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AUTOCRACY, DEMOCRACY AND TRADE POLICY

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ABSTRACT

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Autocracy, Democracy and Trade Policy*

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Abstract

This paper develops a politico-economic model for use in studying the role of intra-elite conflict in the simultaneous determination of a country's political regime, trade policy and income-tax-based redistribution scheme. Three socioeconomic groups are involved: two elite groups and workers, whose preferences regarding trade policy and income taxation are derived from a simple open-economy model. The critical point is that income taxation induces a rich-poor/elite-workers political cleavage, while trade policy opens the door to intra-elite conflict. In this model, when there is no intra-elite conflict, changes in trade policy are associated with political transitions. Coups (democratizations) open up the economy if and only if both elite factions are pro-free-trade (protectionist). However, in the presence of intra-elite conflict, autocracies respond to popular revolts by changing trade their policy and reallocating political power within the elite (to the elite group with the same trade policy preference as the workers) rather than offering to democratize the country. The change in trade policy is credible because the elite group with the same trade policy preference as the workers controls the autocracy. Moreover, in the presence of intra-elite conflict, coups tend to result in the maintainance of the existing trade policy unless popular demands are extremely radical and/or the elite group with the same trade policy preference as the workers is exceptionally weak.

JEL Classification: D72, D78.

Keywords: trade policy, democratization, coups, intra-elite conflict

1 Introduction

The question as to what factors determine the institutional framework of collective decision-making is central to political economy and has received considerable attention in the literature (see, for example, the classic contributions of Lipset, 1959; Moore, 1966; Luebbert, 1991; Rustow, 1970; Linz and Stepan, 1978; O'Donnell, 1973; O'Donnell and Schmitter, 1986; Dahl, 1971; and Olson, 1993). In a very important work, Acemoglu and Robinson (2000, 2006) make a significant contribution to this literature by developing a

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politico-economic model of autocracy and democracy in which the income-distribution conflict, mediated by different political institutions, emerges as the main determinant of the political regime. In this paper we build on their framework in order to explore the connections between political transitions and trade policy with a view to contribute to a broader understanding of political transitions and the political economy of trade policy.

Some political transitions from autocracy to democracy or vice versa occur in conjunction with changes in trade barriers. Others do not. Two illustrative, but radically different, examples are those of Great Britain in the nineteenth century and Argentina in the twentieth century. On the one hand, Great Britain moved toward free trade in 1846 (with the repeal of the Corn Laws) before becoming a democracy. The repeal of the Corn Laws undercutt the economic interests of the ruling landed aristocracy, proved that industrialists were gaining control of Parliament, and placated the working-class Chartist movement, which was seeking a more radical reform of Parliament (see Searle, 1993, and Schonhard-Bailey, 2006). Thereafter, Great Britain had a stable free-trade policy throughout its transition to a fully consolidated democracy. In Argentina, on the other hand, after workers had voted on a large scale for the first time in 1946, an urban-rural cleavage consolidated which lasted until the advent of the autocracy in 1976.[1] This new political equilibrium brought the economy to the verge of autarky. Democracy did not take hold, and a series of transitions to autocracy and back to a constrained form of democracy took place during this period. However, none of the autocratic governments that ruled the country until the coup of 1976, which deposed a highly populist government, opened up the economy to any significant degree (see Mallon and Sourrouille, 1975; O'Donnell, 1977; and Brambilla, Galiani and Porto, 2010).[2]

More systematic evidence on the connections between political transitions and trade policy can also be found. For example, O'Rourke and Taylor (2006), using panel data on tariffs, democracy and factor endowments for the period 1870-1914, show that democratization raises tariffs in countries with high land-labor ratios and lowers tariffs in countries with high capital-labor ratios, though this latter effect is smaller and not always significant (see Table 2 in O'Rourke and Taylor, 2002). These results should not, after all, be surprising, since trade policy has been portrayed as an important determinant of political cleavages throughout history (see, among others, Rogowski, 1987 and 1989; Gourevitch, 1986; Findlay and O'Rourke, 2007; Galiani, Schofield and Torrens (2012); and Acemoglu and Yared, 2010). However, to the best of our knowledge, no study has been done that actually models the connections between political transitions and trade policy. In this paper we formally characterize these connections by developing a model of political regime determination coupled with endogenous trade policy.

The key components of our model are a politically determined trade policy and the possibility of intra-elite conflict over trade policy. The intuition is relatively simple. When there is intra-elite conflict over trade policy, one of the elite groups has the same trade policy preference as the people, while the other elite group has the opposite trade policy preference. In other words, when there is intra-elite conflict over trade policy, the political cleavage that exists in relation to trade policy differs from the rich-poor/elite-non-elite cleavage.[3] This lack of alignment in political cleavages has two political implications. First,

[1] As explained by O'Donnell (1977) , at least until 1976, the alliance of the industrialists and landowners in Argentina lasted only for short periods, while "dissolving rapidly into situations which repeatedly put these two dominant fractions of the Argentine bourgeoisie in different political camps."

[2] Other more recent examples are the move made by countries of Eastern-Europe in the 1990s to embrace both democracy and free trade and the descent into dictatorship and autarchy of much of Africa following independence in the 1950s and 1960s.

[3] The critical point is that trade policy opens the door to a type of political cleavage that differs from the rich-poor

an autocracy controlled by the elite group that has the same trade policy preference as the people can placate the supporters of a popular revolt more easily than one that is controlled by the elite group that has the opposite trade policy preference. This is because an elite group that has the same trade policy preference as the people can credibly commit to implementing the people's preferred trade policy even after the threat of a revolt has died down. Second, the elite group that has the same trade policy preference as the people will have ambiguous feelings about autocratic governments controlled by the other faction of the elite, since such governments will, on the one hand, reduce redistribution from the elite toward the people but will also, on the other hand, implement a trade policy that is detrimental to the interests of the elite group that share's the people's trade policy preference.

The model provides a good explanation for the experiences of Great Britain and Argentina. The first political implication outlined above accounts for the first Reform Act as well as the repeal of the Corn Laws in nineteenth-century Great Britain. The protectionist, landed aristocracy, fearing a revolution, conceded a significant portion of its political power to the pro-free-trade commercial and industrial elite. This political reform averted democratization and paved the way for a switch in trade policy. The second political implication accounts for the coups that resulted in the continuance of import-substitution policies and the coup that was followed by the opening of the economy in Argentina in the second half of the twentieth century. While democracy was not extremely populist, industrialists supported only those autocracies that advocated industrial protection, but when the proponents of radical tendencies seemed to be on the brink of dominating the country's democratic institutions, the industrialists tacitly accepted the opening of the economy.

Beyond these historical examples, the model points to general, testable implications of the connections between political transitions and trade policy. In the absence of intra-elite conflict over trade policy, political transitions are associated with changes in trade policy. Specifically, when both elite groups are pro-free-trade (protectionist) coups (democratizations) will open up the economy. In the presence of intra-elite conflict, autocracies can postpone democratization by engineering a reallocation of political power within the elite (to the elite group with the same trade policy preference as the workers). The intuition is that this reallocation will induce a credible change in trade policy. In the presence of intra-elite conflict, coups will tend to lead to the maintainance of the existing trade policy, because otherwise the elite group with the same trade policy preference as the workers will not support the coup. However, when democracy becomes extremely populist and/or the elite group with the same trade policy preference as the workers is exceptionally weak, a coup will lead to a change in trade policy.

There are several other papers that relate to our work. First, there are number of studies that draw attention to the significance of intra-elite conflict in different contexts. Lizzeri and Persico (2004) have developed a model of democratization in which only the majority of the elite needs to support the extension of the franchise, while there can be a minority group within the elite that loses ground as a result of this type of reform. Acemoglu (2010) develops a model of State capacity in which the effectiveness of intra-elite conflict in controlling the State intensifies as the State's capacity grows and as more efficient forms of taxation and redistribution therefore become available. The key finding is that the destructive effect of more intra-elite conflict can offset the beneficial effect of increased State capacity. Ghosal and Proto (2008) build a model of democratization in which intra-elite conflict plays a crucial role. They

cleavage. Indeed, though we focus on the role of trade policy in this paper, our model applies to any policy variable that could potentially divide the elite. An obvious example is the development of a no-fee school system, which might be opposed by landowinig elites but supported by industrialist elites (see Galor, Moav, and Vollrath, 2009).

develop a coalition formation game with two elite groups that are uncertain about their relative future level of political power and a non-elite group that cannot act collectively. Under autocracy, the stronger elite group obtains all the surplus, while, under democracy, the weaker elite group forms a coalition with the non-elite group, which induces a more balanced division between the elites. Democratization occurs when the elites are sufficiently risk-averse. Our model incorporates the same general idea as that put forward by Ghosal and Proto (2008), i.e., that an elite group may be willing to form a coalition with the non-elite group in order to improve its bargaining power with the other elite group.

Beyond this, however, there are several differences. Our model is a non-cooperative one with no explicit coalition formation. In addition, in Ghosal and Proto (2008), there is only one policy variable –the division of a unit of surplus– while, in our model, there are two: income taxation and trade policy. Thus, in our model, there can be two different political cleavages: one based on income taxation and the other based on trade policy. Another important difference is that we use the Acemoglu and Robinson (2006) framework, in which democratization has nothing to do with risk aversion; rather, the crucial element is the type of institutional change that the elites will accept as a credible means of transferring political power in order to avert a revolt. The novel aspects of our model are: that democracy may now be more costly for one elite group (the one with opposite trade policy preferences to those of the non-elite group) than for the other; that the elite groups must bargain with one another in order to reach a decision as to which one will control the autocracy and, hence, which trade policy the autocracy will implement; and, finally, that the non-elite group is not indifferent as to which group controls the autocracy and that it may be able to influence this decision.

Second, there is an extensive body of literature on the ways in which international trade affects domestic political alignments (see, among others, Rogowski, 1987 and 1989). In most cases, these studies informally assume a political economy model. We, on the other hand, use a formal model of policy determination. More importantly, much of the existing literature focuses on the political cleavages that result from the effects of international trade on different social groups, while paying little attention to other potential political cleavages that might interact with the ones generated by the effects of international trade. Thus, the underlying model of policy determination is one-dimensional. In contrast, we consider a two-dimensional policy space in which political cleavages in respect of trade policy may or may not coincide with political cleavages in other dimensions, such as those associated with redistribution through income taxation. In other words, protectionist and pro-free-trade coalitions may differ from poor and rich coalitions. This has important implications for both the political regime and trade policy.

The rest of the paper is organized as follows. In Section 2, we introduce an open economy model of a society made up of two elite groups and one non-elite group which must make two collective decisions: once concerning income taxation and the other dealing with trade policy. We show that standard trade models are compatible with this model and demonstrate how intra-elite conflict over trade policy naturally arise in standard trade models, depending on domestic factor endowments and international prices. In Section 3, we incorporate this model into a dynamic political transition game. In Section 4 we define and characterize the equilibrium of the game. In Section 5 we fully characterize political transitions in the absence and in the presence of intra-elite conflict over trade policy. In Section 6 we illustrate the results using historical examples of intra-elite conflict. In Section 7, we present our conclusions.

2 The Economy

In this section we build a model of a society that is composed of three socioeconomic groups: two elite groups and one non-elite group. This society must arrive at two collective decisions: one about income taxation and one about trade policy. We first describe a general economic environment. Then, we show that several trade models are compatible with our specification.

2.1 Economic Environment

Consider a society formed by three socioeconomic groups: two elite groups, denoted by K and L (for example, industrialists and landowners), and a non-elite group called "the people" and denoted by N (for example, workers). Let n_i be the proportion of the population that belongs to group $i = K, L, N$, and let $y_{i,t}$ be the gross income (before any redistribution scheme) of a member of group i in period t. In each period, the government runs a balanced budget redistribution scheme that taxes the income of all citizens at a rate $\tau_t \in [0,1]$ and redistributes the proceeds through a lump-sum transfer. Income taxation is costly, as the government must incur a cost of $C(\tau)$ units of output in order to collect τ units of output in taxes, where the cost function C is strictly increasing and strictly convex, and $C(0) = 0$ and $C'(0) < 1 - \frac{y_N}{\bar{y}} < C'(1)$ (for example, $C(\tau) = \frac{\tau^{1+\eta}}{1+\eta}$, with $\eta \geq 0$). In each period, the government also selects a trade policy $\lambda_t \in \{A, F\}$, , where A denotes autarky and F free trade.

The per period utility function of a member of group i is given by:

$$v_i(\tau_t, \lambda_t) = (1 - \tau_t) y_i(\lambda_t) + [\tau_t - C(\tau_t)] \bar{y}(\lambda_t), \tag{1}$$

where $y_i(\lambda_t)$ is the the gross income of a member of group i when the trade policy is λ_t and $\bar{y}(\lambda_t) = \sum_i n_i y_i(\lambda_t)$ is the average income of society when trade policy is λ_t.[4] The expected utility of a member of group i at time t is given by:

$$V_i = \mathbf{E}_t \left\{ \sum_{u=t}^{\infty} \delta^{u-t} v_i(\tau_u, \lambda_u) \right\}, \tag{2}$$

where $\delta \in (0,1)$ is the common discount factor and $\mathbf{E}_t$ is the expectation operator taken over the probability distribution of sequences of the form $\{\tau_u, \lambda_u\}_{u=t}^{\infty}$.

Each group in society can either lose or win with different trade policies, depending on the particular trade model that we have in mind. We say that group i is *pro-free-trade* (*protectionist*) if and only if $y_i(F) > y_i(A)$ ($y_i(A) > y_i(F)$).[5] We focus on economies for which protectionism is costly in the sense that $\bar{y}(F) > \bar{y}(A)$ and in which at least one group loses with a change in trade policy.[6] We impose some structure on income distribution and the effect that international trade has on it.

[4] It is possible to replace the redistribution scheme with a public good financed with income taxation. In order to see this, suppose that the utility of a member of group i is $v_i = (1-\tau) y_i(\lambda) + H(g)$, where g is the level of the public good. Assume that H is strictly increasing and strictly concave, $H(0) = 0$ and $H'(\bar{y}) < \frac{y_P}{\bar{y}} < 1 < H'(0) < \min_i \frac{y_i}{\bar{y}}$. Since, the government budget constraint is $\tau \bar{y} = g$, then the utility of a member of group i is given by $v_i(\tau, \lambda) = (1-\tau) y_i(\lambda) + H(\tau \bar{y}(\lambda))$, which can be easily obtained in our model if we set $C(\tau) = \tau - \frac{H(\tau \bar{y})}{\bar{y}}$. Moreover, it is not difficult to prove that this cost function satisfies all the proper assumptions. For example, $C(0) = 0 - \frac{H(0)}{\bar{y}} = 0$.

[5] For a more detailed discussion of how to induce the trade policy stance of each group see Section 2.2.

[6] We can even conceive of cases in which all groups win or all groups lose if the economy is opened up, but the political economy of trade policy in such cases is not very interesting, as we can simply ignore trade policy as a relevant policy variable.

Assumption 1: The elite groups have above-average incomes, while the people have below-average incomes, regardless of the type of trade policy that is in effect, i.e.,

$$\min_{i\in\{K,L\}} y_i(\lambda) > \bar{y}(\lambda) > y_P(\lambda) \text{ for } \lambda \in \{A, F\}$$

Using Assumption 1 we can compute the most preferred policy of each group, which we denote by (τ_i, λ_i). Formally,

$$(\tau_i, \lambda_i) = \arg\max_{(\tau,\lambda)} \{(1-\tau) y_i(\lambda) + [\tau - C(\tau)] \bar{y}(\lambda)\}$$

For an elite group it is always the case that $y_i(\lambda) > \bar{y}(\lambda)$. Therefore, for $i = K, L$, $\tau_i = 0$ and $\lambda_i = \arg\max_\lambda y_i(\lambda)$. That is, an elite group prefers no income taxation and a trade policy that maximizes its gross income. For the people, $y_i(\lambda) < \bar{y}(\lambda)$, which implies that the people's decision reduces to a comparison of a pair of policies. Specifically, let $\tau_N(\lambda)$ be the income tax rate that maximizes the people's utility when trade policy is λ; in other words, $\tau_N(\lambda)$ is the unique solution of the following equation:

$$C'(\tau_N(\lambda)) = 1 - \frac{y_N(\lambda)}{\bar{y}(\lambda)}.^7$$

Then, $\lambda_N = \arg\max_\lambda v_N(\tau_N(\lambda), \lambda)$ and $\tau_N = \tau_N(\lambda_N)$. Note that τ_N clearly depends on how trade policy affects income distribution and particularly on how it affects the income share of the populace $(n_N y_N(\lambda)/\bar{y}(\lambda))$. Due to this interdependence, it is possible that, even if the populace is protectionist, they may prefer the combination of a free-trade policy and the tax rate $\tau_N(F)$ to a protectionist trade policy and $\tau_N(A)$. The following assumption rules out such a situation, however.

Assumption 2: If the people are *pro-free-trade*, they prefer $(\tau_N(F), F)$ to $(\tau_N(A), A)$, while if they are *protectionist*, they prefer $(\tau_N(A), A)$ to $(\tau_N(F), F)$. Formally,

$$y_N(F) > y_N(A) \Rightarrow v_N(\tau_N(F), F) > v_N(\tau_N(A), A),$$
$$y_N(A) > y_N(F) \Rightarrow v_N(\tau_N(A), A) > v_N(\tau_N(F), F).$$

Assumption 2 simply says that income taxation is not enough to change the people's stance on trade policy. The key question is, of course, how strong this assumption is. On the one hand, when the populace is pro-free-trade, Assumption 2 is, in fact, very mild. In order to see this more clearly, we must distinguish between two possible situations. First, it may be the case that, although the peoples's gross income is higher under free trade, their income share is in fact lower under free trade, i.e., $y_N(F) > y_N(A)$, but $(n_N y_N(F)/\bar{y}(F)) < (n_N y_N(A)/\bar{y}(A))$. Then, $\tau_N(F) > \tau_N(A)$, which implies that, under free trade, the populace does not only have a higher gross income, but it also receives higher transfers (net of taxes). Thus, it is always the case that $v_N(\tau_N(F), F) > v_N(\tau_N(A), A)$. Second, it may be the case that the populace's gross income and income share are both higher under free trade, i.e., $y_N(F) > y_N(A)$ and $(n_N y_N(F)/\bar{y}(F)) > (n_N y_N(A)/\bar{y}(A))$. Then $\tau_N(F) < \tau_N(A)$ and, therefore, $(1-\tau_N(F)) y_N(F) > (1-\tau_N(A)) y_N(A)$, which implies that the only situation in which the populace

[7] The solution is unique because $C'(0) < 1 - \frac{y_N}{\bar{y}} < C'(1)$ and C is strictly convex.

prefers $(\tau_N(A), A)$ to $(\tau_N(F), F)$ is when $\tau_N(A)$ is sufficiently higher than $\tau_N(F)$ so that transfers under protectionism are much higher than under free trade. This is very unlikely and, in fact, is impossible for some specifications of the cost function C. On the other hand, when the populace is protectionist, it must be the case that $(n_N y_N(A)/\bar{y}(A)) > (n_N y_N(F)/\bar{y}(F))$, which implies that $\tau_N(F) > \tau_N(A)$. Then, Assumption 2 is somewhat more robust, since it is always possible to conceive of a cost function C that induces low enough costs of income taxation so that the populace would prefer to have a higher tax rate levied on a bigger tax base under free trade than to have a lower tax rate levied on a smaller tax base under protectionism. Conversely, if the costs of income taxation are relatively high, then the opposite is true, and the people will prefer $(\tau_N(A), A)$ to $(\tau_N(F), F)$. In the rest of this paper, we assume that Assumptions 1 and 2 hold.

The above discussion also shows what types of redistribution can be induced by trade policy that are not possible under a redistribution scheme based solely on income tax. If there is no intra-elite conflict over trade policy (say, for instance, that both elite factions are protectionist and the people are pro-free-trade), then trade policy provides the elite with a way to "transfer" income from the people to the elite (by closing the economy). It also gives the people an opportunity to "transfer" income from the elite (by opening up the economy). If there is intra-elite conflict (the setting we emphasize throughout this paper), then trade policy becomes a more interesting instrument, since it allows redistribution from one elite faction to the other elite group and to the people and vice versa. This cannot be accomplished through income taxation and is a key element that paves the way to a number of very interesting political interactions.

2.2 Factor Endowments, International Trade and Intra-Elite Conflict

Most trade models are compatible with our three-group model and are capable of inducing intra-elite conflict over trade policy, depending on the levels reached by domestic factor endowments and international prices or world factor endowments. We will now briefly review three international trade models while focusing on two issues. First, we show how these models can be used to provide micro-foundations for our model. Second, we derive the conditions under which these models induce intra-elite conflict over trade policy. We close the section with general micro-founded definitions of a group stance on trade policy and intra-elite conflict over trade policy.

