N_0^Y - N_1^Z)py + N_1^Z [x - c(N_1^Z)] + \rho \{ N_0^X x + (N_0^Y - N_1^Z)py + N_1^Z x \} \quad (34)$$

The condition for an optimal level of restructuring requires that the marginal gains from restructuring (in terms of additional output in period 1 and 2) are just offset by the marginal losses (in terms of lost output due to adjustment costs):

$$[c_N N_1^Z + c(N_1^Z)] = (1 + \rho)(x - py) \quad (35)$$

In the case of a short-sighted society, this condition reduces to

$$c_N N_1^Z + c(N_1^Z) = x - py \quad (36)$$

This implicitly defines the optimal level of  $N_1^Z$ . The question then is, whether decentral restructuring decisions lead to larger or smaller levels of restructuring. Under free trade, the decentrally determined levels of restructuring are given by

$$c(N_1^Z) = x - py \quad (37)$$

in the case of short-sighted investors and

$$c(N_1^Z) = (1 + \rho)(x - py) \quad (38)$$

in the case of forward-looking investors.

In both cases, decentral decisions on restructuring under free trade will lead to “too much” restructuring because the costs of restructuring are only partially taken into account. As long as restructuring depends negatively on protection, some protection may be optimal in order to avoid excessive adjustment costs.<sup>15</sup> It is evident that the

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<sup>14</sup>It is assumed that  $\rho$ , the discount factor for investors, at the same time also denotes the time preferences of all households.

<sup>15</sup>An optimal trade policy would require to weigh the potentially positive effect of protection on aggregate income against the negative effect on consumers via increasing the relative price of state sector output. It should also be noted that trade policy may not be the “best” policy instrument for controlling restructuring. The negative impact on consumers’ welfare can be avoided when a more direct instrument like a production subsidy is used. Some arguments why trade policy may nevertheless be the preferred choice of policy instrument are summarized in Rodrick (1994). For the case of transitional economies, there is an additional argument: given the tradition of central planning and very direct interference into economic decisions, less direct measures like trade policy may be preferred as a policy instrument exactly because they constitute a less direct form of interference into private economic decisions.

optimal level of protection in period 1 and/or 2 will result from the political process by sheer coincidence. What can be concluded, however, is that too much political leeway for reform politicians can be negative, because a small tariff may be preferable to free trade when taking into account the effects on adjustment costs. On the other hand, it equally holds that too much political competition is negative when it results in excessive protection. It can, however, not be argued that political leeway in period 1 will in any case be something desirable and that protection in period 2 resulting from increased political competition is always something negative.

## 5 Concluding Remarks

The main objective of this paper has been to offer a theoretically consistent explanation for trade liberalization during early stages of transition. Free trade is not seen as the policy pursued by some well-meaning (benevolent) reform politician. It is also not assumed that trade policy is simply driven by the ideological precommitment of politicians or that it simply reflects policy “mistakes” in the context of imperfect information, arguing that politicians are ignorant of the true adjustment costs and wrongly think that free trade were the “optimal” policy in a welfare theoretic sense. Instead, it has been shown in this paper that trade liberalization (and the strategy of a “big bang” for that sake) – despite the decline in output associated with excessive restructuring – can be interpreted as a perfectly rational strategy of reform politicians maximizing their probability of electoral success.

Apart from this immediate objective, the paper can also shed some light on two more general issues. Firstly, the analysis in this paper has shown that the relation between political economy analyses of certain policies on the one hand and normative analyses on the other is by far more intricate as often perceived. Most political economy analyses are integrated into purely neo-classical frameworks, i.e. into models without any (exogenous) distortions. The only distortions taken into account are endogenously determined in the political process. As a consequence, the conclusions of these models are typically not much favourable with regard to the political process: It is obviously the logic of the political process that in some way or the other leads to suboptimal outcomes. The analysis in this paper has illustrated the ambiguities which may arise when the analysis of political economy issues is combined with more realistic models of distorted economies.