Consider an economy with three final goods, denoted by $j = X, Y, Z$, and three primary inputs, denoted by $i = K, L, N$. Let Y_j denote the consumption of j and let Q_j be the production of good j. Assume that preferences and production functions are Cobb-Douglass, i.e.,

$$U = (Y_X)^{\beta_X}(Y_Y)^{\beta_Y}(Y_Z)^{\beta_Z},\ Q_j = (K_j)^{\alpha_{K,j}}(N_j)^{\alpha_{N,j}}(L_j)^{\alpha_{L,j}} \text{ for } j = X, Y, Z,$$

where $\beta_j \geq 0$, $\sum_j \beta_j = 1$, $\alpha_{i,j} \geq 0$, $\sum_i \alpha_{i,j} = 1$, for $i = K, L, N$ and $j = X, Y, Z$. Let $\mathbf{E} = (K, L, N)$ be the vector of factor endowments in the economy. Define the capital-labor and land-labor ratios by $k = K/N$ and $l = L/N$, respectively. When necessary, we refer to factor endowments of the domestic (world) economy using the subindex d (w). For instance, K_d (K_w) indicates the domestic (world) endowment of capital, and k_d (k_w) is the domestic (world) capital-labor ratio. Let TG (NTG) be the set of tradeable (non-tradeable) goods. Therefore, the economy can be summarized as the tuple

$\mathbf{M} = \langle \mathbf{A}, \mathbf{B}, \mathbf{E}, (TG, NTG) \rangle$, where:

$$\mathbf{A} = \begin{bmatrix} \alpha_{K,X} & \alpha_{K,Y} & \alpha_{K,Z} \\ \alpha_{L,X} & \alpha_{L,Y} & \alpha_{L,Z} \\ \alpha_{N,X} & \alpha_{N,Y} & \alpha_{N,Z} \end{bmatrix}, \mathbf{B} = \begin{bmatrix} \beta_X \\ \beta_Y \\ \beta_Z \end{bmatrix}, \mathbf{E} = \begin{bmatrix} K \\ L \\ N \end{bmatrix}, (TG, NTG).$$

Let w_i^A (w_i^A) denote the equilibrium price of factor $i = K, L, N$ under autarky (free trade), p_j the price of good $j = X, Y, Z$, and P the consumer price index. Then, the gross income of a member of socioeconomic group $i = K, L, N$ is given by $y_K(\lambda) = \frac{w_K^\lambda K_d}{n_K}$, $y_L(\lambda) = \frac{w_L^\lambda L_d}{n_L}$, and $y_N(\lambda) = \frac{w_N^\lambda N_d}{n_N}$ for $\lambda = A, F$.

Model 1: Simple Factor-Specific Model. Consider an economy in which each final good is tradeable and is produced using a simple linear technology, i.e., $Q_X = K$, $Q_Y = L$, $Q_Z = N$. Thus, the economy is given by $\mathbf{M}^1 = \langle \mathbf{A}^1, \mathbf{B}^1, \mathbf{E}^1, (TG^1, NTG^1) \rangle$, where $\mathbf{A}^1 = \mathbf{I}_{3\times 3}$, $\mathbf{B}^1 > \mathbf{0}$, $TG^1 = \{X, Y, Z\}$, and $NTG^1 = \emptyset$.

In Appendix 1, we compute the equilibrium under autarky as well as the equilibrium of an integrated world economy and we show that international trade replicates the integrated equilibrium for any allocation of factor endowments to given countries. Comparing factor prices under autarky and under an integrated equilibrium, we show that: $w_i^F > w_i^A$ if and only if $h_i^1(\mathbf{E}_d, \mathbf{E}_w) > 0$, where $h_K^1(\mathbf{E}_d, \mathbf{E}_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X - 1}\left(\frac{l_w}{l_d}\right)^{\beta_Y} - 1$, $h_L^1(\mathbf{E}_d, \mathbf{E}_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X}\left(\frac{l_w}{l_d}\right)^{\beta_Y - 1} - 1$, and $h_N^1(\mathbf{E}_d, \mathbf{E}_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X}\left(\frac{l_w}{l_d}\right)^{\beta_Y} - 1$. Thus, there is intra-elite conflict over trade policy if and only if

$$\left(\frac{k_w}{k_d}\right) > \max\left\{\left(\frac{l_w}{l_d}\right)^{\frac{\beta_Y}{1-\beta_X}}, \left(\frac{l_w}{l_d}\right)^{\frac{1-\beta_Y}{\beta_X}}\right\} \text{ or } \left(\frac{k_w}{k_d}\right) < \min\left\{\left(\frac{l_w}{l_d}\right)^{\frac{\beta_Y}{1-\beta_X}}, \left(\frac{l_w}{l_d}\right)^{\frac{1-\beta_Y}{\beta_X}}\right\}. \quad (3)$$

Figure 1.a depicts the trade policy stance of each group as a function of world factor endowments for $\beta_X = \beta_Y = 0.25$ and $\beta_Z = 0.50$.[8] Intra-elite conflict occurs when the domestic capital-labor ratio differs from the world capital-labor ratio and the domestic land-labor ratio is similar to the world land-labor ratio or vice versa. In other words, biases in the abundance of capital or land per worker relative to world endowments produce intra-elite conflict.[9]

For a small open economy that cannot affect international prices $w_i^F > w_i^A$ if and only if $h_i^1(\mathbf{E}_d, p^*) > 0$, where $h_K^1(\mathbf{E}_d, p^*) = ep_X^* - \beta_X(k_d)^{\beta_X - 1}(l_d)^{\beta_Y}$, $h_L^1(\mathbf{E}_d, p^*) = ep_Y^* - \beta_Y(k_d)^{\beta_X}(l_d)^{\beta_Y - 1}$, $h_N^1(\mathbf{E}_d, p^*) = ep_Z^* - \beta_Z(k_d)^{\beta_X}(l_d)^{\beta_Y}$, and $e = \frac{(\beta_X)^{\beta_X}(\beta_Y)^{\beta_Y}(\beta_Z)^{\beta_Z}}{(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z}}$. Thus, there is intra-elite conflict over trade policy if and only if

$$\min\left\{\frac{\beta_Y(k_d)^{\beta_X}(l_d)^{\beta_Y - 1}}{p_Y^*}, \frac{\beta_X(k_d)^{\beta_X - 1}(l_d)^{\beta_Y}}{p_X^*}\right\} < e < \max\left\{\frac{\beta_Y(k_d)^{\beta_X}(l_d)^{\beta_Y - 1}}{p_Y^*}, \frac{\beta_X(k_d)^{\beta_X - 1}(l_d)^{\beta_Y}}{p_X^*}\right\}. \quad (4)$$

Figure 1.b shows the trade policy stance of each group as a function of international prices.

[8] The Mathlab code ADTP-Model-1-Figs.m generates all the figures based on Model 1.

[9] Moreover, the magnitude of the bias necessary to produce intra-elite conflict increases with β_Z. The intuition is that, as the share household income that is expended on labor-intensive goods decreases, differences in labor endowments will become less important and, hence, small biases in capital or land endowments will be enough to induce intra-elite conflict.

See Figure 1: Simple Factor-Specific Model

Model 2: Ricardo-Viner Factor-Specific Model. Consider an economy with two final goods, each produced using a Cobb Douglass production function, i.e., $Q_X = (K_X)^{\alpha_{K,X}} (N_X)^{\alpha_{N,X}}$, $Q_Y = (L)^{\alpha_{L,Y}} (N_Y)^{\alpha_{N,Y}}$. Note that capital and land are specific factors, while labor can move freely between the two industries. Thus, the economy is given by $\mathbf{M}^2 = \langle \mathbf{A}^2, \mathbf{B}^2, \mathbf{E}^2, (TG^2, NTG^2) \rangle$, where:

$$\mathbf{A}^2 = \begin{bmatrix} \alpha_{K,X} & 0 & 0 \\ 0 & \alpha_{L,Y} & 0 \\ \alpha_{N,X} & \alpha_{N,Y} & 0 \end{bmatrix}, \mathbf{B}^2 = \begin{bmatrix} \beta_X \\ \beta_Y \\ 0 \end{bmatrix}, \text{ and } TG^2 = \{X, Y, Z\}.$$

In Appendix 1, we prove that international trade always replicates the integrated equilibrium for any allocation of factor endowments to given countries. Comparing factor prices under autarky and under an integrated equilibrium we show that $w_i^F > w_i^A$ if and only if $h_i^2(\mathbf{E}_d, \mathbf{E}_w) > 0$, where $h_K^1(\mathbf{E}_d, \mathbf{E}_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X - 1} \left(\frac{l_w}{l_d}\right)^{\beta_Y} - 1$, $h_L^2(\mathbf{E}_d, \mathbf{E}_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X} \left(\frac{l_w}{l_d}\right)^{\beta_Y - 1} - 1$, and $h_N^2(\mathbf{E}_d, \mathbf{E}_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X} \left(\frac{l_w}{l_d}\right)^{\beta_Y} - 1$. Thus, there is intra-elite conflict over trade policy if and only if

$$\left(\frac{k_w}{k_d}\right) > \max \left\{ \left(\frac{l_w}{l_d}\right)^{\frac{\alpha_{L,Y}\beta_Y}{1-\alpha_{K,X}\beta_X}}, \left(\frac{l_w}{l_d}\right)^{\frac{1-\alpha_{L,Y}\beta_Y}{\alpha_{K,X}\beta_X}} \right\} \text{ or} \tag{5a}$$

$$\left(\frac{k_w}{k_d}\right) < \min \left\{ \left(\frac{l_w}{l_d}\right)^{\frac{\alpha_{L,Y}\beta_Y}{1-\alpha_{K,X}\beta_X}}, \left(\frac{l_w}{l_d}\right)^{\frac{1-\alpha_{L,Y}\beta_Y}{\alpha_{K,X}\beta_X}} \right\}. \tag{5b}$$

Figure 2.a depicts the trade policy stance of each group as a function of world factor endowments for $\beta_X = \beta_Y = 0.50$, $\alpha_{K,X} = 0.25$, and $\alpha_{L,Y} = 0.75$.[10] As in Model 1, intra-elite conflict arises when the biases in the abundances of capital or land per worker relative to the world endowments are high enough. The difference is that now the magnitude of the bias also depends on how labor-intensive industries X and Y are.

For a small open economy $w_i^F > w_i^A$ if and only if $h_i^2(\mathbf{E}_d, p^*) > 0$, where $h_K^2(E_d, p^*) = \frac{(k_d)^{\alpha_{K,X}}}{(l_d)^{\alpha_{L,Y}}} \left(\frac{p_X^*}{p_Y^*}\right) (\gamma_{N,X}(F))^{\frac{\alpha_{N,X}}{\beta_Y}} - \left(\frac{c\beta_X}{P}\right)^{\frac{1}{\beta_Y}}$, $h_L^2(\mathbf{E}_d, p^*) = \frac{(l_d)^{\alpha_{L,Y}}}{(k_d)^{\alpha_{K,X}}} \left(\frac{p_Y^*}{p_X^*}\right) (1 - \gamma_{N,X}(F))^{\frac{\alpha_{N,Y}}{\beta_X}} - \left(\frac{c\beta_Y}{P}\right)^{\frac{1}{\beta_X}}$, $h_N^2(E_d, p^*) = \frac{(k_d)^{\alpha_{K,X}}}{(l_d)^{\alpha_{L,Y}}} \left(\frac{p_X^*}{p_Y^*}\right) (\gamma_{N,X}(F))^{\frac{-\alpha_{K,X}}{\beta_Y}} - \left(\frac{c\beta_X}{P\gamma_{N,X}}\right)^{\frac{1}{\beta_Y}}$, $P = (\beta_X)^{\beta_X}(\beta_Y)^{\beta_Y}$ and $\gamma_{N,X}(F)$ is the fraction of labor employed in industry X. Since $h_K^2(\mathbf{E}_d, p^*) > 0$ if and only if $\frac{p_Y^*}{p_X^*} < \frac{\beta_Y c_X}{\beta_X c_Y}$, while $h_L^2(\mathbf{E}_d, p^*) > 0$ if and only if $\frac{p_Y^*}{p_X^*} > \frac{\beta_Y c_X}{\beta_X c_Y}$ there is always intra-elite conflict over trade policy. Figure 2.b shows the trade policy stance of each group as a function of the terms of trade $\left(\frac{p_Y^*}{p_X^*}\right)$ for $\beta_X = \beta_Y = 0.50$, $\alpha_{K,X} = 0.25$, and $\alpha_{L,Y} = 0.75$.

See Figure 2: Ricardo-Viner Factor-Specific Model

[10] The Mathlab code ADTP-Model-2-Figs.m generates all the figures based on Model 2.

Model 3: Simple Model with a Non-Tradeable Good. Consider an economy with three final goods, two of which (X and Y) are tradeable while the other (Z) is non-tradeable. Specifically, assume that the production functions are $Q_X = (K_X)^{\alpha_{K,X}} (N_X)^{\alpha_{N,X}}$, $Q_Y = (K_Y)^{\alpha_{K,Y}} (L_Y)^{\alpha_{L,Y}}$ and $Q_Z = N_Z$. Thus, the economy is given by $\mathbf{M}^3 = \left\langle \mathbf{A}^3, \mathbf{B}^3, \mathbf{E}^3, \left(TG^3, NTG^3\right)\right\rangle$, where:

$$\mathbf{A}^3 = \begin{bmatrix} \alpha_{K,X} & \alpha_{K,Y} & 0 \\ 0 & \alpha_{L,Y} & 0 \\ \alpha_{N,X} & 0 & 1 \end{bmatrix}, \mathbf{B}^3 > \mathbf{0}, TG^3 = \{X, Y\}, NTG^3 = \{Z\}.$$

In Appendix 1, we prove that, unless there is a very particular distribution of factor endowments among countries, international trade cannot replicate the integrated equilibrium. Hence, under free trade, at least one country specializes in the production of Q_Y. Indeed, a small open economy specializes in the production of Q_Y if and only if $\left(\frac{p_Y}{p_X}\right)(l_d)^{\alpha_{L,Y}} (k_d)^{\alpha_{N,X}-\alpha_{L,Y}} \geq \frac{\alpha_{K,X}}{\alpha_{K,Y}} \left[\frac{\alpha_{N,X}\alpha_{K,Y}(\beta_X+\beta_Y)}{\alpha_{K,X}\beta_Z}\right]^{\alpha_{N,X}}$. In Appendix 1, we also prove $w_i^F > w_i^A$ if and only if $h_i^3(\mathbf{E}_d, p^*) > 0$, where:

$$h_K^3(\mathbf{E}_d, p^*) = h^3(k_d, l_d)\frac{p_Y^*}{p_X^*}\left(\frac{\gamma_{N,X}(F)}{\gamma_{K,X}(F)}\right)^{\frac{\beta_Z}{\beta_X}} (1-\gamma_{K,X}(F))^{-\frac{\alpha_{L,Y}(1-\beta_Z)}{\beta_X}} - \left(\frac{\beta_Y c}{P\gamma_{K,Y}}\right)^{\frac{1}{\beta_X}} \overline{h}^3 \tag{6a}$$

$$h_L^3(\mathbf{E}_d, p^*) = h^3(k_d, l_d)\frac{p_Y^*}{p_X^*}\left(\frac{\gamma_{N,X}(F)}{\gamma_{K,X}(F)}\right)^{\frac{\beta_Z}{\beta_X}} (1-\gamma_{K,X}(F))^{\frac{\alpha_{K,Y}+\beta_Z\alpha_{L,Y}}{\beta_X}} - \left(\frac{\beta_Y c}{P}\right)^{\frac{1}{\beta_X}} \overline{h}^3 \tag{6b}$$

$$h_N^3(\mathbf{E}_d, p^*) = h^3(k_d, l_d)\frac{p_Y^*}{p_X^*}\left(\frac{\gamma_{K,X}(F)}{\gamma_{N,X}(F)}\right)^{\frac{1-\beta_Z}{\beta_X}} (1-\gamma_{K,X}(F))^{-\frac{\alpha_{L,Y}(1-\beta_Z)}{\beta_X}} - \left(\frac{\beta_X c}{P\gamma_{N,X}}\right)^{\frac{1}{\beta_X}} \overline{h}^3 \tag{6c}$$

$$h^3(k_d, l_d) = (l_d)^{\alpha_{L,Y}} (k_d)^{\alpha_{N,X}-\alpha_{L,Y}} \tag{6d}$$

$$\overline{h}^3 = \begin{cases} \left(\frac{\alpha_{N,X}\alpha_{K,Y}}{\alpha_{K,X}}\right)^{\frac{\beta_Z}{\beta_X}}, & \textit{for a specialized economy,} \\ \left(\frac{\beta_Z}{\beta_X+\beta_Y}\right)^{\frac{\beta_Z}{\beta_X}}, & \textit{for a diversified economy,} \end{cases} \tag{6e}$$

where $P = (\beta_X)^{\beta_X}(\beta_Y)^{\beta_Y}(\beta_Z)^{\beta_Z}$ and $\gamma_{K,X}(F)$ ($\gamma_{N,X}(F)$) is the fraction of capital (labor) employed in industry X. Figure 3 depicts the trade policy stance of each group as a function of the terms of trade $\left(\frac{p_Y^*}{p_X^*}\right)$ for $\beta_X = \beta_Y = 0.25$, $\beta_Z = 0.50$, $\alpha_{K,X} = 0.60$, and $\alpha_{L,Y} = 0.75$.[11] Note that when the economy is specialized, both industrialists and landlords are pro-free-trade or, if industrialists are better off under autarky, there is intra-elite conflict. The intuition is as follows. Land is a specific factor that is fully employed in the rural export industry Y and, hence, landlords always prefer a free-trade policy. Although in a specialized economy all the capital is also employed in the rural industry, it is possible that industrialists would be better off under autarky because capital can move to manufacturing industry X. In a diversified economy that exports the land-intensive good industrialists tend to be protectionists (although this is not necessarily the case) while landlords are still pro-free-trade. Conversely, in a diversified economy that exports the labor-intensive good X, landlords becomes a protectionist group, while industrialists tend to favor a free-trade policy.

[11] The Mathlab code ADTP-Model-3-Figs.m generates all the figures based on Model 3.

See Figure 3: Simple Model with a Non-Tradable Good

In general, we can compute the equilibrium factor prices under autarky and free trade for any given economy. By comparing them, we can deduce the trade policy stance of each socioeconomic group and find the conditions under which there is intra-elite conflict over trade policy. Formally, we have the following definition.

Definition 1: For an open economy, let w_i^F and w_i^F denote the real price of factor $i = K, L, N$ under free trade and autarky, respectively. We say that group i is pro-free-trade if and only if

$$h_i = w_i^F - w_i^A > 0. \tag{7}$$

We say that there is intra-elite conflict over trade policy if and only if

$$h_L h_K < 0. \tag{8}$$

Remark 1: Note that w_i^A will be a function of domestic factor endowments $\mathbf{E}_d$. In the presence of factor price equalization, w_i^F is a function of world factor endowments $\mathbf{E}_w$. For a small open economy w_i^F is a function of domestic factor endowments and international prices of tradeable goods.

3 The Polity

The choice of who make collective decisions (τ, λ) in each period and under what restrictions is determined by the distribution of political power in society. We assume that there are two sources of political power: *de jure* power, which emanates from legal institutions, and *de facto* power, which emanates from the ability to change legal institutions. Political regimes allocate *de jure* political power to different groups in society. We consider two alternative political regimes: autocracy, and democracy. In an autocracy, the elites have the *de jure* political power and, hence, the government maximizes the elites' utility. However, sometimes autocracies face a threat of revolution, which temporarily gives *de facto* political power to the people. In a democracy, the people have the *de jure* political power and, hence, the government maximizes the people's utility. Sometimes democracies may face the threat of a coup, however, which temporarily gives *de facto* political power to the elites.[12]

Revolutions and coups are costly events. We assume that a fraction μ_t (φ_t) of the gross income of society is destroyed in a revolution (coup). The *de facto* political power conferred by the threat of a revolution or a coup is also transitory. A simple way of modeling this is to assume that, if the political regime is an autocracy, then, during any given period, there is some probability that the people will be able to overcome the collective action problem and thus pose a revolutionary threat. Similarly, if the political regime is a democracy, then, in any given period, there is some probability that the elite will be able to pose the threat of a coup. Formally, in an autocracy, with probability q, the cost of the revolution

[12]In general, it is very difficult to maintain the threat of a revolt or a coup for a long time. Perhaps this is because collective-action problems can be solved only under very special circumstances; or it might be the case that, given enough time, the legal authorities will always be able to mobilize enough resources to repress the insurgents. Thus, whatever the reason, the de facto political power conferred by the threat of a revolution or a coup tends to be short-lived.

is $\mu_t = \mu < 1$, while with probability $(1-q)$, the revolution has a prohibitive cost, which we indicate with the notation $\mu_t = \infty$. In a democracy, with probability r, the cost of the coup is $\varphi_t = \varphi < 1$, while with probability $(1-r)$, the cost of the coup is prohibitive, which we indicate by $\varphi_t = \infty$.

The timing of events within a given period in a democracy is as follows:

1. The state φ_t is revealed.
2. The people propose a policy (τ, λ) to be implemented by the democratic government.
3. One of the elite groups, indicated by $l \in \{L, K\}$, assesses the people's proposal and then chooses to mount a coup or not. If l mounts a coup, it also backs one of the elite groups to control the new dictatorship.
4. The other faction of the elite, indicated by $s \in \{L, K\}$, examines the people's proposal and l's move. If l has begun a coup, s must decide whether to support it or not. If s supports the coup, then the coup takes place, the new elite government takes form and the elite faction that controls it selects a policy. The coup costs a fraction φ_t of aggregate income. If s does not support the coup, then the coup fails and the elite cannot take power.
5. If there is no actual coup, either because l does not mount it, or because s does not support it, then the people's proposal is implemented.

The intuition behind this sequence is as follows. As in Acemoglu and Robinson (2006), we model a coup as a game between the elites and the people in which the people's promises are credible only when the elites can pose a credible coup threat. The new issue that we introduce is a second dimension of potential conflict: trade policy. In particular, although all members of the elites prefer the lowest income tax, they may disagree about trade policy. Also, the people may have a higher or lower propensity to implement protectionist policies, which implies that democracy may be more costly for one elite group and more attractive for the other. A direct consequence of introducing a second policy dimension and two elite groups is that a coup must be the outcome of bargaining between the elite groups. In the event of intra-elite bargaining over the possibility of staging a coup, we assume that one of the elite groups, denoted by l, takes the lead and decides whether or not to mount a coup and proposes which of the thow elite groups should control the new government, while the other elite group, denoted by s, has veto power. When both elite groups have the same trade policy preferences, it does not actually matter which one is l and which one is s, since $\lambda_l = \lambda_s \neq \lambda_N$. However, in the presence of intra-elite conflict over trade policy, it is very important to determine which elite group has the power to propose and which has veto power. We assume that the elite group s and the people share the same trade policy preference, i.e., $\lambda_l \neq \lambda_s = \lambda_N$. Note also that there is no credible commitment problem between the elite groups, since, once a coup has been mounted, only one group of the elite will control the new autocracy.

The timing of events within a given period in an autocracy is as follows:

1. The state μ_t is revealed.
2. The elite group that controls the autocracy decides whether to concede the control of the autocracy to the other elite group or not.

3. The elite group that controls the autocracy proposes democratization or a policy (τ, λ).

4. The people observe the elite's move and decide whether they should mount a revolution or not. If the elite offers to democratize the country and the people accept the offer, then they take over, and the new democratic government selects a policy. If the people organizes a revolution, all factor endowments are expropriated and redistributed evenly among the people, and the economy moves into autarky. The revolution costs a fraction μ_t of aggregate income, which includes the cost of organizing the revolution as well as the long-standing reduction in economic efficiency caused by the elimination of private property.

Only step 2 requires some explanation. The idea is that the elite group that controls the autocracy may prefer to concede control over the autocracy to the other elite group if that would help to avoid democratization. This concession is a reallocation of de jure political power between the elite groups which can be accomplished by extending the franchise or by means of any political reform that properly re-balances the legal rights of the two elite groups under the autocratic regime.

4 Equilibrium

In this section we define and characterize the equilibrium of the game. First, we formally define the dynamic political economy game and the corresponding notion of equilibrium. Second, we define and characterize the sets of promises that would placate a revolt, prevent a coup that would have given rise to a short-lived autocracy, and prevent a coup that would have given rise to a lasting autocracy. In the next section, we use these sets to fully characterize political transitions in the absence and in the presence of intra-elite conflict.

Recall that the tax rate τ is any real number between 0 and 1, i.e., $\tau \in [0,1]$; trade policy λ is a discrete variable that can take only two values (autarky and free trade, denoted by A and F, respectively), i.e., $\lambda \in \{A, F\}$; the cost of a revolt is an i.i.d. random variable that can take two values (low and prohibitive, denoted by μ and ∞, respectively), i.e., $\mu_t \in \{\mu, \infty\}$; and the cost of a coup is an i.i.d. random variable that can take two values (low and prohibitive, denoted by φ and ∞, respectively), i.e., $\varphi_t \in \{\varphi, \infty\}$. Finally, there are four different types of political institutions (autocracy controlled by l, autocracy controlled by s, democracy and revolution, denoted by $aut\,(l)$, $aut\,(s)$, dem, and rev, respectively).

We will restrict the analysis to Markov strategies, which means that the decision of player i in period t can only depend on the political regime at the beginning of the period, the realization of the random variables μ_t or φ_t, and the actions taken by other players in period t before i must move. A Markov strategy for elite group l is a function $\sigma_l = \left(\sigma_l^{aut(l)}, \sigma_l^{dem}\right)$, where:

$$\sigma_l^{aut(l)} : \{\mu, \infty\} \to \{aut\,(l) \times [0,1] \times \{A, F\}, aut\,(s), dem\}, \tag{9a}$$

$$\sigma_l^{dem} : \{\varphi, \infty\} \times [0,1] \times \{A, F\} \to \{aut\,(l), aut\,(s), dem\}. \tag{9b}$$

Elite group l must make a decision under two possible circumstances. When the political regime is an autocracy controlled by l, for every possible realization of μ_t, l must decide among three alternatives: stay in control of the autocracy, in which case l also selects a policy; concede control to s; or offer democratization. When the political regime is a democracy, for every realization of φ_t and every concession offered

by the people, l must select among three alternatives: mount a coup that gives rise to an autocracy controlled by l; mount a coup that gives rise to an autocracy controlled by s; or do not mount a coup.

A Markov strategy for the elite group s is a function $\sigma_s = \left(\sigma_s^{aut(s)}, \sigma_s^{dem}\left(aut\left(l\right)\right), \sigma_s^{dem}\left(aut\left(s\right)\right)\right)$, where:

$$\sigma_s^{aut(s)} : \{\mu, \infty\} \rightarrow \{aut\left(s\right) \times [0,1] \times \{A, F\}, dem\}, \tag{10a}$$

$$\sigma_s^{dem}\left(aut\left(l\right)\right) : \{\varphi, \infty\} \times [0,1] \times \{A, F\} \rightarrow \{aut\left(l\right), dem\}, \tag{10b}$$

$$\sigma_s^{dem}\left(aut\left(s\right)\right) : \{\varphi, \infty\} \times [0,1] \times \{A, F\} \rightarrow \{aut\left(s\right) \times [0,1] \times \{A, F\}, dem\}. \tag{10c}$$

Elite group s must make a decision under three possible sets of circumstances. When the political regime is an autocracy controlled by s, for every possible realization of μ_t, s must decide between two alternatives: to stay in control of the autocracy, in which case s also selects a policy, or to offer democratization. When the political regime is a democracy and the elite group l has decided to initiate a coup that will give rise to an autocracy controlled by l, for every realization of φ_t and every concession offered by the people, s must select between two alternatives: to support the coup or not to support it. When the political regime is a democracy and the elite group l has decided to initiate a coup that will give rise to an autocracy controlled by s, for every realization of φ_t and every concession offered by the people, s must select between two alternatives: to support the coup, in which case s must also select a policy, or not to support it.

A Markov strategy for the people is a function $\sigma_N = \left(\sigma_N^{dem}, \sigma_N^{aut(l)}, \sigma_N^{aut(s)}\right)$, where:

$$\sigma_N^{dem} : \{\varphi, \infty\} \rightarrow \{[0,1] \times \{A, F\}\}, \tag{11a}$$

$$\sigma_N^{aut(i)} : \{\mu, \infty\} \times [0,1] \times \{A, F\} \rightarrow \{aut\left(i\right), rev\} \text{ for } i = l, s. \tag{11b}$$

The people must make a decision under three different set of circumstances. When the political regime is a democracy, for every realization of φ_t, the people select a concession. When the political regime is an autocracy controlled by the elite group l (s), for every realization of μ_t and every concession offered by the elite, the people must decide if they accept the concession or if they are going to mount a revolt.

Let Σ_i be the set of Markov strategies of group $i = \{l, s, N\} = \{K, L, N\}$, $\sigma = (\sigma_l, \sigma_s, \sigma_N)$ a profile of Markov strategies and $\Sigma = \Sigma_l \times \Sigma_s \times \Sigma_P$. Any $\sigma \in \Sigma$ induces a probability distribution over sequences of collective actions $\{\tau_t, \lambda_t\}_{t=0}^{\infty}$. Let $V_i : \Sigma \rightarrow \Re$ be a function that assigns to every $\sigma \in \Sigma$, the discounted expected utility obtained by group i from the probability distribution over sequences of collective actions induced by σ, i.e., $V_i\left(\sigma\right) = \mathbf{E}_t\left\{\sum_{u=t}^{\infty} \delta^{u-t} v_i\left(\tau_u, \lambda_u\right)\right\}$.

Summing up, a political transition game with endogenous trade policy is a tuple $G = \left\langle \{l, s, N\}, (\Sigma_i, V_i)_{i=l,s,N} \right\rangle$, where $\{l, s, N\}$ is the set of players, Σ_i is the set of Markov strategies of player i (for a formal definition of a Markov strategy see (9), (10), and (11)), and $V_i : \Sigma \rightarrow \Re$ is the discounted utility function of player i (for a formal definition of V_i see (1) and (2)). Then, a Markov perfect equilibrium of this game is defined as follows.

Definition 2: A Markov perfect equilibrium of $G = \left\langle \{l, s, N\}, (\Sigma_i, V_i)_{i=l,s,N} \right\rangle$ is a strategy profile $\sigma = (\sigma_l, \sigma_s, \sigma_N)$ such that, for every $i = l, s, N$, the action indicated by σ_i in every possible circumstance in which i is called into play, maximizes $i's$ expected utility given the strategies of the other players.

In order to characterize the Markov perfect equilibrium, it is useful to define some threshold values for μ and φ. Let $\bar{\mu}(\tau, \lambda)$ denote the proportion of aggregate income that the people are willing to sacrifice in order to expropriate the elite instead of accepting (τ, λ). Formally:

$$\bar{\mu}(\tau, \lambda) = 1 - \frac{n_N v_N(\tau, \lambda)}{\bar{y}(A)}.$$

Let $\bar{\varphi}_i(\tau, \lambda, \lambda_j)$ denote the fraction of its income that the elite group i is willing to sacrifice in order to switch the policy from (τ, λ) to $(0, \lambda_j)$. Formally:

$$\bar{\varphi}_i(\tau, \lambda, \lambda_j) = 1 - \frac{v_i(\tau, \lambda)}{v_i(0, \lambda_j)}.$$

Next, we use these thresholds to compute the set of promises that placate groups that are threatening to stage a revolt, prevent a coup that would give rise to a short-lived autocracy, and prevent a coup that would give rise to a lasting autocracy.

1. Promises that placate a revolt. In Appendix 2 we prove that the set of promises that will placate a revolt when the autocracy is controlled by the elite group j is given by:

$$\bar{S}_R(\mu, \lambda_j) = \{(\tau, \lambda) \in S : \mu \geq [1 - \delta(1 - q)]\bar{\mu}(\tau, \lambda) + \delta(1 - q)\bar{\mu}(0, \lambda_j)\}.$$

The intuition is as follows. Suppose that the autocracy is controlled by the elite faction j, there is a threat of a revolt, and the elite promises to implement (τ, λ). For the period concerned, the elite's proposal is completely credible, but in the future it will be credible only when there is a threat of a revolt (an event that occurs with probability q), since, if there is no such threat (an event that occurs with probability $(1 - q)$), the elite government can safely implement $(0, \lambda_j)$. $q\bar{\mu}(\tau, \lambda) + (1 - q)\bar{\mu}(0, \lambda_j)$ indicates the proportion of aggregate income that the people are willing to sacrifice in order to expropriate the elite rather than accepting (τ, λ) with probability q and $(0, \lambda_j)$ with probability $(1 - q)$. Thus, $(1 - \delta)\bar{\mu}(\tau, \lambda) + \beta[q\bar{\mu}(\tau, \lambda) + (1 - q)\bar{\mu}(0, \lambda_j)]$ indicates the proportion of aggregate income that the people are willing to sacrifice in order to expropriate the elite rather than accepting (τ, λ) now and (τ, λ) with probability q and $(0, \lambda_j)$ with probability $(1 - q)$ in the future. Since, μ is the proportion of aggregate income that the people must sacrifice in order to mount a revolt and expropriate the elite, $\bar{S}_R(\mu, \lambda_j)$ is the set of promises that will placate those threatening to revolt.

2. Promises that prevent the establishment of a short-lived autocracy. In Appendix 2 we prove that the set of promises that will block a coup that would give rise to a short-lived dictatorship controlled by the elite group j is given by:

$$\bar{S}_C(\varphi, \lambda_j) = \{(\tau, \lambda) \in S : \text{there is } i \in \{L, K\} \text{ such that } [1 - \delta(1 - q)]\varphi \geq [1 - \delta(1 - q - r)]\bar{\varphi}_i(\tau, \lambda, \lambda_j) + \delta(1 - q - r)\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j)\}.$$

The intuition is as follows. Consider a situation in which the threat of a revolt forces the elite to offer to institute a democracy in order to dispel that threat. This means that, autocracies cannot be long-lasting because, sooner or later, a revolt will lead to a democracy. Suppose that we are in a democratic regime, there is the threat of a coup and the people promise to implement (τ, λ). During the period in question, the promise is completely credible, but, in the future, it will be credible only when there is the threat of a

coup (an event that occurs with probability r), since, when there is no such threat, the people can safely implement (τ_N, λ_N). Thus, if the elite does not mount a coup, with probability r, the policy is (τ, λ) and, with probability $(1-r)$, it is (τ_N, λ_N). Conversely, if every time that there is the threat of a coup the elite mounts a coup that gives rise to a dictatorship controlled by the elite faction j, then society will continuously switch back and forth between one political regime and the other. Under a democracy, the people will implement (τ_P, λ_P) until there is a coup and the policy is switched to $(0, \lambda_j)$, which in turn will be implemented until the threat of another revolt leads to another wave of democratization. Thus, from the point of view of the elite, the key difference between accepting the people's promise or not is that a coup would lead to $(0, \lambda_j)$ under circumstances in which the policy to be implemented would have been (τ, λ) or (τ_N, λ_N). More formally, $(1-\delta)\,\bar{\varphi}_i(\tau, \lambda, \lambda_j) + \delta\left[(r+q)\,\bar{\varphi}_i(\tau, \lambda, \lambda_j) + (1-r-q)\,\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j)\right]$ indicates the proportion of its income that elite group i is willing to sacrifice in order to get $(0, \lambda_j)$ instead of (τ, λ) now and (τ, λ), with probability $(r+q)$, and (τ_N, λ_N), with probability $(1-r-q)$, in the future. Engineering this policy change has an expected cost for the elite, which is given by $(1-\delta)\,\varphi + \delta q \varphi$ (the cost is expressed as a fraction of i's income). The first term is the immediate cost of mounting a coup, while the second term is the expected discounted cost of future coups (there will be a coup each time that a democracy is established, an event that occurs with probability q). Finally, the inequalities that characterize $\bar{S}_C(\varphi, \lambda_j)$ must be valid for only one $i \in \{L, K\}$ because only one elite groups needs to oppose the coup in order for it to fail.

3. Promises that prevent the establishment of a lasting autocracy. In Appendix 2 we prove that the set of promises that will block a coup which would give rise to a lasting dictatorship controlled by the elite faction j is given by:

$$\tilde{S}_C(\varphi, \mu, \lambda_j) = \{(\tau, \lambda) \in S : \text{there is } i \in \{L, K\} \text{ such that } (1-\delta)\,\varphi \geq \\ [1-\delta(1-r)]\,\bar{\varphi}_i(\tau, \lambda, \lambda_j) + \delta(1-r)\,\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j) - \delta q \bar{\varphi}_i(\tau(j), \lambda(j), \lambda_j)\}$$

where $(\tau(j), \lambda(j)) = \arg\max_{(\tau,\lambda)\in\bar{S}_R(\mu,\lambda_j)} \{v_j(\tau, \lambda)\}$.

The intuition is similar to the one associated with $\bar{S}_C(\varphi, \lambda_j)$. However, there is one key difference: once the elite mounts a coup, there will be no further attempt at democratization. This does not affect the value of what the people's offer, but it significantly changes the costs and benefits of a coup. Now a coup implements $(0, \lambda_j)$ when there is no threat of a revolt and $(\tau(j), \lambda(j))$ when there is a threat. More formally, $(1-\delta)\,\bar{\varphi}_i(\tau, \lambda, \lambda_j) + \delta\left[r\bar{\varphi}_i(\tau, \lambda, \lambda_j) + (1-r)\,\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j)\right]$ indicates the proportion of its income that elite group i is willing to sacrifice in order to obtain $(0, \lambda_j)$, instead of (τ, λ), now, and (τ, λ), with probability r and (τ_N, λ_N) with probability $(1-r)$ in the future. However, a coup cannot always implement $(0, \lambda_j)$, since, when there is the threat of a revolt, the elite must placate the potential rebels by offering $(\tau(j), \lambda(j))$. For this reason, we must subtract $\delta q \bar{\varphi}_i(\tau(j), \lambda(j), \lambda_j)$ from the benefits of a coup. In terms of the costs, in this situation, a coup occurs only once, which implies that a long-lasting dictatorship costs the elite (expressed as a fraction of its income) just $(1-\delta)\,\varphi$.

5 Political Transitions and Trade Policy

In this section we will fully characterize political transitions and trade policy. It is analytically convenient to study the case in which both elite groups have the same trade policy preference separately from the one in which there is intra-elite conflict over trade policy. First, we consider a society in which there is

no intra-elite conflict (Proposition 1). Second, we consider a society in which there is intra-elite conflict (Proposition 2). Finally, we use Propositions 1 and 2 and the international trade models of Section 2.2 to illustrate the equilibrium.

5.1 Political Regime and Trade Policy in the Absence of Intra-Elite Conflict

We can define the following thresholds for the cost of the revolt and the coup. The reader will recall that (τ_N, λ_N) is the people's most preferred policy and $\lambda_E = \lambda_l = \lambda_s$ is the elite's preferred trade policy.

$$\bar{\mu} = [1 - \delta(1-q)]\,\bar{\mu}(\tau_N, \lambda_N) + \delta(1-q)\,\bar{\mu}(0, \lambda_E), \tag{12a}$$

$$[1 - \delta(1-q)]\,\bar{\varphi}^H = \min_{i \in \{l,s\}} \{\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_E)\}, \tag{12b}$$

$$[1 - \delta(1-q)]\,\bar{\varphi}^L = \delta(1-q-r) \min_{i \in \{l,s\}} \{\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_E)\}. \tag{12c}$$

The following proposition characterizes the equilibrium in the absence of intra-elite conflict.

Proposition 1: No intra-elite conflict over trade policy. Assuming that condition (8) does not hold, let $\lambda_E = \lambda_l = \lambda_s \neq \lambda_N$ and $\bar{\mu}$, $\bar{\varphi}^H$, $\bar{\varphi}^L$ be defined by (12). Then, G has a unique Markov perfect equilibrium. In this equilibrium:

1. If $\mu \geq \bar{\mu}$, the society remains **non-democratic**. When $\mu_t = \infty$, E sets $(0, \lambda_E)$; when $\mu_t = \mu$, E offers a temporary concession.[13]

2. If $\mu < \bar{\mu}$, society switches to a democracy the first time $\mu_t = \mu$. Thereafter:

   (a) If $\varphi \geq \bar{\varphi}^H$, then the democracy is **fully consolidated** and N sets (τ_N, λ_N).

   (b) If $\bar{\varphi}^L \leq \varphi < \bar{\varphi}^H$, then the democracy is **semi-consolidated**. When $\varphi_t = \infty$, N sets (τ_N, λ_N); when $\varphi_t = \varphi$, N offers a temporary concession.[14]

   (c) If $\varphi < \bar{\varphi}^L$, then the democracy is **unconsolidated**. The society **continuously switches back and forth between political regimes and trade policies**. In an autocracy, when $\mu_t = \infty$, E sets $(0, \lambda_E)$; when $\mu_t = \mu$, E democratizes and N sets (τ_N, λ_N). In a democracy, when $\varphi_t = \infty$, N sets (τ_N, λ_N); when $\varphi_t = \varphi$, there is a coup and E sets $(0, \lambda_E)$.

Proof: see Appendix 2. ■

The main message of Proposition 1 can be easily summarized in a less formal way, which also has the advantage of highlighting the relationships between the political regime and trade policy. If the cost of organizing a revolt is high ($\mu \geq \bar{\mu}$), the elites can always placate the people by offering a temporary concession. In this case, society remains non-democratic, there is a very low degree of redistribution, and the economy tends to operate under the trade policy preferred by the elites, except under special circumstances (i.e., when the best way of stopping a revolt without changing the political regime is

[13] In particular, $(\tau(l), \lambda(l)) = \arg\max_{(\tau,\lambda) \in \bar{S}(\mu, \lambda_E)} \{v_l(\tau, \lambda)\}$.
[14] In particular, $(\tau, \lambda) = \arg\max_{(\tau,\lambda) \in \bar{S}(\varphi, \lambda_E)} \{v_N(\tau, \lambda)\}$.

by offering a temporary change in trade policy). If the cost of organizing a revolt is low ($\mu < \bar{\mu}$), then a temporary concession cannot placate the people and the elites are forced to democratize. The type of democratic regime that emerges will depend on the cost of mounting a coup. If the cost of organizing a coup is relatively high ($\varphi \geq \bar{\varphi}^H$), then, after the first revolt, society switches from an autocracy with no income redistribution and the trade policy preferred by the elite to a consolidated democracy with high levels of income taxation and redistribution and the trade policy preferred by the people. If the cost of organizing a coup is moderate ($\bar{\varphi}^L \leq \varphi < \bar{\varphi}^H$), then, after the first revolt, society switches from an autocracy with no income redistribution and the trade policy preferred by the elites to a semi-consolidated democracy, which usually levies high income taxes and implements the trade policy preferred by the people. However, this semi-consolidated democracy may sometimes face the threat of a coup, which it can counter by moderating income taxation and perhaps by introducing a change in trade policy for a brief period. Finally, if the cost of organizing a coup is relatively low ($\varphi < \bar{\varphi}^L$), then society continuously switches between political regimes, levels of income taxation and types of trade policy. Under an autocracy, there is no income taxation and the trade policy that is implemented is the one preferred by the elite, while, under a democracy, there is a high level of income taxation and the trade policy that is implemented is the one preferred by the people.