Secondly, the analysis in this paper also provides an example for the importance of a dynamic perspective in the political economy analysis of policy making. The policies adopted in a certain period have effects in later periods not only in terms of aggregate income or distribution, but may also change the structure of the political process. This may thus be an explanation why e.g. many reform programs proceed gradually. Over time, the relative influence of different groups can change and thus

policies can be politically achievable that appear unattainable at a given point in time. The political economy analysis of policy making remains incomplete if these longer term effects of policies on the structure of the political process are neglected.<sup>16</sup>

## Appendix

### A.1. Distributional Effects of Trade Policy with Short-Sighted Investors

The effects of protection on individual incomes can be separated into an effect on the income share and an effect via changes in aggregate income:

$$di_1^j = I_1^w d\alpha_1^j + \alpha_1^j dI_1^w \quad (\text{A.1})$$

- The effect of protection on *aggregate income* is:

$$\frac{dI_1^w}{dt_1} = \left( -\frac{y}{c_N} \right) [x - c(N_1^Z) - py - c_N N_1^Z] \quad (\text{A.2})$$

The first term captures the effect of a tariff on the level of restructuring and is unambiguously negative. The second term captures the effect of restructuring on aggregate income at international prices. According to equation (22)  $x - c(N_1^Z) - py = t_1 y$ . Aggregate income is therefore increased by protection when  $t_1 y < c_N N_1^Z$  and decreased when  $t_1 y > c_N N_1^Z$ .

- The effect of protection on the *income share* of state sector workers is:

$$\frac{d\alpha_1^y}{dt_1} = \frac{1}{(I_1^d)^2} \left[ y I_1^d - (p + t_1) y \frac{dI_1^d}{dt_1} \right] \quad (\text{A.3})$$

Taking into account that  $x - c(N_1^Z) - (p + t_1)y = 0$  and that  $\frac{dN_1^Z}{dt_1} = -\frac{y}{c_N}$  the effect of tariffs on aggregate income at domestic prices is given by:

$$\frac{dI_1^d}{dt_1} = N_0^Y y > 0 \quad (\text{A.4})$$

Substituting this into equation (A.3), the effect of protection on the income share of state workers is

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<sup>16</sup>It should be noted that the analysis undertaken here is in some sense a mirror image of an argument by Brainard and Verdier (1994). In their model, they have shown that the tariff level in one period depends positively on the tariff level in former periods, precisely because the influence of protected interest groups remains larger.



$$\frac{d\alpha_1^y}{dt_1} = \frac{1}{(I_1^d)^2} (yN_0^X x) > 0. \quad (\text{A.5})$$

The overall effect of a tariff on the income of workers in the state sector and the restructuring sector is ambiguous: in cases where  $t_1$  is “low” ( $t_1 y < c_N N_1^Z$ ), the effect is positive; it can only be negative when the effect on the share of income is comparatively “low” ( $yN_0^X x$  is small) and when  $t_1$  is “high” ( $t_1 y > c_N N_1^Z$ ).

- The effect on the *income share* of private sector workers is unambiguously negative:

$$\frac{d\alpha_1^x}{dt_1} = \frac{1}{(I_1^d)^2} \left( -x \frac{dI_1^d}{dt_1} \right) < 0. \quad (\text{A.6})$$

The overall effect of protection on the income of private sector workers can thus only be positive when the tariff is still so “low” that the positive effect of a tariff on aggregate income more than compensates the negative impact on the income share.

## A.2. Effects of Trade Policy on Restructuring with Forward-Looking Investors

In order to derive the relation between the level of restructuring and the level of protection of the state sector, totally differentiating equation (26) yields:

$$\begin{aligned} dN_1^Z & \left[ \left( \frac{\partial \alpha_1^z}{\partial N_1^Z} - \frac{\partial \alpha_1^y}{\partial N_1^Z} \right) I_1^w + (\alpha_1^z - \alpha_1^y) \frac{\partial I_1^w}{\partial N_1^Z} \right] + \\ & + dt_1 \left[ \left( \frac{\partial \alpha_1^z}{\partial t_1} - \frac{\partial \alpha_1^y}{\partial t_1} \right) I_1^w + (\alpha_1^z - \alpha_1^y) \frac{\partial I_1^w}{\partial t_1} \right] = \\ = -\rho & \{ dN_1^Z \left[ \left( \frac{\partial \alpha_2^z}{\partial N_1^Z} - \frac{\partial \alpha_2^y}{\partial N_1^Z} \right) I_2^w + (\alpha_2^z - \alpha_2^y) \frac{\partial I_2^w}{\partial N_1^Z} \right] + \\ & + dt_2 \left[ \left( \frac{\partial \alpha_2^z}{\partial t_2} - \frac{\partial \alpha_2^y}{\partial t_2} \right) I_2^w + (\alpha_2^z - \alpha_2^y) \frac{\partial I_2^w}{\partial t_2} \right] \} \end{aligned} \quad (\text{A.7})$$

Solving for the partial derivatives and substituting yields:

$$\begin{aligned} dN_1^Z & \left\{ \frac{I_1^w}{(I_1^d)^2} [-c_N I_1^d - [x - c(N_1^Z)][x - c(N_1^Z) - (p + t_1)y - c_N N_1^Z] + \right. \\ & + (p + t_1)y[x - c(N_1^Z) - (p + t_1)y - c_N N_1^Z]] + \\ & \left. + (\alpha_1^z - \alpha_1^y)(x - c(N_1^Z) - py - c_N N_1^Z) + \right\} \end{aligned}$$

$$\begin{aligned}
& + \rho \left[ -\frac{I_2^w}{(I_2^d)^2} [x - (p + t_2)y]^2 + (\alpha_2^z - \alpha_2^y)(x - py) \right] \} = \\
= & -dt_1 \left\{ \frac{I_1^w}{(I_1^d)^2} [-[x - c(N_1^Z)](N_0^Y - N_1^Z)y - \right. \\
& \left. - yI_1^d + (p + t_1)y(N_0^Y - N_0^Z)y] \right\} - \\
& -dt_2 \left\{ \frac{I_2^w}{(I_2^d)^2} [-x(N_0^Y - N_1^Z)y - \right. \\
& \left. - yI_2^d + (p + t_2)y(N_0^Y - N_0^Z)y] \right\} \tag{A.8}
\end{aligned}$$

The effects in this equation can be interpreted as follows:

- Protection in period 1 ( $dt_1 > 0$ ) has no direct effect on aggregate income measured at international prices ( $\frac{\partial I_1^w}{\partial t_1} = 0$ ). This term can therefore be neglected. Protection raises the income share of state sector workers ( $\alpha_1^y$ ) in the first place by  $y/I_1^d$ . This in isolation raises the relative loss of the restructuring sector in period 1. Protection, however, also increases  $I_1^d$ , which reduces the income share of both state sector workers and workers in the restructuring sector. As  $(p + t_1)y > x - c(N_1^Z)$  this effect hurts state sector workers more than workers in restructuring firms and the income differential in period 1 declines. Overall, however, it can be shown that protection in the first period increases the relative loss to workers in restructuring firms. The overall effect of protection in period 1 on the income differential can be rewritten as

$$-\frac{I_1^w}{(I_1^d)^2} [(x - c(N_1^Z))N_0^Y y + yN_0^X x] < 0.$$

- The effects of protection in the second period ( $dt_2 > 0$ ) are perfectly analogous. Rearranging, the effect of protection on the income differential in period 2 is

$$-\frac{I_2^w}{(I_2^d)^2} [yI_2^d + [x - (p + t_2)y](N_0^Y - N_1^Z)y] < 0.$$

Protection in period 2 thus reduces the income differential between the state sector and the restructuring sector, i.e. the gain to restructuring firms in period 2 relative to the state sector is decreased by protection.

- As in the case of short-sighted investors, protection changes the income differential between the state sector and the restructuring sector in favour of the state sector. In the previous case, this tendency could be countered by decreasing the level of restructuring, which reduces adjustment costs and thereby affects the income differential in favour of the restructuring sector. In the present case, the picture is more complicated.