To sum up, in the absence of intra-elite conflict over trade policy, political transitions can be expected to be associated with major changes in trade policy. In particular, coups (democratizations) open up the economy if and only if both elite groups are pro-free-trade (protectionist).[15]

5.2 Political Regimes and Trade Policy under Intra-Elite Conflict

We can define the following thresholds of the cost of a revolt and the cost of a coup.

$$\bar{\mu}^H = [1-\delta(1-q)]\,\bar{\mu}(\tau_N,\lambda_N) + \delta(1-q)\,\bar{\mu}(0,\lambda_l), \tag{13a}$$

$$\bar{\mu}^L = [1-\delta(1-q)]\,\bar{\mu}_N(\tau_N,\lambda_N) + \delta(1-q)\,\bar{\mu}_N(0,\lambda_s), \tag{13b}$$

$$[1-\delta(1-q)]\,\bar{\varphi}^H = \max_{\lambda_j\in\{\lambda_l,\lambda_s\}} \min_{i\in\{l,s\}} \{\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)\}, \tag{13c}$$

$$[1-\delta(1-q)]\,\bar{\varphi}^{MH} = \max_{\lambda_j\in\{\lambda_l,\lambda_s\}} \min_{i\in\{l,s\}} \left\{r'\bar{\varphi}_i(0,\lambda_N,\lambda_j) + \left(1-r'\right)\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)\right\}, \tag{13d}$$

$$[1-\delta(1-q)]\,\bar{\varphi}^{ML} = \min_{\lambda\in\{\lambda_l,\lambda_s\}} \max_{\lambda_j\in\{\lambda_l,\lambda_s\}} \min_{i\in\{l,s\}} \left\{r'\bar{\varphi}_i(0,\lambda,\lambda_j) + \left(1-r'\right)\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)\right\}, \tag{13e}$$

$$[1-\delta(1-q)]\,\bar{\varphi}^{L} = \min_{\lambda\in\{\lambda_l,\lambda_s\},i\in\{l,s\}} \left\{r'\bar{\varphi}_i(0,\lambda,\lambda_l) + \left(1-r'\right)\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_l)\right\}, \tag{13f}$$

where $r' = [1-\delta(1-q-r)]$.

The following proposition characterizes the equilibrium in the presence of intra-elite conflict.

Proposition 2: Intra-elite conflict over trade policy. Assuming that condition (8) holds, let $\lambda_l \neq \lambda_s = \lambda_N$ and $\bar{\mu}^H$, $\bar{\mu}^L$, $\bar{\varphi}^H$, $\bar{\varphi}^{MH}$, $\bar{\varphi}^{ML}$, and $\bar{\varphi}^L$ be defined by (13). Then, G has a unique Markov

[15] Although not part of Proposition 1 it is also easy to prove that if the elite is protectionist (pro-free-trade) and the people are pro-free-trade (protectionist), democratization is more likely to occur when trade policy is endogenous than when there is an exogenous free-trade (protectionist) policy, but it is less likely to occur when trade policy is endogenous than when there is an exogenous protectionist (free-trade) policy. The consolidation of democracy is always less likely when trade policy is endogenous than when it is exogenous, regardless of the nature of the exogenous trade policy.

perfect equilibrium. In this equilibrium, before the first time that $\mu_t = \mu$, the autocracy is controlled by l, which sets $(0, \lambda_l)$. Thereafter:

1. If $\mu \geq \bar{\mu}^H$, the society remains **non-democratic**. The autocracy continues under the control of l only if $V_l(aut(l), \mu) \geq V_l(aut(s), \mu)$. Otherwise, the first time that $\mu_t = \mu$, the control of the autocracy is transferred to s.[16]

2. If $\bar{\mu}^L \leq \mu < \bar{\mu}^H$, then, the first time that $\mu_t = \mu$, society switches to an **autocracy controlled by s or** to a **democracy**. Moreover, if democratization leads to a political regime that always implements λ_N, then the first time that $\mu_t = \mu$, l transfers the control of the autocracy to s. Otherwise, l chooses to democratize if and only if $V_l(dem, \infty) \geq V_l(aut(s), \mu)$.[17]

3. If $\mu < \bar{\mu}^L$, then the first time that $\mu_t = \mu$, society switches to a democracy. Then:

   (a) If $\varphi \geq \bar{\varphi}^H$, the democracy is **fully consolidated** and N sets (τ_N, λ_N).

   (b) If $\bar{\varphi}^{MH} \leq \varphi < \bar{\varphi}^H$, the democracy is **semi-consolidated**. When $\varphi_t = \varphi$, N offers a temporary concession.

   (c) If $\bar{\varphi}^{ML} \leq \varphi < \bar{\varphi}^{MH}$, the democracy is **either semi-consolidated or unconsolidated**. In the first situation, when $\varphi_t = \varphi$, N offers a concession that includes λ_l. In the second situation, society continuously switches between political regimes, but it always maintains the same trade policy $\lambda_s = \lambda_N$. The democracy will be semi-consolidated if and only if N cannot induce a coup controlled by s or, even if N can do so, N prefers to defend democracy.[18]

   (d) If $\bar{\varphi}^L \leq \varphi < \bar{\varphi}^{ML}$, the democracy is **unconsolidated** and **society continuously switches between political regimes, but it always maintains the same trade policy $\lambda_s = \lambda_N$**.[19]

   (e) If $\varphi < \bar{\varphi}^L$, the democracy is **unconsolidated** and **society continuously switches between political regimes and trade policies**.[20]

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[16] When the autocracy is under the control of the elite group j, when $\mu_t = \infty$, the autocratic government sets $(0, \lambda_j)$, while when $\mu_t = \mu$, it sets $(\tau(j), \lambda(j)) = \arg\max_{(\tau,\lambda)\in \bar{S}_R(\mu,\lambda_j)} \{v_j(\tau, \lambda)\}$. Moreover, $V_i(aut(j), \mu) = (1-\delta)^{-1} \{[1-\delta(1-q)] v_i(\tau(j), \lambda(j)) + \delta(1-q) v_i(0, \lambda_j)\}$.

[17] For a semi-consolidated democracy $V_i(dem, \infty) = (1-\delta)^{-1} \{\delta r v_i(\tau_D, \lambda_D) + (1-\delta r) v_i(\tau_N, \lambda_N)\}$, where $(\tau_D, \lambda_D) = \arg\max_{(\tau,\lambda)\in \tilde{S}_C(\varphi,\lambda_l)} \{v_N(\tau, \lambda)\}$. For an unconsolidated democracy $V_i(dem, \infty) = (1-\delta)^{-1} [1-\delta(1-q-r)]^{-1} \{[1-\delta(1-q)] v_i(\tau_N, \lambda_N) + \delta r v_i(0, \lambda_l) - \delta r [1-\delta(1-q)] \varphi v_i(0, \lambda_l)\}$. For the definition of $V_l(aut(s), \mu)$ see the previous footnote.

[18] In a semi-consolidated democracy, when $\varphi_t = \varphi$ N promises $\tau = \arg\max_{(\tau,\lambda_l)\in \cap_j \bar{S}_C(\varphi,\lambda_j)} \{v_N(\tau, \lambda_l)\}$ and $\lambda = \lambda_l$. In an unconsolidated democracy, when $\mu_t = \infty$, s sets $(0, \lambda_s)$; when $\mu_t = \mu$, there is democratization and N sets (τ_N, λ_N); when $\varphi_t = \infty$, N sets (τ_N, λ_N); and when $\varphi_t = \varphi$, there is a coup and s sets $(0, \lambda_s)$. N can induce a coup controlled by the elite group s if and only if there is $(\tau, \lambda) \in \bar{S}_C(\varphi, \lambda_l) - \bar{S}_C(\varphi, \lambda_s)$. If such (τ, λ) exists, it is still possible that N prefers a semi-democratic regime if $V_N(dem, \varphi, \tau, \lambda) \geq V_N(aut(s), \infty) - \varphi v_N(0, \lambda_s)$, where $V_N(dem, \varphi, \tau, \lambda) = (1-\delta)^{-1} \{[1-\delta(1-r)] v_i(\tau, \lambda) + \delta(1-r) v_i(\tau_N, \lambda_N)\}$, $\tau = \arg\max_{(\tau,\lambda_l)\in \cap_j \bar{S}_C(\varphi,\lambda_j)} \{v_N(\tau, \lambda_l)\}$, $\lambda = \lambda_l$, and $V_i(aut(s), \infty) - \varphi v_i(0, \lambda_s) = (1-\delta)^{-1} [1-\delta(1-q-r)]^{-1} \{[1-\delta(1-r)] v_i(0, \lambda_s) + \delta q v_i(\tau_N, \lambda_N) - [1-\delta(1-r)] [1-\delta(1-q)] \varphi v_i(0, \lambda_s)\}$.

[19] In particular, when $\mu_t = \infty$, s sets $(0, \lambda_s)$; when $\mu_t = \mu$, there is democratization and N sets (τ_N, λ_N); when $\varphi_t = \infty$, N sets (τ_N, λ_N); and when $\varphi_t = \varphi$, there is a coup and s sets $(0, \lambda_s)$.

[20] In particular, when $\mu_t = \infty$, l sets $(0, \lambda_l)$; when $\mu_t = \mu$, there is democratization and N sets (τ_N, λ_N); when $\varphi_t = \infty$, N sets (τ_N, λ_N); and when $\varphi_t = \varphi$, there is a coup and l sets $(0, \lambda_l)$.

Proof: see Appendix 2. ■

The main message to be derived from Proposition 2 can be easily summarized in a less formal but clearer way. First, consider situations in which at least one elite group can stop a revolt by offering a temporary concession and, hence, the key political issue is who controls the autocracy (parts 1 and 2). If the cost of organizing a revolt is high enough ($\mu \geq \bar{\mu}^H$), then both elite groups can placate the supporters of a revolt by offering a temporary concession. Therefore, society remains non-democratic. If the leading elite group l is protectionist (pro-free-trade), then the economy tends to operate under protectionism (free trade), except when the people are threatening to revolt and must be placated with temporary redistribution measures and, possibly, a short period of free trade (protectionism). If trade policy is relatively unimportant for l and s can placate the proponents of a revolt by introducing much lower taxation levels, then l will transfer the control of the autocracy to s and there will be a switch in trade policy. If the cost of organizing a revolt is moderate ($\bar{\mu}^L \leq \mu < \bar{\mu}^H$), only the elite group s can placate the people by offering them a temporary concession. Therefore, there are two possible situations, both of which imply a switch in trade policy: either l transfers the control of the autocracy to s and, hence, democratization can be avoided, or l offers to democratize the country.[21] Depending on the type of regime that would emerge after democratization, l prefers one or the other alternative. In general, after democratization, l will not have enough de facto political power to impose the trade policy it prefers, and, hence, l would rather transfer control over the autocracy to s. But, when the de facto political power wielded by l in a democracy is great enough to enable it to impose the trade policy it prefers, l might be better off if it offers democratization than if it transfers the control of the autocracy to s.

Second, consider situations in which only democratization will stop a revolt and, hence, the key political issues are the consolidation of democracy and the nature of the coups that could take place (part 3). Suppose that the cost of organizing a revolt is relatively low ($\mu < \bar{\mu}^L$). Before the first revolt takes place, there will be an autocracy controlled by l, no redistribution and the trade policy favored by l. After the first revolt, if the cost of mounting a coup is very high ($\varphi \geq \bar{\varphi}^H$), then society will switch to a consolidated democracy that implements high levels of taxation and redistribution and the trade policy favored by N. If the cost of mounting a coup is high ($\bar{\varphi}^{MH} \leq \varphi < \bar{\varphi}^H$), then society will switch to a semi-consolidated democracy which usually implements high levels of redistribution and the trade policy preferred by N, but which sometimes lowers income taxes and may introduce the trade policy preferred by l for a short period of time in order to counter a threatened coup. If the cost of organizing a coup is moderate ($\bar{\varphi}^{ML} \leq \varphi < \bar{\varphi}^{MH}$), then society will switch to either a semi-consolidated or an unconsolidated democracy. A semi-consolidated democracy usually introduces high levels of taxation and redistribution and implements the trade policy preferred by N, but it sometimes faces the threat of a coup, which it counters by lowering income taxes and temporarily instituting the trade policy preferred by l. If the transition is to an unconsolidated democracy, then society will continuously switch between political regimes and levels of income taxation and redistribution, but the trade policy favored by N will

[21] Recall that we are assuming that, at the outset, the political regime is an autocracy controlled by l and $\lambda_l \neq \lambda_N$. If we change this assumption and we assume that, at the outset, the political regime is an autocracy controlled by s, then the elites will have no incentive to reallocate their political power in the autocracy. Note, however, that this is a very particular case. In general, if we assume that, at the outset, there is an autocracy that maximizes a weighted average of the payoffs of both elite groups, then the elites will consider changing these weights in order to placate the people. Moreover, the direction of the change will be the same as it would be under our simpler assumption, i.e., the relative power of the elite group that favors the same trade policy as the people must increase.

always be retained. If the cost of a coup is low ($\bar{\varphi}^L \leq \varphi < \bar{\varphi}^{ML}$), then, after the first revolt, society will switch to an unconsolidated democracy, with ongoing changes in the political regime and levels of income taxation and redistribution, but with a stable trade policy (the one favored by N). If the cost of a coup is very low ($\varphi < \bar{\varphi}^L$), then, after the first revolt, society will switch to an unconsolidated democracy, with continuous changes in the political regime, levels of income taxation and redistribution, and trade policy.[22]

To sum up: Proposition 2 suggests that in the presence of intra-elite conflict the path for political transitions and trade policy should be as follows. Suppose that l is protectionist and s and N are pro-free-trade.[23] Initially, the elite group l controls the autocracy and implements a protectionist trade policy. Then, a revolt forces the elites to reallocate political power within the autocratic regime. Accordingly, the elite group s gains control over the autocracy and switches to a free-trade policy. The switch is credible and placates the people because s favors a free-trade policy. Finally, democratization brings more redistribution from the rich elites to poor people through income taxation, but it does not interfere with the free-trade policy. Subsequent coups, if any, tend to give rise to an autocracy controlled by s, which also favors a free-trade policy. Analogously, suppose that l is pro-free-trade and s and N are protectionists.[24] Initially, l controls the autocracy and implements a free-trade policy. Revolts bring s to power and there is a switch to protectionism. Democratization further cements protectionist policies. Coups, if any, tend to give rise to a temporary autocracy controlled by s and also to the continuation of protectionism. Coups that give rise to an autocracy controlled by l that implements a free-trade policy are possible only when the cost of a coup is extremely low and s is willing to accept free trade in order to avoid a radical democracy that would introduce a very high income tax rate.

5.3 International Trade, Political Regimes and Trade Policy

In this section we will integrate the international trade models developed in Section 2.2 with Propositions 1 and 2. The goal is to show how different world prices (and, similarly, world factor endowments) induce different paths for political transitions and trade policy. We proceed as follows. We take the three international trade models outlined in Section 2.2. For each model, we assume an underlying economic structure (domestic factor endowments, production functions and preferences) and compute the competitive equilibrium under autarky. Then, we vary only the vector of world prices of tradeable goods and compute the competitive equilibrium under free trade. We select different world prices in such a way as to cover all the relevant cases in terms of trade policy stances that might be adopted by the three socioeconomic groups. Finally, we introduce these cases into the political transition game and use Propositions 1 and 2 to characterize the equilibrium for each case. Since the political transition game has

[22] Recall that we are assuming that $\lambda_l \neq \lambda_s = \lambda_N$, with l being the agenda-setter and s having veto power when they are bargaining over the possibility of mounting a coup. If we reverse these roles, then there will never be a coup that gives rise to an autocracy controlled by the elite group that favors a trade policy that is not in the interests of N. Note, however, that this is a particular case. In general, when $\varphi < \bar{\varphi}^L$ both types of coups are feasible and, hence, if the bargaining power of l is great enough, there will be a coup controlled by l.

[23] This can represent, for example, the economic cleavages existing in Great Britain in the nineteenth century, with l denoting the landed aristocracy, s the commercial and industrial elite and N industrial workers. For more details see Section 6.1.

[24] This can represent, for example, the economic cleavages seen in Argentina in the second half of the twentieth century, with l denoting landowners in the rural exporting industry, s industrialists in the import-competing sector and N industrial workers. For further details, see Section 6.2.

several exogenous variables (μ, φ, r, and q), we present three different types of figures. First, we change the cost of the revolt μ, and the cost of the coup φ, keeping r and q constant. Second, we vary μ and q, keeping φ and r. Finally, we vary φ and r, keeping μ and q constant.

See Figures 1, 4, 5, and 6: Simple Factor-Specific Model (Model 1)

Figures 4, 5 and 6 are based on the simple factor-specific model (Model 1) for $\beta_X = \beta_Y = 0.25$ and $\beta_Z = 0.50$. Additionally, we assume $\delta = 0.85$, $C(\tau) = \frac{\tau^{1+\eta}}{1+\eta}$, with $\eta = 0.85$, $r = q = 0.50$ for Figure 4, $\varphi = 0.25$ for Figure 5, and $\mu = 0.25$ for Figure 6. Each sub-figure is obtained from points $P^{1.a}, ..., P^{1.f}$ in Figure 1. Thus, we induce the different trade policy stances that could be adopted by the different socioeconomic groups by changing the vector of world prices. Note that the title of each sub-figure indicates the induced trade policy stance. From Figures 1 and 4, we can see how world prices affect the connections between political transitions and trade policy. Consider point $P^{1.b}$ in Figure 1. For this point, the world price of the labor-intensive good p_Z^*/p_X^* is high (analogously, l_w and k_w are high) and, hence, both elite groups are protectionist and the people are pro-free-trade. In this case, autocracy is associated with protectionism and democracy with free trade (Figure 4.b). Similarly, consider point $P^{1.a}$ in Figure 1. For this point, the world prices of the labor- and land-intensive goods p_Z^*/p_X^* and p_Y^*/p_X^* are high (analogously, k_w is high) and, hence, landlords and the people are pro-free-trade while industrialists are protectionist. In this case, if the cost of the revolt is below a given threshold, autocracy and democracy are associated with free trade (Figure 4.a). Figures 5 and 6 present similar results, with a focus on democratization and coups, respectively. Figure 5 shows that only when there is intra-elite conflict will there be a range of μ for which the elites avoid democratization by engineering a credible change in trade policy though a reallocation of political power within the autocracy. Moreover, as the probability that the cost of the revolt is not prohibitive q increases, this range decreases. In Figure 6, we confirm that, in the absence of intra-elite conflict, unconsolidated democracy is associated with an unstable trade policy (Figures 6.b and 6.e). Moreover, when p_Z^*/p_X^* is high, coups are associated with protectionism, while when p_Z^*/p_X^* is low, they are associated with a switch over to free trade. Figure 6 shows that, in the absence of intra-elite conflict, coups will tend to result in a continuation of the existing trade policy. Finally, note that it is always the case that, as the probability that the cost of a coup is not prohibitive r increases, the range of φ for which there is a coup decreases.

See Figures 2, 7, 8, and 9: Ricardo-Viner Factor-Specific Model (Model 2)

Figure 7, 8 and 9 are based on the Ricardo-Viner factor-specific model (Model 2) for $alpha_{K,X} = 0.25$, $alpha_{N,X} = 0.75$, $alpha_{L,Y} = 0.75$, $alpha_{N,Y} = 0.25$, and $\beta_X = \beta_Y = 0.50$. Additionally, we assume $\delta = 0.85$, $C(\tau) = \frac{\tau^{1+\eta}}{1+\eta}$, with $\eta = 0.85$, $r = q = 0.50$ for Figure 7, $\varphi = 0.25$ for Figure 8, and $\mu = 0.25$ for Figure 9. Each sub-figure is obtained from points $P^{2.a}, ..., P^{2.f}$ in Figure 2.a. Sub-figure titles indicate the induced trade policy stance. Sub-figures 7.c, 8.c, 9.c and 7.f, 8.f, 9.f can also represent a small open economy, for which the Ricardo-Viner model always generates intra-elite conflict. In order to emphasize the role of the terms of trade we focus on this case. We define the terms of trade as the relative price of the land-intensive good Y, i.e., p_Y^*/p_X^*. In Figure 2.b, note that when p_Y^*/p_X^* is low, industrialists and the people are pro-free-trade while landlords are protectionist, whereas, when p_Y^*/p_X^* is high, landlords are pro-free-trade while industrialists and the people are protectionist. Analogously, we can say that Figures 7.c, 8.c, and 9.c represent a country with a comparative advantage in the capital- and labor-intensive

good X, while Figures 7.f, 8.f, and 9.f represent a country with a comparative advantage in the land-intensive good Y. Then, from Figures 8.c and 9.c (Figures 8.f and 9.f), it follows that a country with comparative advantage in the capital- and labor- (land-)intensive good will tend to move to a free-trade (protectionist) policy before reaching full democratization, and the consolidation of democracy will not significantly affect this trade policy. Figures 9.c and 9.f also show that it is possible that the people may not be willing to defend democracy because this would require a temporary change in trade policy.

See Figures 3, 10, 11, and 12: Simple Model with a Non-tradeable Good (Model 3)

Figure 10, 11, and 12 are based on a model with a non-tradeable good (Model 3) for $\alpha_{K,X} = 0.75$, $\alpha_{N,X} = 0.75$, $\alpha_{K,Y} = 0.25$, $\alpha_{L,Y} = 0.25$, $\beta_X = \beta_Y = 0.25$, and $\beta_Z = 0.50$. Additionally, we assume $\delta = 0.85$, $C(\tau) = \frac{\tau^{1+\eta}}{1+\eta}$, with $\eta = 0.85$, $r = q = 0.50$ for Figure 10, $\varphi = 0.25$ for Figure 11, and $\mu = 0.25$ for Figure 12. Each sub-figure is obtained from points $P^{3.a}, P^{3.b}, P^{3.c}$ in Figure 3. Sub-figure titles indicate the induced trade policy stance. Figure 3 focuses on three possible situations. When the economy has a comparative advantage in the capital- and labor-intensive good X (analogously, p_Y^*/p_X^* is low), then industrialists and the people prefer a free-trade policy while landlords are protectionist. When the economy has a comparative advantage in the land-intensive good Y, but is not specialized (analogously, p_Y^*/p_X^* is moderate), then industrialists and the people are protectionist while landlords are pro-free-trade. Finally, when the economy is specialized in the land-intensive good Y (analogously, p_Y^*/p_X^* is high), then landlords are pro-free-trade and industrialists and the people are assertive with respect to trade policy. In particular, for the economy depicted in Figure 3, industrialists need a higher p_Y^*/p_X^* than the people in order to support free trade. Note that, for this model, if p_Y^*/p_X^* is high enough, trade policy is not a source of social conflict because the three socioeconomic groups all prefer a free-trade policy, whereas Figures 10, 11, and 12 focus on cases in which at least one group prefers protectionism. Figures 11.a and 12.a show that, when the economy has a comparative advantage in the capital- and labor-intensive good, there may be a switch to a free-trade policy under an autocracy, while the transition to a full democracy will tend to result in the continued implementation of a free-trade trade. From Figures 11.b and 12.b, we can see that, in a country with a comparative advantage in the land-intensive good, democratization will be associated with protectionism and coups will tend to result in the maintenance of a protectionist policy. Finally, from Figures 11.c and 12.c we observe that, for an economy specialized in the land-intensive good, both under democracy and in the presence of coups a free-trade policy will tend to be implemented.

6 Case Studies

In this section we illustrate the model developed in this paper with two case studies in which intra-elite conflict over trade policy play a salient role in determining (and being determined by) the change in policy regime.

6.1 Great Britain in the Nineteenth Century

Britain's bold move toward free trade in 1846 was both unprecedented and unilateral; moreover, it ran counter to the core protectionist ideology of the conservative party while simultaneously undercutting

the economic interests of the ruling landed aristocracy. Thereafter, Great Britain had a stable free-trade policy throughout its transition to a fully consolidated democracy, even during international crises and depressions that put the system under stress and prompted many British trading partners to adopt protectionist measures.

Before the Reform Act of 1832, the rural aristocracy dominated British politics. The Reform Act established the right to vote based solely on income and property, thereby considerably changing the distribution of political power. As discussed in Acemoglu and Robinson (2006), the Reform Act had three main features. First, it was passed primarily because there was a fear that social disturbances would arise. Second, it was a strategic concession on the part of the aristocracy, since it did not create a full democracy, but simply extended the franchise to the new industrial and commercial elite and the upper-middle class. Third, the working classes were completely excluded by the reform. In terms of our model, the rural aristocracy and the industrial and commercial elite were the two elite factions. Before the reform, the aristocracy controlled the autocratic government. The reform, although it did not completely transfer control over the autocracy to the industrial and commercial elite, did erode the power of the aristocracy and significantly expand the power of the new industrial and commercial elite. However, this was just the beginning of a process that reallocated political power between the aristocracy and the industrial and commercial elite. The debate about the Corn Laws was another decisive factor in this process, as well as an excellent test for the new distribution of political power.

Manufacturers had opposed the protectionist Corn Laws as early as the 1820s, but were never strong enough to repeal them. But, beginning in 1836, an economic downturn, together with a series of poor harvests, goaded the industrialists into action. High food prices and unemployment also gave impetus to both the middle and working classes, with the former being organized as the Anti-Corn Law League and the latter as the Chartist movement. The Anti-Corn Law League was the first modern, nationwide political pressure group to emerge in Britain (see, among others, Howe, 1984, and Turner, 1995). The leaders of the League were manufacturers and professionals engaged in export trade. By the 1840s, the Anti-Corn League had garnered the support of many urban groups, including some urban workers. The Chartists were an organized working-class movement that sought parliamentary reform, arguing that reform must encompass the entire social and political horizon. In contrast, the League chose a single-issue strategy in it efforts to achieve repeal (Schonhard-Bailey, 2006).

The Conservatives entered the government in 1841 with a strong and unified commitment to protecting agriculture, yet their leader, Prime Minister Sir Robert Peel, completely reversed this stance within a few years. In 1846, Prime Minister Peel decided to accept the repeal of the Corn Laws, and about a third of the members of Parliament in his party followed his lead; the rest remained firmly committed to protecting agriculture. Within a month of securing the repeal, the Peel government fell, while the Conservatives remained divided (the repeal of the Corn Laws triggered the expulsion of the Peelite faction from the Tories, led by Bentink and Disraeli), and then remained out of office for decades. This division paved the way for almost 30 years of Whig and Liberal dominance, which "rested on a firm alliance of the urban working and middle classes, of labor and capital" (Rogowski, 1989). During this period, a free-trade policy was the norm. Moreover, "liberal governments steadily pursued even freer trade, lower taxes and transaction costs, expansion of the franchise, and diminution of the remaining powers of local landowners, the Crown, and the House of Lords" (Rogowski, 1989).

Schonhardt-Bailey (2006) tells a simple but compelling story: economic interests generated the momentum behind the repeal movement, a momentum that overshadowed almost all else. Indeed, as part

of a broader movement toward democratic reform, these same interests, left unsatisfied, could have snowballed into revolution, as Peel and others had feared (and as happened, just two years later, in France). Schonhard-Bailey (2006) rightly argues that the fatal factor for the Corn Laws was the growth of the British manufacturing industry and export trade, especially in textiles. More particularly, as the industrial prosperity and export boom of the early 1830s began to wane, industrialists became increasingly vocal about the "unfair" protection enjoyed by agriculturists. In fact, after the repeal of the Corn Laws, Peel himself argued, in an elaborate display of concessionary politics, that he sought repeal in order to "satisfy the wishes of those outside" (the middle-class industrialists). He implied that a "narrow representation of Parliament" (control of Parliament by the landed aristocracy) required that concessions be made to satisfy interest groups that were clamoring for reform. The alternative, he implied, was that pressures for reform might become overwhelming, as they had in France (see Schonhard-Bailey, 2006). In sum, repeal was an attempt to moderate the mounting pressures for parliamentary reform: by satisfying the middle class and industrialists with repeal, their drive to gain control of parliamentary seats would wane and, moreover, the working-class Chartist movement (seeking more radical reform of Parliament) would lose momentum (see Searle, 1993; and Schonhard-Bailey, 2006). In terms of our model, the protectionist aristocracy, by partially transferring control over the government to the pro-free-trade industrialists (the Reform Act of 1832) and allowing a switch in trade policy (the repeal of the Corn Laws in 1846), placated the populace, thereby convincing it to relinquish its more radical demands.

In such a context, the only option for the Conservatives was to match the set of policies offered by the Liberals. In fact, in 1867, Disraeli supported the Second Reform Act, which significantly extended the franchise. Indeed, after the reform, "working-class voters became the majority in all urban constituencies" (Acemoglu and Robinson, 2006). The particular events leading up to the Second Reform Act were similar to those that preceded the Reform Act of 1832: riots and social disturbances that convinced the capitalist and commercial elite that the only alternative to a revolt was an extension of the franchise to the working classes. In fact, the Chartist movement had significantly increased its power since 1832.

The 1873-1876 crisis provided an excellent test for trade policy. After 1875, imports from America had a significant impact on landowners, and the Conservatives, led by Disraeli, had a majority in Parliament. A group of Conservatives guided by Joseph Chamberlain,"... tried to organize a coalition with a family resemblance of Bismarck's grouping of industrialists, farmers and workers hit by foreign competition" (Gourevitch 1986) and attempted to reopen the discussion about tariffs. However, this attempt did not succeed, since even "Disraeli - who had made protection his by-word in the 1840s - flatly refused to help" (Rogowski, 1989). Moreover, this time, workers were clearly against protectionism. "Labor, by the 1870s, was quite strong in support of free trade. In the 1840s, anti-corn-law activists had argued that labor ought to support free trade in order to keep down consumer costs, especially the price of food. Labor activists at the time were more skeptical, seeing tariffs as a middle-class concern that distracted attention from the broader political demands of Chartism. It was only after experiencing the prosperity of the 1850s and 1860s that British labor accepted free trade" (Gourevitch 1986). It is worth mentioning that the protectionist pressures that were brought to bear during the 1873-1876 crisis were really very strong. Internally, some of the consequences of the free-trade policy were "a new wave of bitterness and violence in Ireland (still almost wholly agricultural) [and] the bankruptcy and reform of the Oxford colleges (whose endowments were largely in land)" (Rogowski, 1989). Almost all the countries that played an important role in the international arena, including Germany, France and the United States, implemented protectionist measures, although of different types and to different degrees (Gourevitch,

1986; and Rogowski, 1989).

In 1884 the Third Reform Act extended the coverage of voting regulations to rural constituencies and the "Redistribution Act of 1885 removed many remaining inequalities in the distribution of seats" (Acemoglu and Robinson, 2006). The result was that "after 1884, about 60% of male adults were enfranchised" (Acemoglu and Robinson, 2006). Mainly negotiated during the war, "the Peoples Act of 1918 gave the vote to all adult males over the age of twenty-one and women over the age of thirty who were ratepayers or married to ratepayers" (Acemoglu and Robinson, 2006). In the realm of trade policy, there was no further attempt to alter the free-trade status quo. As already mentioned, this was to be expected, since the newly enfranchised members of the population were industrial workers who supported free trade. Moreover, it is likely that the new industrial and commercial elite was less reluctant to extend the franchise to industrial workers. This was true for two reasons. First, workers did not pose a threat to the free-trade policy favored by this elite group. Second, free trade probably reduced income inequality, thereby making workers less willing to support redistribution through income taxation. The old aristocracy, already severely weakened, preferred this democratization path, which was coupled with a stable free-trade policy, because, at the least, it restrained the workers' most extreme redistributionist policy proposals. The industrial and commercial elite always enjoyed a huge advantage in its negotiations with the aristocracy, since, if the aristocrats refused to support free trade, the industrial and commercial elite could always accelerate the democratization process and achieve free trade anyway. Of course, this came at a price, namely, welfare legislation.

Summing up, Great Britain in the nineteenth century provides an example of intra-elite conflict (the protectionist, landed aristocracy versus the pro-free-trade industrial and commercial elite) in combination with a pro-free-trade populace. The aristocracy, facing radical demands, had no other option but to gradually concede political power to the new industrial and commercial elite. The Reform Act of 1832 and the repeal of the Corn Laws in 1846 were two landmark events in this process. The repeal of the Corn Laws was an unprecedented move toward free trade that both reflected and reinforced the new distribution of political power. Proposition 2 Part 2 captures this reallocation of political power among the elite, as well as the switch in trade policy. After 1846, Great Britain had a stable free-trade policy throughout the entire transition to a consolidated democracy, which was fully completed in the twentieth century. The transition was primarily an ongoing bargaining process between industrialists and workers over welfare legislation. Proposition 2 Part 3 properly captures this transition.

6.2 Argentina in the Twentieth Century

At the beginning of the twentieth century, Argentina's factor endowment resembled that of a specialized natural-resource-rich economy. Both the elite and the people supported free trade. However, during the inter-war period, trade opportunities became scarce and the terms of trade worsened, which triggered an industrialization process that then accelerated with the Great Depression during the 1930s and the Second World War. As a result, Argentina embarked on the second half of the twentieth century with a very different economic configuration. In addition, once workers had voted on a large scale for the first time, in 1946, an urban-rural cleavage developed which lasted until the dictatorship of 1976. This new political equilibrium took the economy to the brink of autarky. Democracy was not consolidated, and a series of coups and democratizations took place during this period. However, none of the dictatorships that ruled the country until the coup of 1976, which deposed a highly populist government, were headed by the agricultural free-trade elite, and none of them opened up the economy to any significant degree.

By contrast, the military government that took power in 1976 was primarily controlled by the agricultural elite and brought the economy back from the edge of autarky.

Argentina integrated its economy into world markets in the last quarter of the nineteenth century as an exporter of rural products. Until the 1930s, the country had a specialized economy with very little industrial development, and almost all of the domestic demand for manufactures was met with imports. As the country grew, the service sector in the major cities, particularly Buenos Aires, developed rapidly. The State invested heavily in the infrastructure that was required in order to export rural products, such as railroads and harbors, and, later, also in public education (see Galiani et al., 2008). Thousands of immigrants arrived in the country during this period, particularly from Spain and Italy. Although the country was formally a democracy with a constitution and republican institutions, the rural elite played a predominant role in government. Democratization pressures came almost exclusively from the urban middle class. In fact, in 1914 a new electoral law was passed that has been interpreted as an extension of the franchise to the middle class. Nevertheless, trade policy was never a crucial political issue, and the economy remained under a free-trade regime throughout the period in question (see Galiani and Somaini, 2010).

The Great Depression of the 1930s is generally considered to mark the beginning of the import-substitution process in Argentina. The collapse of commodity prices hit the country's economy very hard, since it was so heavily dependent upon exports of agricultural products. In economic and political terms, the 1930s were a transitional period (see Galiani and Somaini, 2010). On the one hand, the rural elite retained most of the political power and tried to use it to mitigate the effects of the change in the terms of trade. On the other hand, two new urban groups were emerging: industrial capitalists and industrial workers. Thus, the society was transitioning away from a specialized economy mainly controlled by members of a rural elite (who were faced with a middle class which demanded political participation and some redistribution, but which did not represent a threat to the country's integration into world markets) and toward a much more complex society with two elite factions: the traditional rural elite and the new industrial elite (in conjunction with a large number of protectionist industrial workers, who could easily become a majority in a free election).

The new economic configuration affected almost all the economic and political institutions of the country. In fact, the 1940s were years of direct industrial promotion initiatives, and the State played the leading role in the country's industrial development. First, shortly before Perón assumed power in June 1946, the government created the Argentine Institute for the Promotion of Trade (IAPI). This institution held a monopoly over the country's foreign trade. In its early years, it was clearly anti-agriculture, as it withheld a percentage of the high prices that agricultural products were bringing in the world market after the end of the war. Together with this, a package of what was by then typical protectionist measures was implemented: import tariffs were raised, the multiple exchange-rate system was maintained and a scheme of import permits was created in order to manage the flow of foreign currency. Second, an interventionist State became an active agent in the economy as a result of the wave of nationalizations that the country witnessed in the early Peronist years.

After the Peronist experience, it was clear to all concerned that democracy meant protectionism and populism; thus, the traditional rural elite had a huge incentive to mount a coup, while the new industrial elite had mixed incentives in that regard. Two elements completed the scene. First, the effervescence of subsidies, industrial promotion efforts and ambitious social programs routinely ran up against a major problem, namely, the appearance of a large deficit on the balance of payments (Diaz

Alejandro, 1970). Second, the military was no longer a united force that was obedient to the traditional rural elite. On the contrary, the development of major industrial sectors was now in the armed forces' sphere of influence, when not under their direct control. The coup of 1955 reflected this new and complex situation. Although the coup was welcomed by the traditional rural elite and a majority of the middle class, and although the new government implemented transitional policies to promote agricultural exports, the import-substitution policies were never abandoned. In terms of our model (Proposition 2.c), the industrialists supported the coup because they could control the dictatorship and, hence, keep industrial protection mechanisms in place.[25]

The exclusion of the Peronist party, and hence of industrial workers, from the political arena after 1955 put a great deal of pressure on the government, particularly since, by then, industrial workers were well-organized in unions and worshiped Perón as their national leader. Thus, political tensions persisted. In principle, the elites were willing to accept democracy, but only if populist policies were rescinded. Industrial workers preferred this type of democracy to a dictatorship, but they could not credibly pledge to not vote for Perón if free elections were allowed. The "solution" was a democratic regime in combination with the proscription of the Peronist party. Under the proscription scheme, Arturo Frondizi was elected President in 1958 with the support of industrial workers and part of the middle class. Fear of a balance-of-payments crisis paved the way for the "developmentalist" strategy originally envisioned by Perón in 1952-1955 and carried out by Frondizi between 1958 and 1962. Under this strategy, the basic inputs sectors, namely, the metallurgical and oil industries, were developed as a way of overcoming the chronic deficit in the balance of payments.[26] After a few years, a new item appeared on the economic policy agenda: the local-market solution for industry was increasingly seen as inefficient, and the idea of an export industry was gaining support among the country's authorities. A military coup overthrew a democratic government in 1966, but economic policy did not change radically.

In the early 1970s, the limitations of the proscription scheme as a permanent solution became increasingly clear. First, the proscription was apparently not enough to convince the elite to refrain from mounting coups, and it did not completely avert populist policies either. In fact, all the democratic governments after 1955 somehow met their demise when they reached the point where they did not have sufficient maneuvering room to simultaneously satisfy the opposing demands of unionized industrial workers and the armed forces (read "the elites"). Second, some industrial workers, although not the traditional Peronist unions, and part of the middle class began to radicalize their position and to move toward socialism. In this context, the proscription scheme was abandoned and the democratic elections of 1973 resulted in the formation of a new Peronist government, which then proceeded to carry out an extreme version of the previous developmentalist strategy. However, the possibilities of growth under import substitution had, by then, been exhausted. The country rapidly slid into chaos: in 1975, in the midst of a social, political and economic crisis that would trigger the bloodiest military coup in Argentina's history the following year, the government's fiscal deficit amounted to almost 15% of GDP. The military government that took power in March 1976 very rapidly made it clear that the import-substitution

[25]Symbolically, one of the most famous slogans used by the new government to describe this new policy was "Peronism without Perón", which essentially meant industrialization through import substitution without the populist component of the Peronist policies. In fact, most of the measures that promoted agricultural exports (for example, a devaluation) were thought to alleviate the balance-of-payments constraint; what is more, most of the burden of these measures fell on urban workers rather than on the industrialist elite.

[26]In addition, the automotive industry (which was not particularly "heavy" but nonetheless quite in tune with growing middle-class demands) was actively promoted.

strategy was no longer part of the government's agenda. This time, the authorities opted for a policy of open trade. Industrial capitalists accepted this policy because the alternative was, at best, a highly populist democracy, if not an outright changeover to socialism. Proposition 2.c captures this change. Note, in particular, that Proposition 2.c implies that an increase in populism makes a coup controlled by the pro-free-trade rural elite more likely.

Summing up, in terms of our model: in the second half of the twentieth century, Argentina appears to have been a particularly clear example of a case in which intra-elite conflict (the pro-free-trade landlords and the protectionist industrialists) coexisted with a protectionist populace. In fact, as O'Donnell (1977) pointed out, the oscillations in the political regime resulted from shifting alliances between social classes. When industrialists were allied with the working class, democracy prevailed, as did a highly protectionist trade policy and redistributive pressures that were curbed by the proscription of the Peronist party. Two destabilizing forces appeared in this context. First, as soon as economic activity gained strength, a balance-of-payments problem emerged as industrial imports grew and agricultural exports remained stagnant. Second, industrial workers demanded more redistribution and the elimination of the proscription of the Peronist party. In that context, industrialists allied themselves with the landlords in order to force a coup and a devaluation of the currency, which basically raised the real revenues of both of these sectors while depressing workers' real wages. After this economic slump came renewed growth, and, under those circumstances, the industrialists again allied themselves with the working class, particularly when the regime was threatened with strikes, riots and demonstrations that seriously disrupted the order of the industrial workforce. And then the cycle began again. Viewed from this perspective, it is understandable why, between 1945 and 1975, Argentina continuously switched back and forth from one political regime to the next, but nonetheless invariably maintained its import-substitution industrialization policy as its core development strategy. The radicalization of popular demands in the early 1970s paved the way for the breakdown of the proscription solution, which ultimately led to the 1976 coup and the opening of the economy. As predicted by Proposition 2 Part 3, industrialists supported this policy because the alternative was, at best, a highly populist democracy, if not an outright changeover to socialism.

7 Conclusions

In this paper we have looked at some of the connections between political regimes and trade policy. As we have shown, international trade can crucially affect political alignments and hence the political regime, as well as trade policy. Indeed, our model suggests that significant connections exist among political transitions, changes in trade policy and the comparative advantages of an economy. The critical point is that trade policy opens the way for a political cleavage other than the rich-poor/elite-people division.

In fact, once we introduce trade policy as an endogenous outcome of the political transition game, the model predicts that, in the absence of intra-elite conflict over trade policy, major changes in the political regime will be associated with major switches in trade policy. Moreover, the direction of those switches depends on the countrys factor endowments and world prices (and, similarly world factor endowments). For example, consider a country for which the combination of its domestic factor endowments and world prices induce a protectionist elite and a pro-free-trade stance on the part of the people. For instance, in a simple factor-specific model (Model 1), these trade policy stances occur when the country is capital- and land-abundant relative to the world economy. In such a country, we should expect democratic regimes

to be associated with the opening of the economy and autocracies with the proliferation of protectionist measures.