- As before, reducing the level of restructuring reduces the costs of restructuring by  $c_N N_1^Z$ , which reduces the loss in period 1. Decreasing  $N_1^Z$  also lowers  $I_1^d$ , which reduces the income share of workers in both sectors but affects state sector workers comparatively more. The three expressions in square brackets in the braces on the left hand side can be reduced to

$$-c_N I_1^d - [x - c(N_1^Z) - (p + t_1)y - c_N N_1^Z][x - c(N_1^Z) - (p + t_1)y] < 0$$

This effect in isolation implies that decreasing the level of restructuring ( $dN_1^Z < 0$ ) increases the income share of workers in the restructuring sector in period 1 relative to state sector workers.

- The second expression in the braces on the left hand side denotes the effect of the level of restructuring on the income differential via changes in  $I_1^w$ . This effect remains ambiguous:  $[x - c(N_1^Z) - py - c_N N_1^Z]$  may either be positive or negative. If it is positive, aggregate income rises when restructuring increases. This also increases the income loss to workers in the restructuring sector in period 1. If it is negative, increasing levels of restructuring reduce aggregate income, which changes the income differential in favour of the restructuring sector. If  $N_1^Z$  is “large” ( $c_N N_1^Z > x - c(N_1^Z) - py$ ) the relative income loss of workers in restructuring firms declines when more restructuring is taking place. If  $N_1^Z$  is “small”, ( $c_N N_1^Z < x - c(N_1^Z) - py$ ), the relative income loss of workers in restructuring firms declines when less restructuring is taking place.
- In the case of forward-looking investors, the restructuring decision is also affected by income differentials in the second period. Increasing levels of restructuring increase  $I_2^w$ . Given that the income share of workers in the restructuring sector is higher than that of state sector workers, this increases the income differential in the second period in favour of the restructuring sector. This is captured by the last term on the left hand side of the equation. An additional effect works in the second period that worsens the income differential from the point of view of restructuring firms. Increasing levels of restructuring raise aggregate income at domestic prices, which reduces the income share of both types of workers, but affects workers in the restructuring sector more adversely. It can, however, be shown that increasing levels of restructuring increase the gain from restructuring in the second period, because the effect in the second period can be summarised as

$$\rho \frac{1}{I_2^d} [x - (p + t_2)y] \left[ \left(1 - \frac{I_2^w}{I_2^d}\right) (x - py) + \frac{I_2^w}{I_2^d} t_2 y \right] > 0.$$

Summing up, (A.8) can be rewritten as:

$$\begin{aligned}
dN_1^Z & \underbrace{\left\{ \frac{I_1^w}{(I_1^d)^2} [-c_N I_1^d - [x - c(N_1^Z) - (p + t_1)y][x - c(N_1^Z) - (p + t_1)y - c_N N_1^Z]] \right\}}_{(-)} + \\
& \underbrace{+ (\alpha_1^z - \alpha_1^y)[x - c(N_1^Z) - py - c_N N_1^Z]}_{(?)} + \\
& \underbrace{+ \rho \frac{1}{I_2^d} [x - (p + t_2)y] \left[ \left(1 - \frac{I_2^w}{I_2^d}\right)(x - py) + \frac{I_2^w}{I_2^d} t_2 y \right]}_{(+)} = \\
= & dt_1 \underbrace{\left\{ \frac{I_1^w}{(I_1^d)^2} [(x - c(N_1^Z))N_0^y y + yN_0^x x] \right\}}_{(+)} + \\
+ & dt_2 \underbrace{\left\{ \rho \frac{I_2^w}{(I_2^d)^2} [yI_2^d + [x - (p + t_2)y](N_0^y - N_1^Z)y] \right\}}_{(+)} \tag{A.9}
\end{aligned}$$

From equation (A.9) it can be seen that  $\frac{\partial N_1^Z}{\partial t_1}$  and  $\frac{\partial N_1^Z}{\partial t_2}$  can both be positive when e.g.  $\rho$  is “large” (investors have a long time horizon),  $t_2$  is “small” (the gain to the restructuring sector is large in period 2) or when  $c_N N_1^Z > x - c(N_1^Z) - py$  (higher levels of restructuring decrease aggregate income in period 1 which reduces the relative loss of the restructuring sector in period 1).

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