In general, for societies in which there is no intra-elite conflict and the people prefer a pro-free-trade (protectionist) policy, our model predicts that there will be a democratization process that begins with an autocracy in which a protectionist (free-trade) policy is being implemented; this system then transitions to a period of unconsolidated democracy and an unstable trade policy and ultimately ends up with a consolidated democracy and a free-trade (protectionist) policy.

When we incorporate an intra-elite conflict over trade policy into the model, a new and more diverse landscape emerges. First, the model predicts that a crucial switch in trade policy may occur before full democratization takes place through a reallocation of political power within the autocracy. Second, coups tend to lead to a continuation of the existing trade policy. The countrys factor endowments and world prices also play a key role. For example, consider a country for which the combination of its domestic factor endowments and world prices induce an intra-elite conflict and a preference on the part of the people for a free-trade policy. For instance, in a simple factor-specific model (Model 1), these trade policy stances occur when the country is capital- and labor-abundant relative to the world economy. In such a country, we should expect an economic liberalization process to take place on a large scale in association with a major reallocation of political power within the autocracy; this would be followed by other autocracies and, eventually, democratic regimes, all of which would be implementing a free- trade policy.

In general, for societies in which there is an intra-elite conflict and the people are in favor of free trade (protectionism), the model predicts that a democratization process will take place, with the starting point being an autocracy that is implementing a protectionist (free-trade) policy; in the next stage, an autocracy is still in power, but now it is implementing a free-trade (protectionist) policy. This then gives way to a period of unconsolidated democracy and a stable free-trade (protectionist) policy which eventually leads to the establishment of a consolidated democracy that maintains a free-trade (protectionist) policy.

The model also points to interesting implications for some institutions and organizations, such as unions or the armed forces, which affect the cost of coups and revolts. For example, unionization probably decreases the cost of a revolt and increases the cost of a coup. If this is the case, then our model can tell us how the different groups will react to legislation that promotes labor unions. Similarly, the cost of a coup depends on the availability and organization of the armed forces. Thus, our model can indicate which groups will be more willing to extend financial support to the military. In general, when there is no intra-elite conflict, the elite is better off when the cost of a coup is low and the cost of a revolt is high, while the opposite is usually true for the general public. However, when there is an intra-elite conflict, the analysis is more subtle. In particular, it is perfectly possible that one of the elite groups will be better off when a coup would be more costly or when a revolt would be less costly. The details are somewhat involved, but the intuition is simple. Consider, for example, the situation of the commercial and industrial elite in Great Britain at the beginning of the nineteenth century. While a revolt would have been very costly for the populace, the aristocracy was able to placate the people without relinquishing control of the government. However, when the people found that a revolt would be less costly, the aristocracy was forced to transfer its control over the autocracy to the commercial and industrial elite, which paved the way for the repeal of the Corn Laws. Thus, it is very likely that a moderate decrease in the cost of a revolt was beneficial for the commercial and industrial elite.

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Figure 1: Simple Factor-Specific Model (Model 1)

Figure 1.a: Trade Policy Stance as a Function of World Endowments

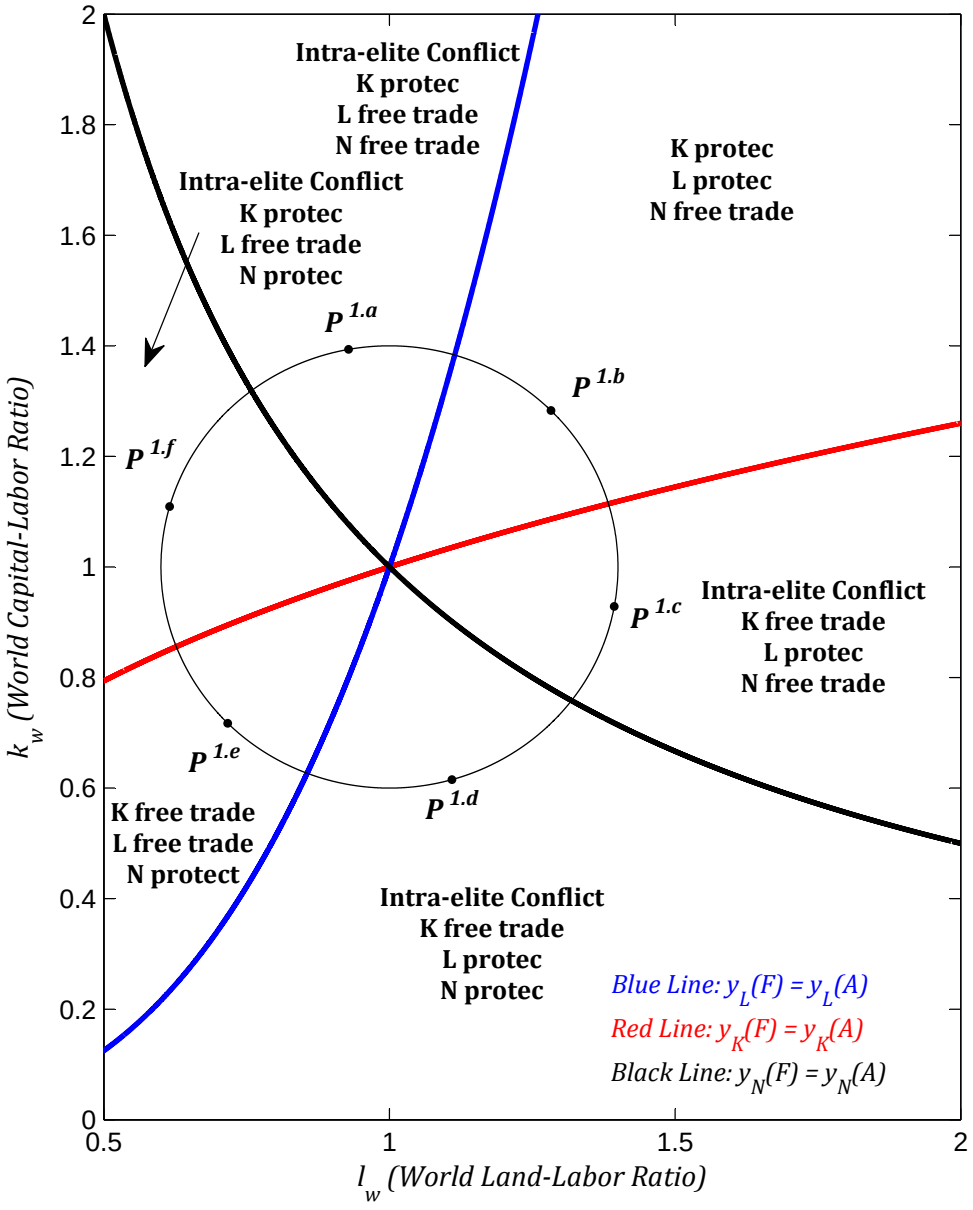


Figure 1.b: Trade Policy Stance as a Function of International Prices

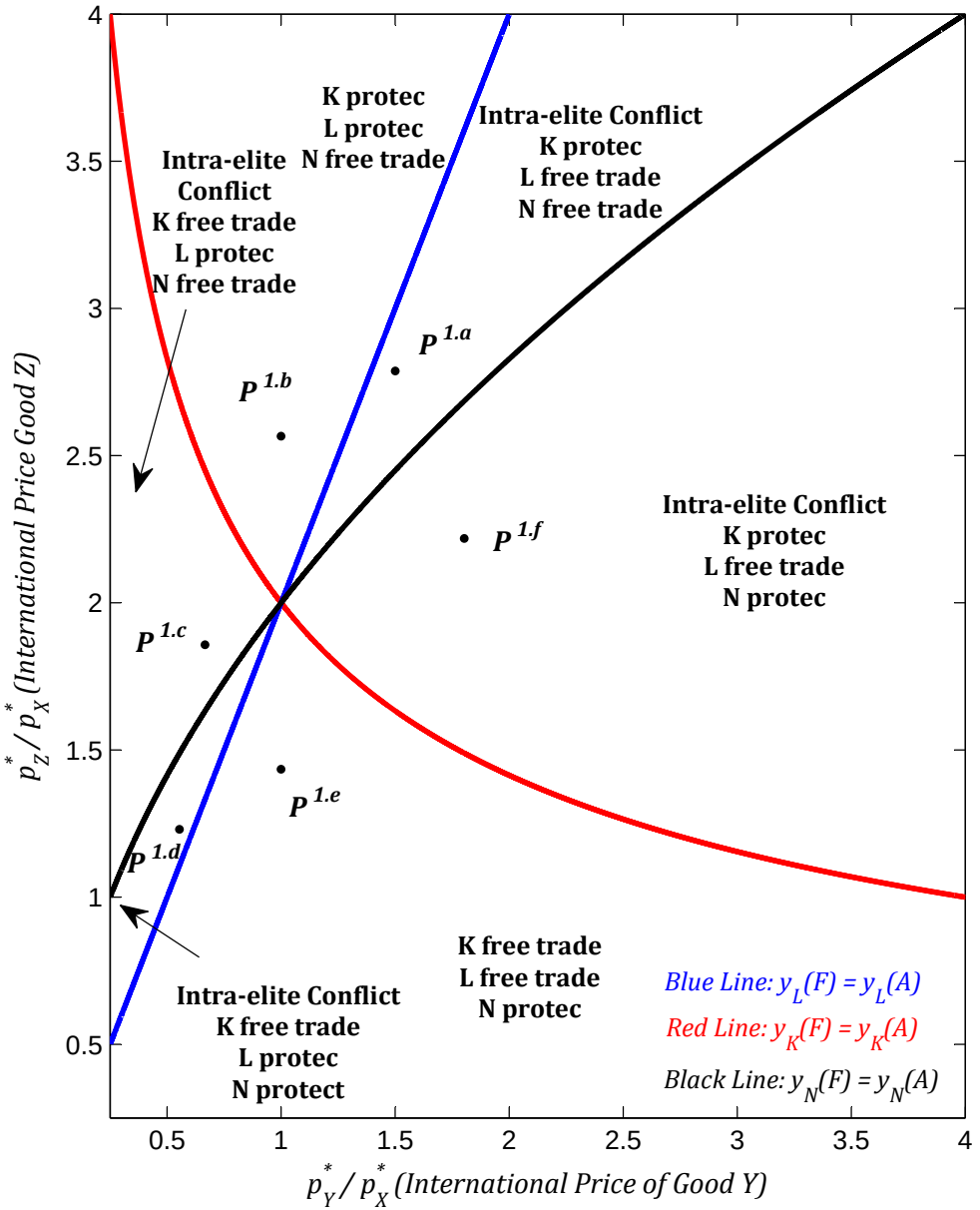


Figure 4: Simple Factor-Specific Model (Model 1)

Fig. 4.a: N pro-free-trade, K protectionist and L pro-free-trade

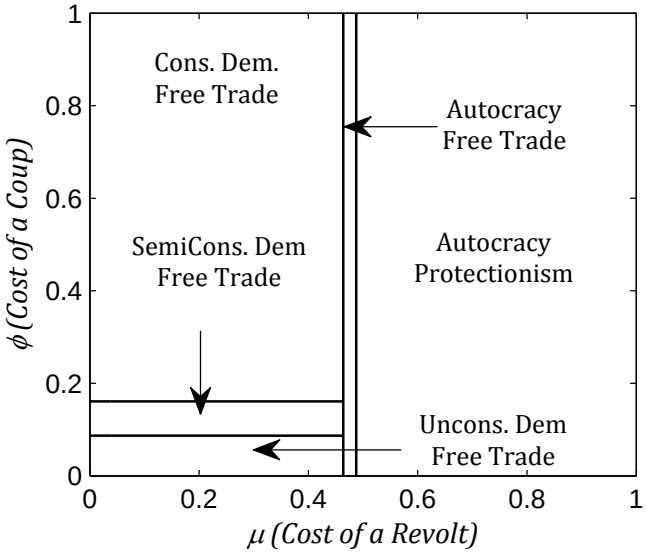


Fig. 4.b: N pro-free-trade and K and L protectionist

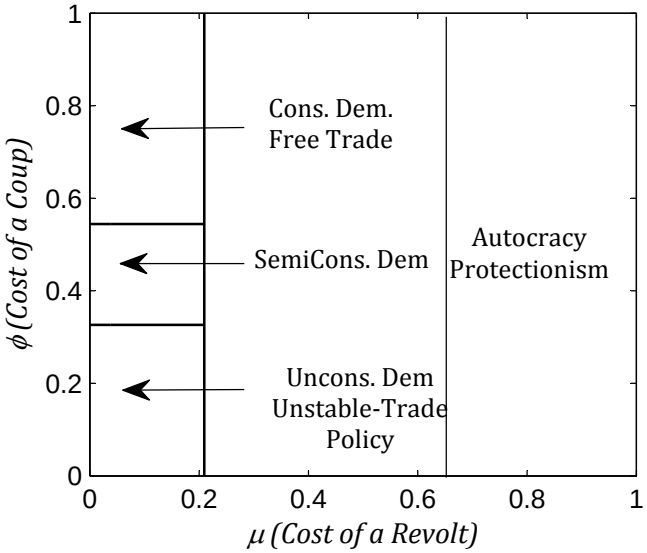


Fig. 4.c: N pro-free-trade, K pro-free-trade and L protectionist

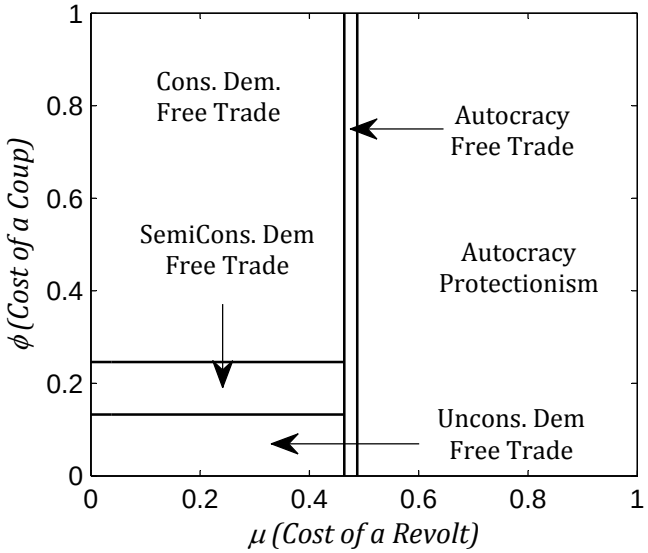


Fig. 4.d: N protectionist, K pro-free-trade and L protectionist

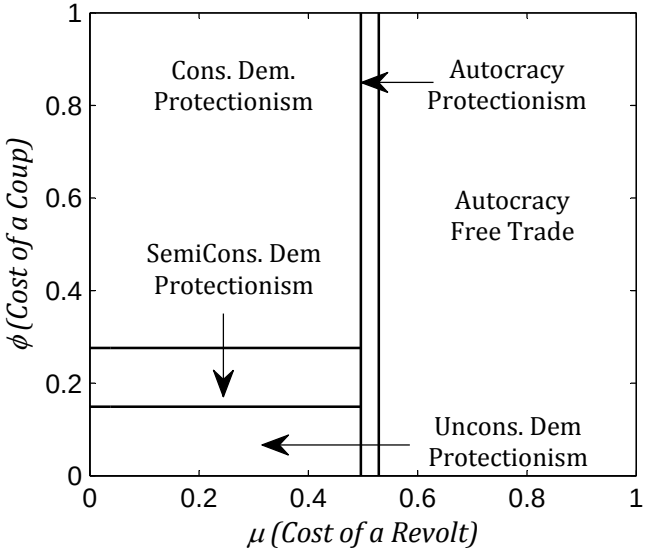


Fig. 4.e: N protectionist and K and L pro-free-trade

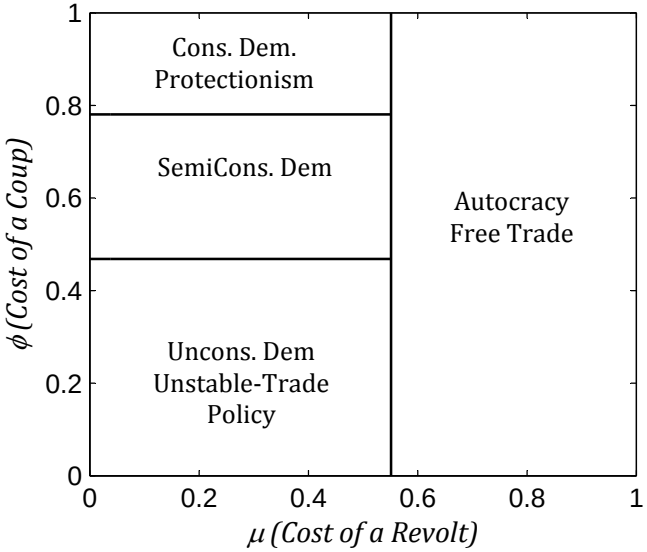


Fig. 4.f: N protectionist, K protectionist and L pro-free-trade

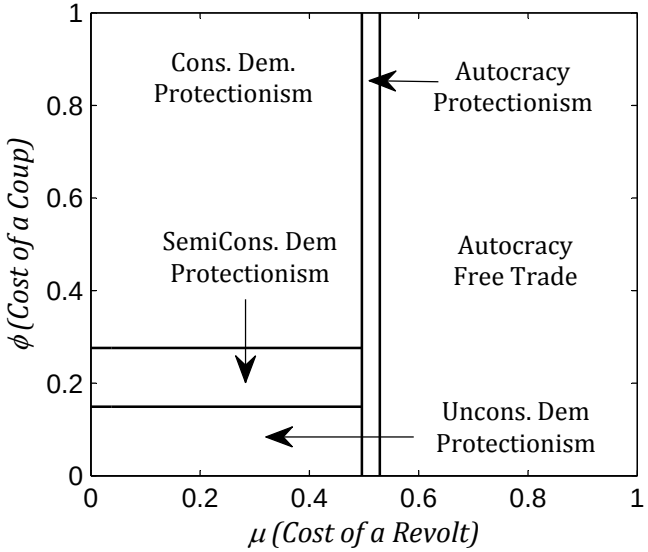


Figure 5: Simple Factor-Specific Model (Model 1)

Fig. 5.a: N pro-free-trade, K protectionist and L pro-free-trade

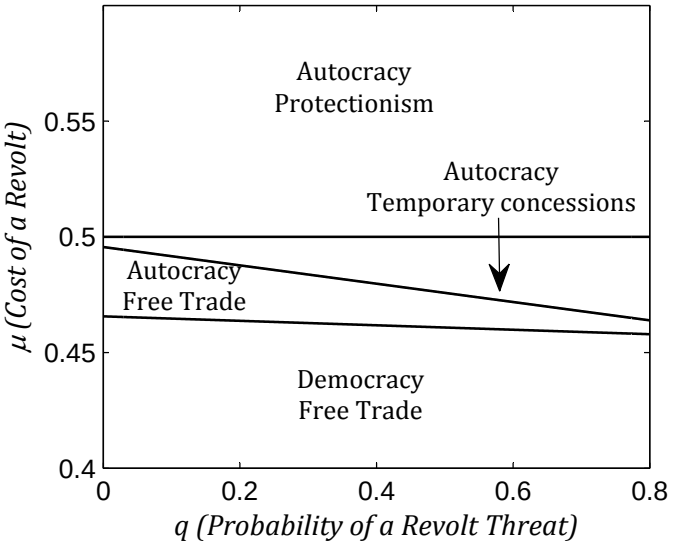


Fig 5.b: N pro-free-trade and K and L protectionist

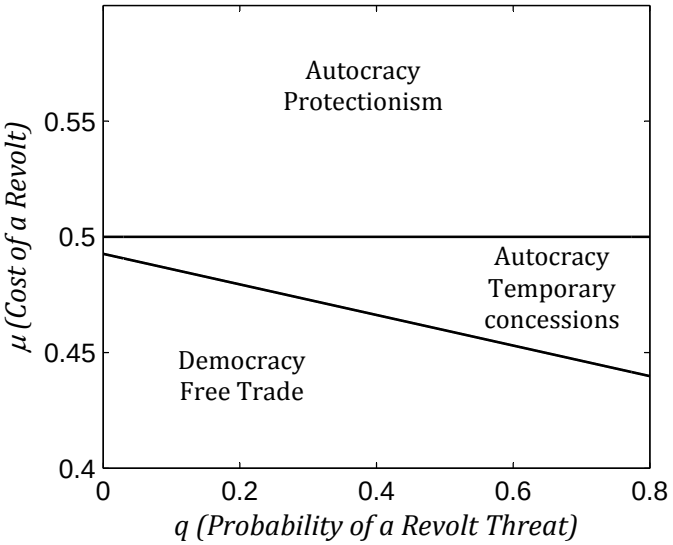


Fig. 5.c: N pro-free-trade, K pro-free-trade and L protectionist

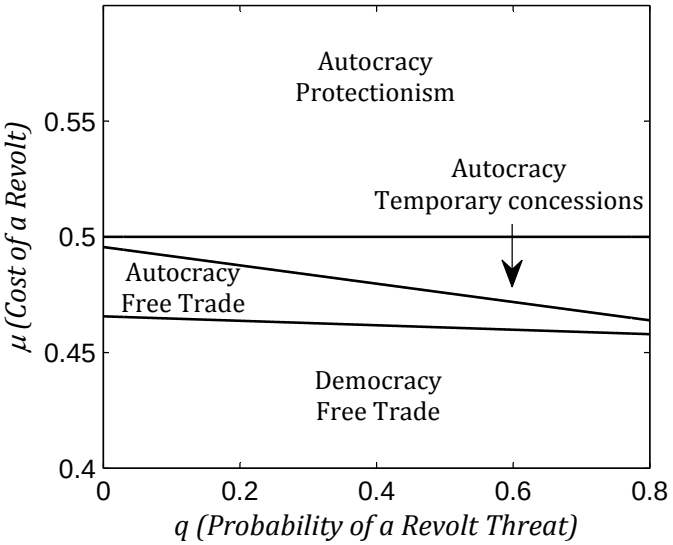


Fig. 5.d: N protectionist, K pro-free-trade and L protectionist

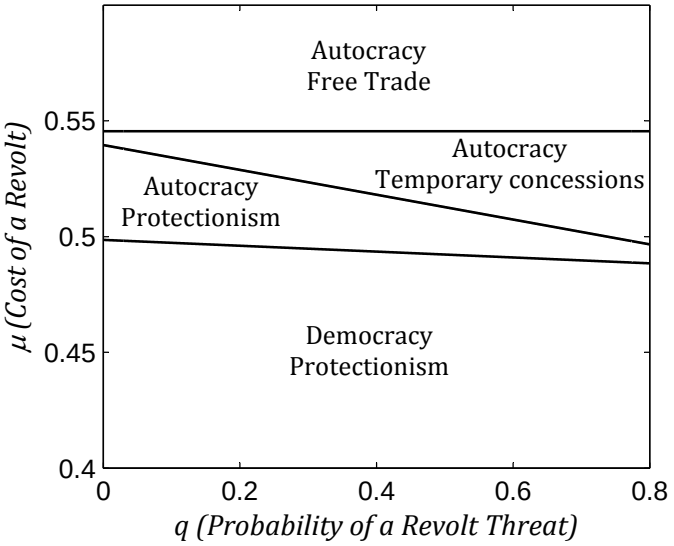
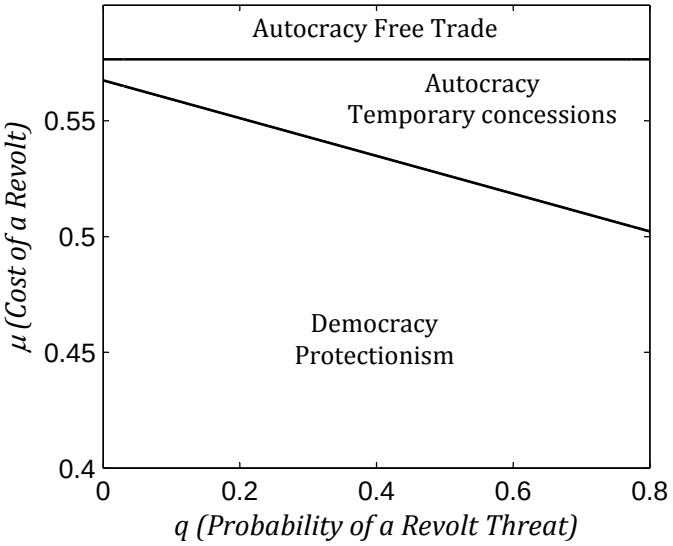


Fig. 5.e: N protectionist and K and L pro-free-trade



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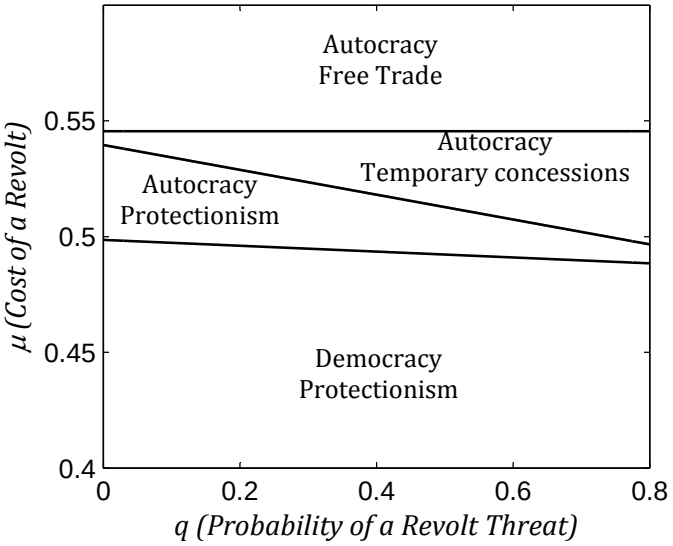


Figure 6: Simple Factor-Specific Model (Model 1)

Fig. 6.a: N pro-free-trade, K protectionist and L pro-free-trade

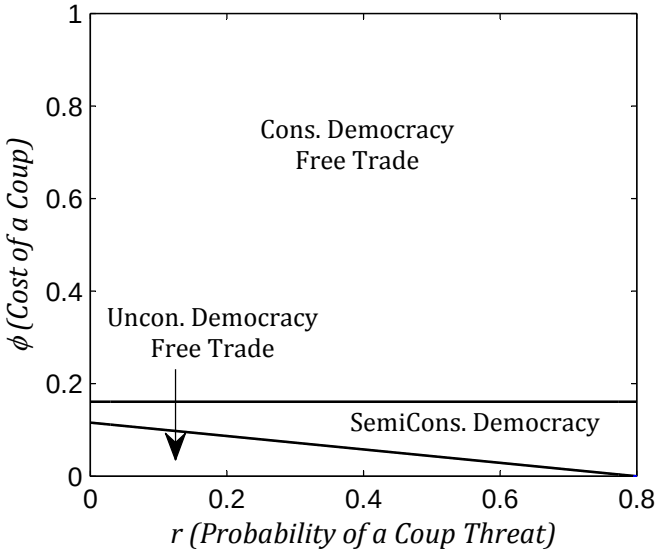


Fig 6.b: N pro-free-trade and K and L protectionist

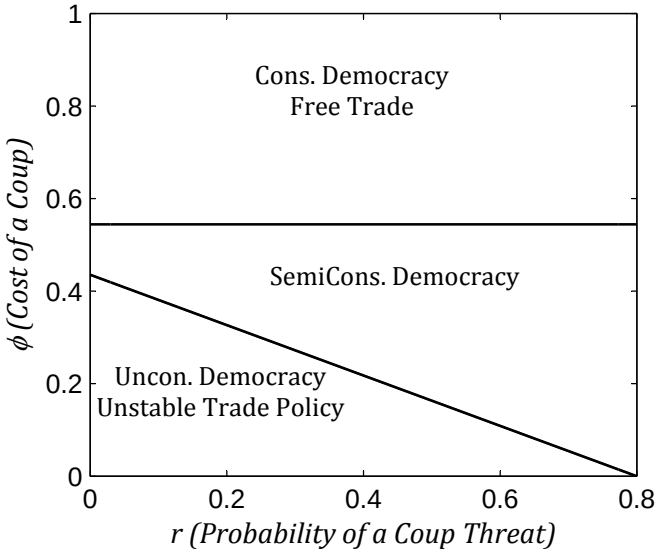


Fig. 6.c: N pro-free-trade, K pro-free-trade and L protectionist

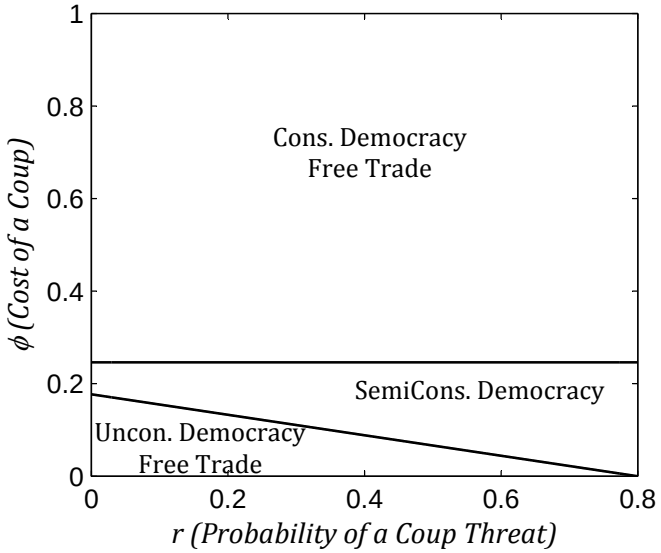


Fig. 6.d: N protectionist, K pro-free-trade and L protectionist

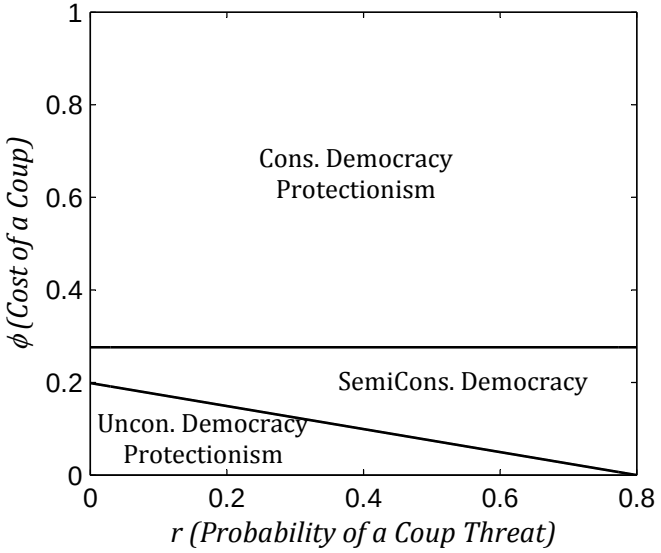
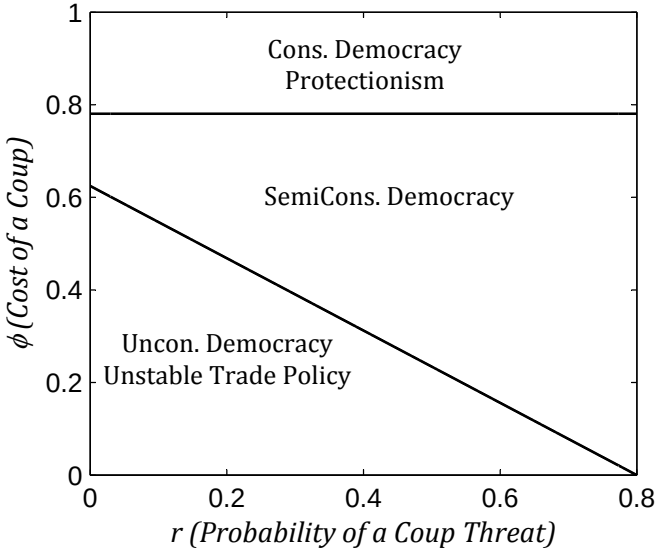


Fig. 6.e: N protectionist and K and L pro-free-trade



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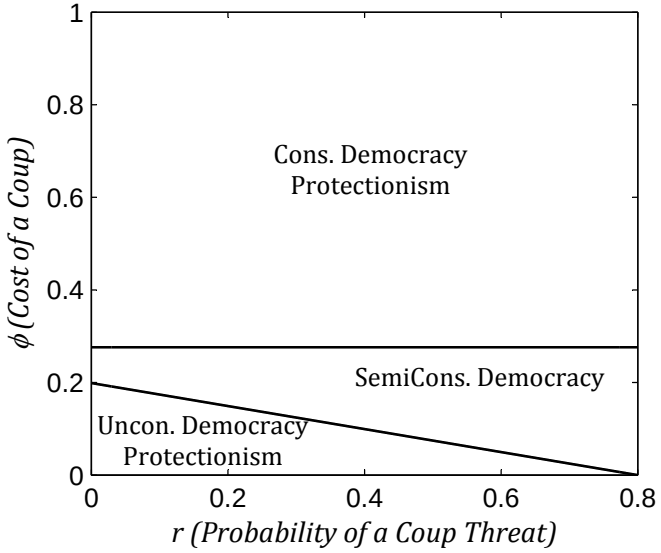


Figure 2: Ricardo-Viner Factor-Specific Model (Model 2)

Fig. 2.a: Trade Policy Stance as a Function of World Endowments

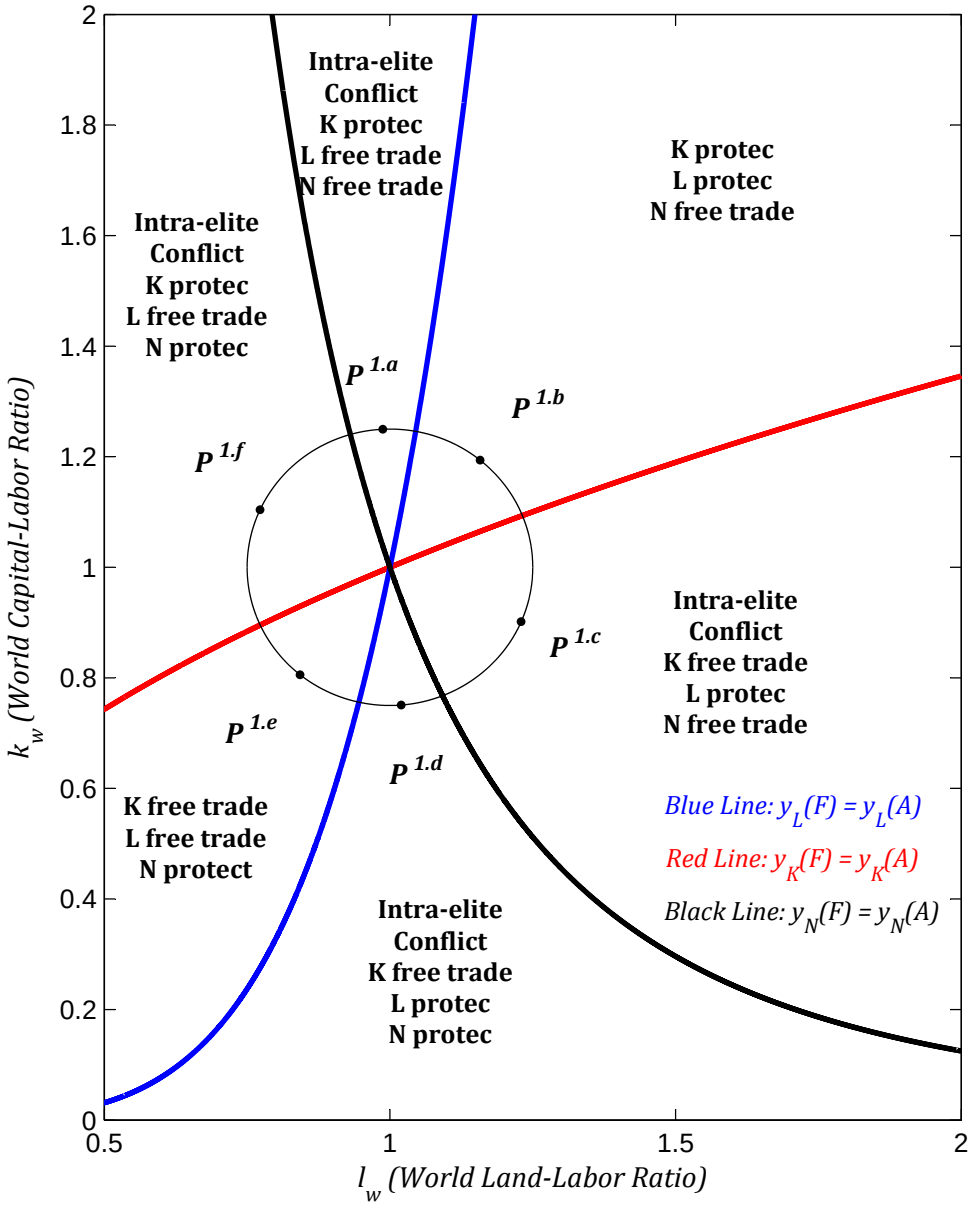


Fig. 2.b: Trade Policy Stance as a Function of International Price (Small Economy)

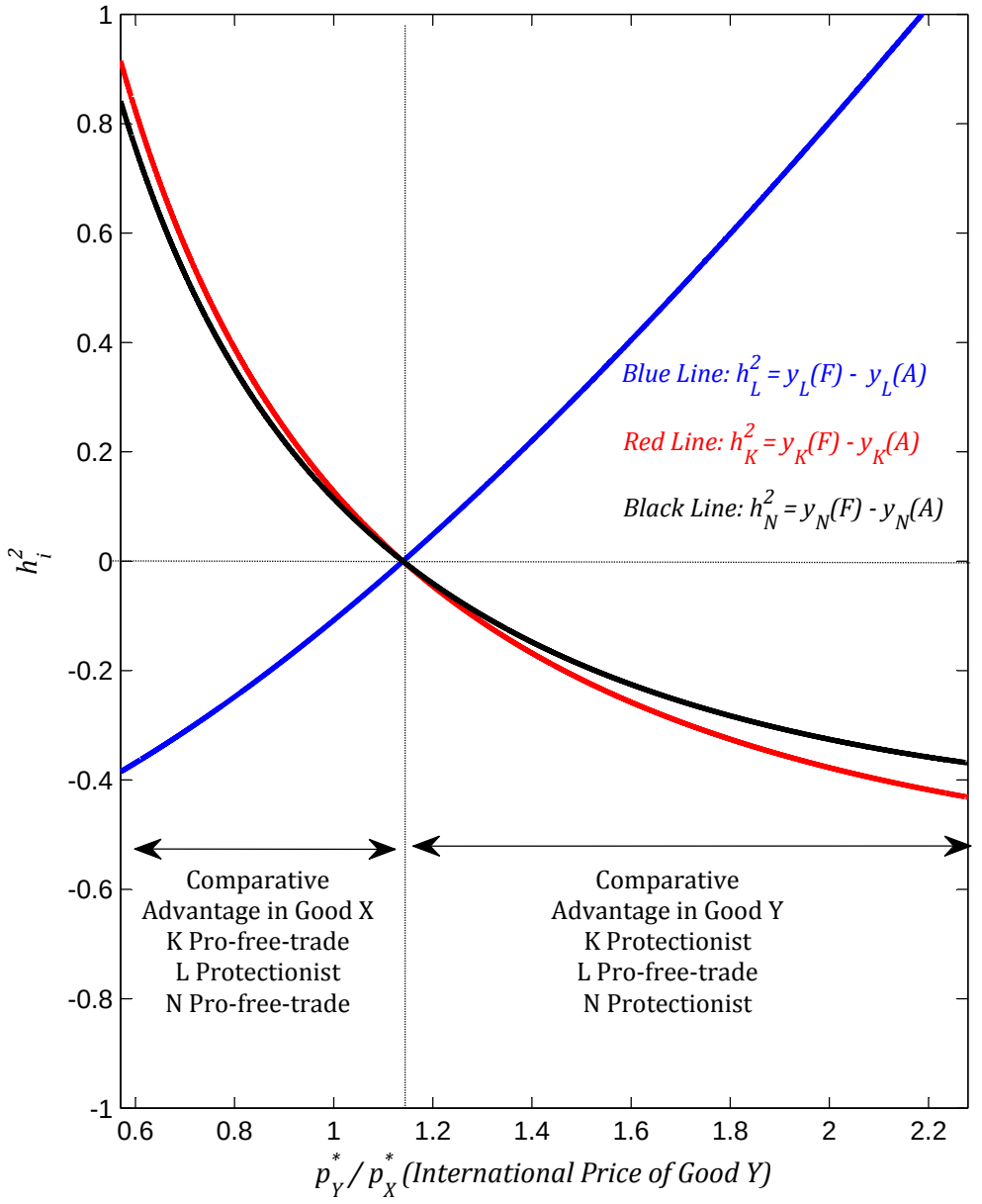


Figure 7: Ricardo-Viner Factor-Specific Model (Model 2)

Fig. 7.a: N pro-free-trade, K protectionist and L pro-free-trade

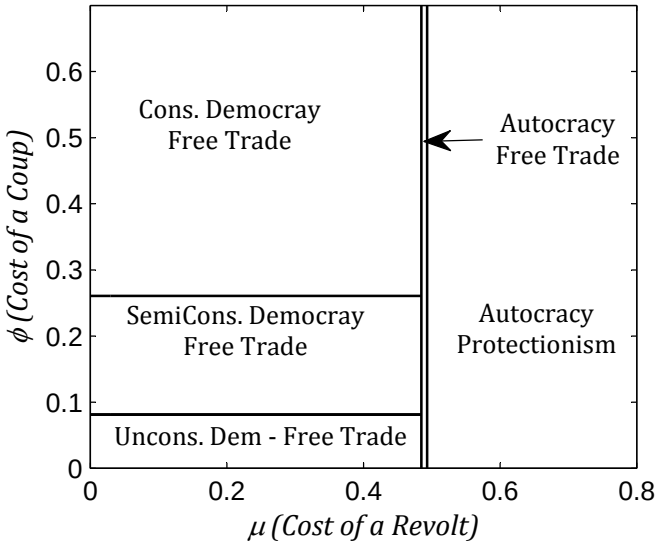
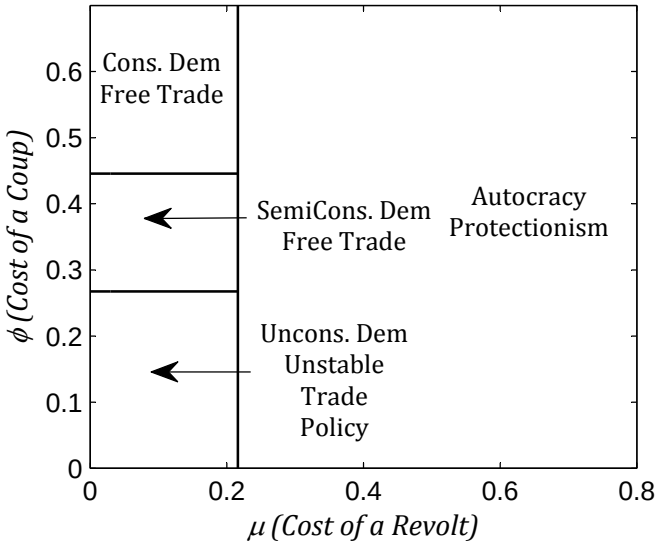


Fig 7.b: N pro-free-trade and K and L protectionist



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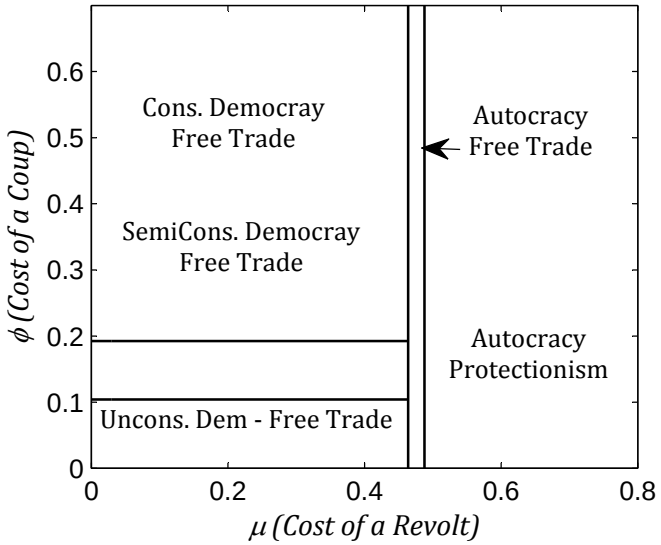

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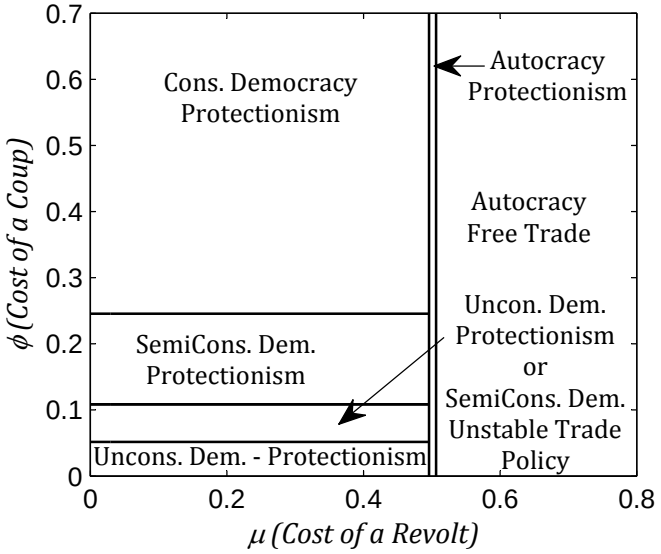


Fig. 7.e: N protectionist and K and L pro-free-trade

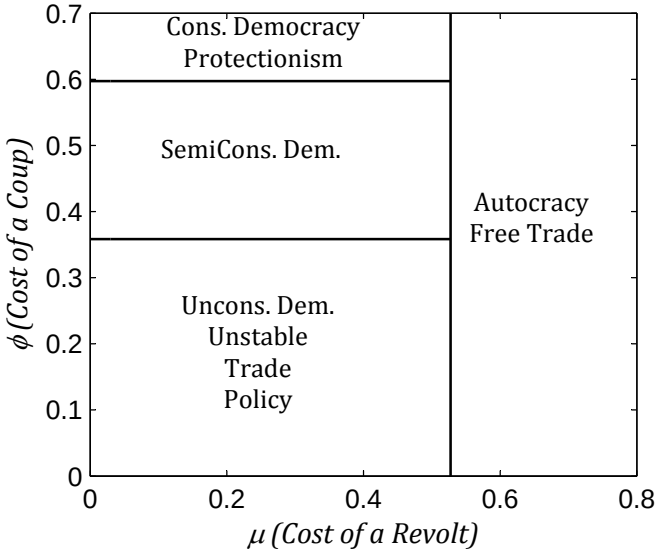


Fig. 7.f: N protectionist, K protectionist and L pro-free-trade

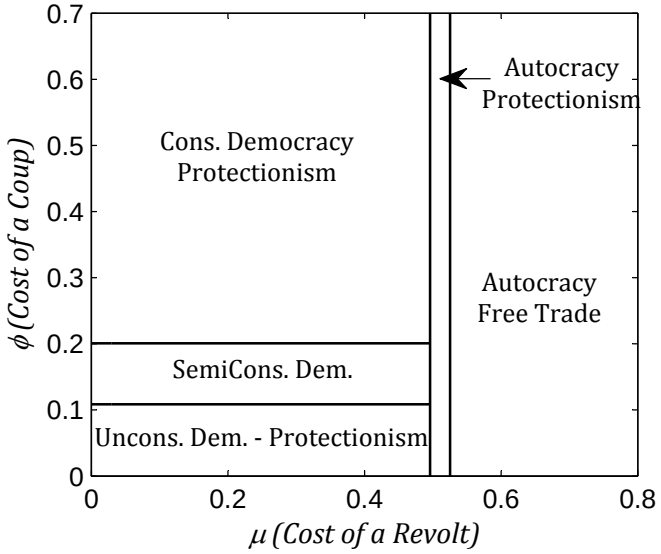


Figure 8: Ricardo-Viner Factor-Specific Model (Model 2)

Fig. 8.a: N pro-free-trade, K protectionist and L pro-free-trade

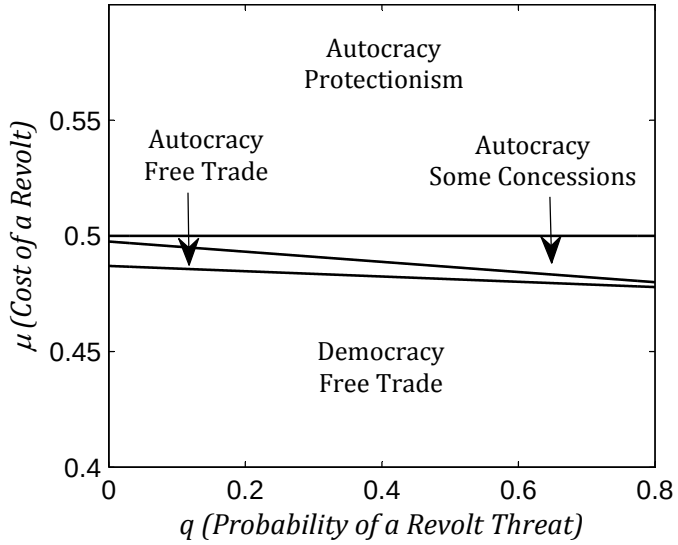


Fig. 8.b: N pro-free-trade and K and L protectionist

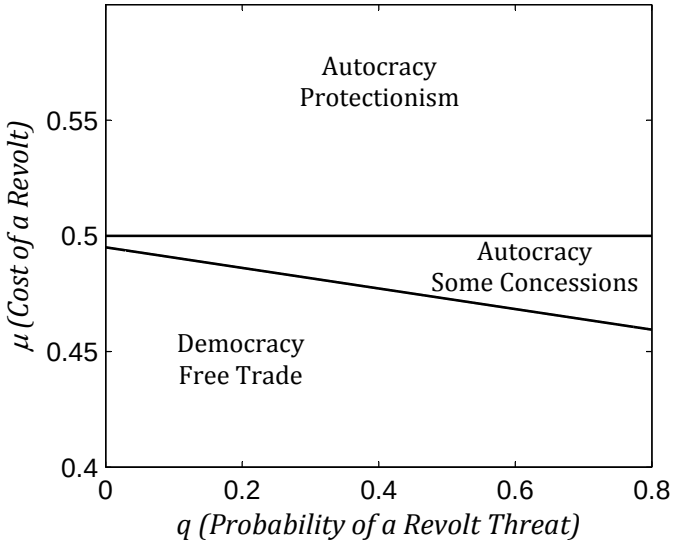
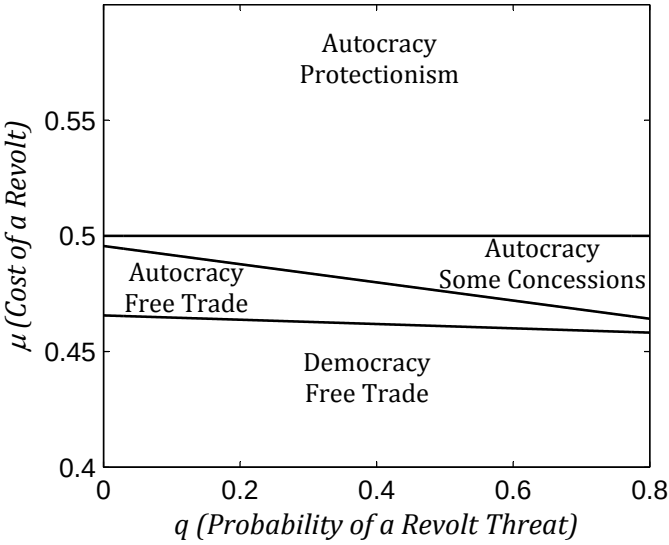


Fig. 8.c: N pro-free-trade, K pro-free-trade and L protectionist



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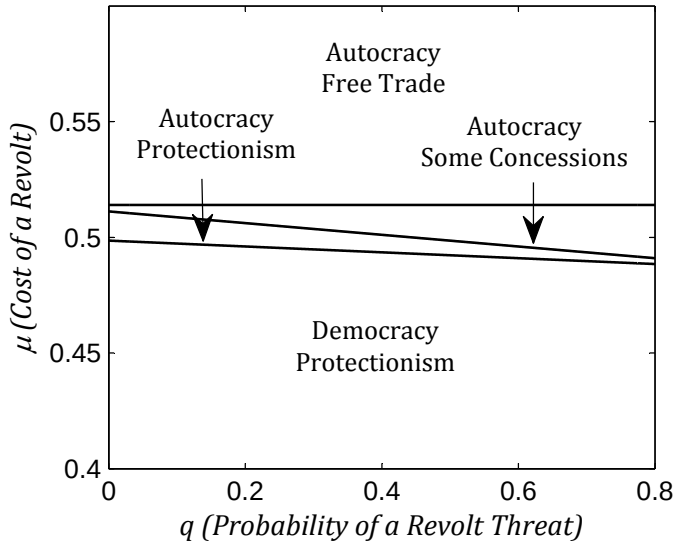


Fig. 8.e: N protectionist and K and L pro-free-trade

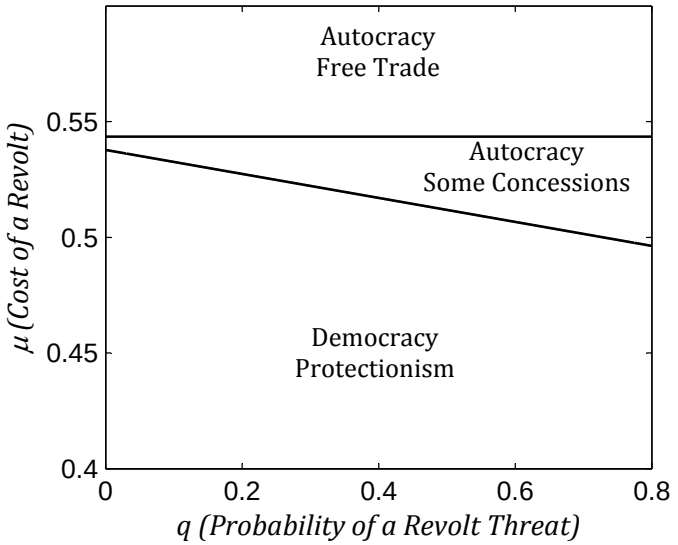


Fig. 8. f: N protectionist, K protectionist and L pro-free-trade

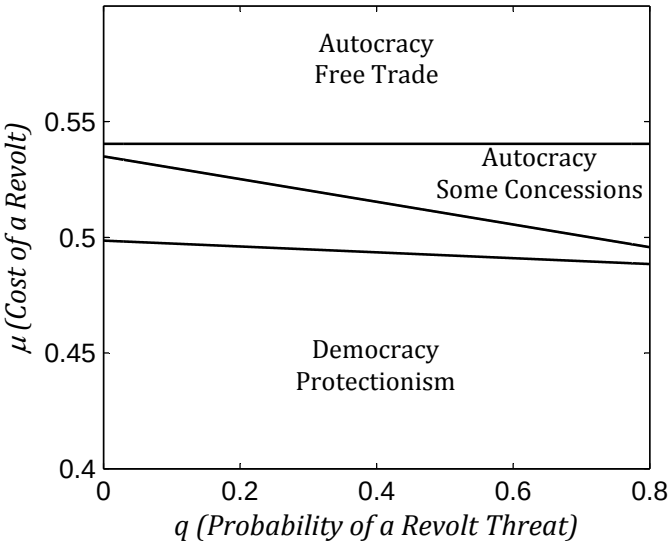


Figure 9: Ricardo-Viner Factor-Specific Model (Model 2)

Fig. 9.a: N pro-free-trade, K protectionist and L pro-free-trade

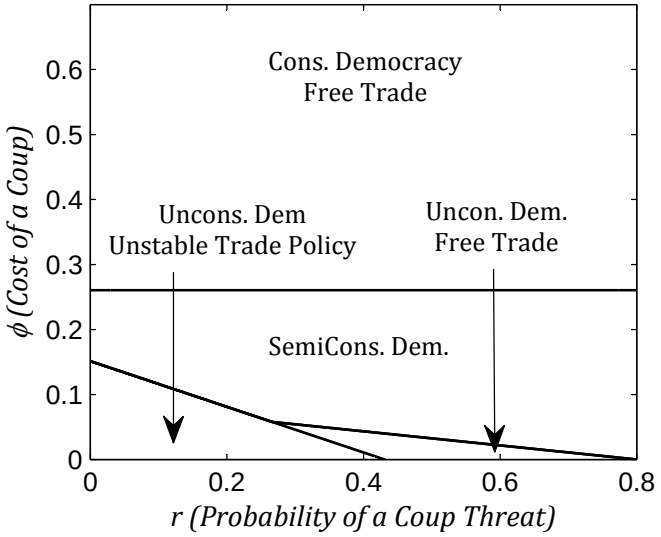


Fig. 9.b: N pro-free-trade and K and L protectionist

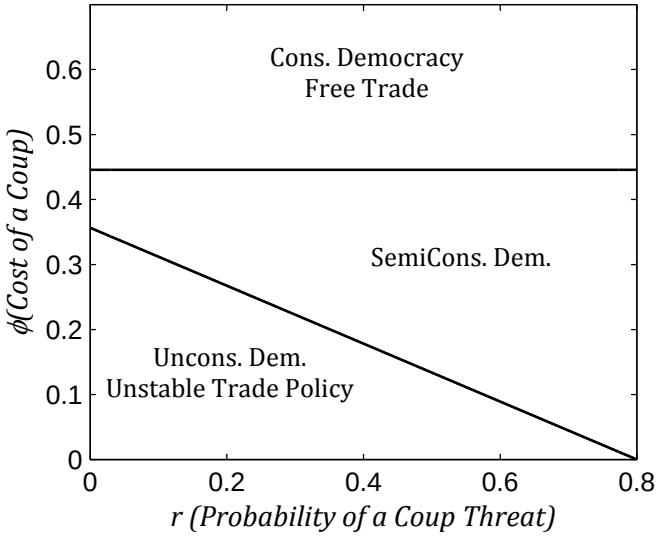


Fig. 9.c: N pro-free-trade, K pro-free-trade and L protectionist

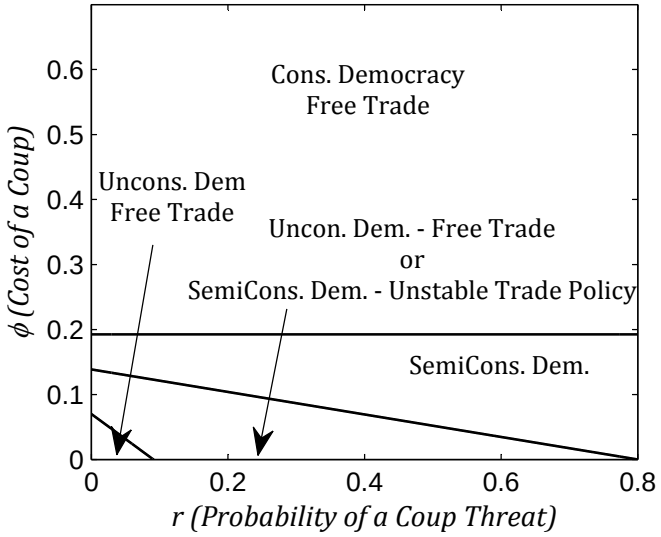


Fig. 9.d: N protectionist, K pro-free-trade and L protectionist

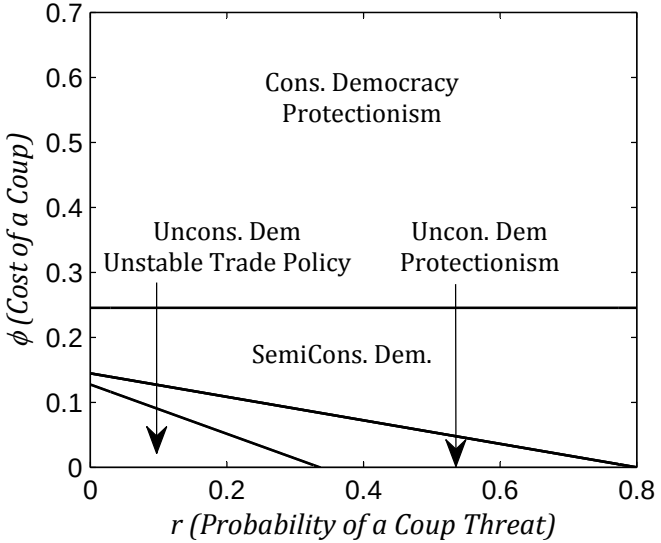


Fig. 9.e: N protectionist and K and L pro-free-trade

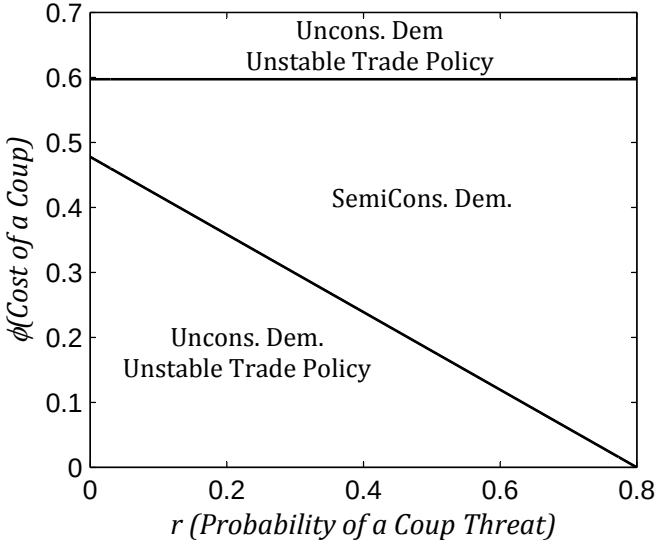


Fig. 9.f: N protectionist, K protectionist and L pro-free-trade

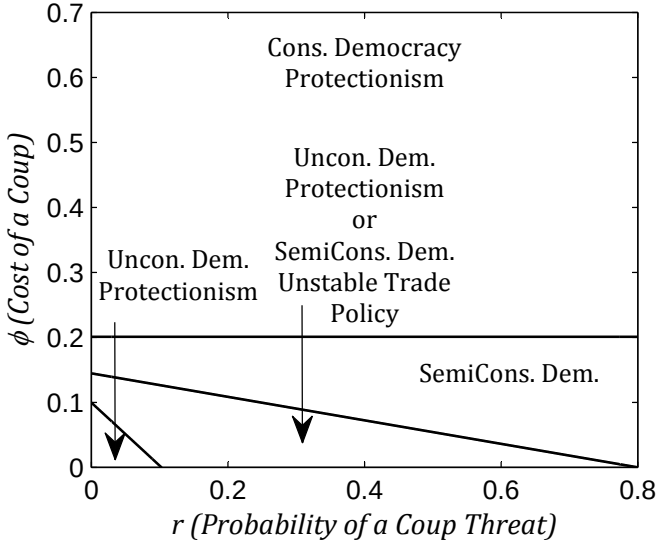


Figure 3: Simple Model with a Non-tradeable Good (Model 3)

Trade Policy Stance as a Function of International Prices

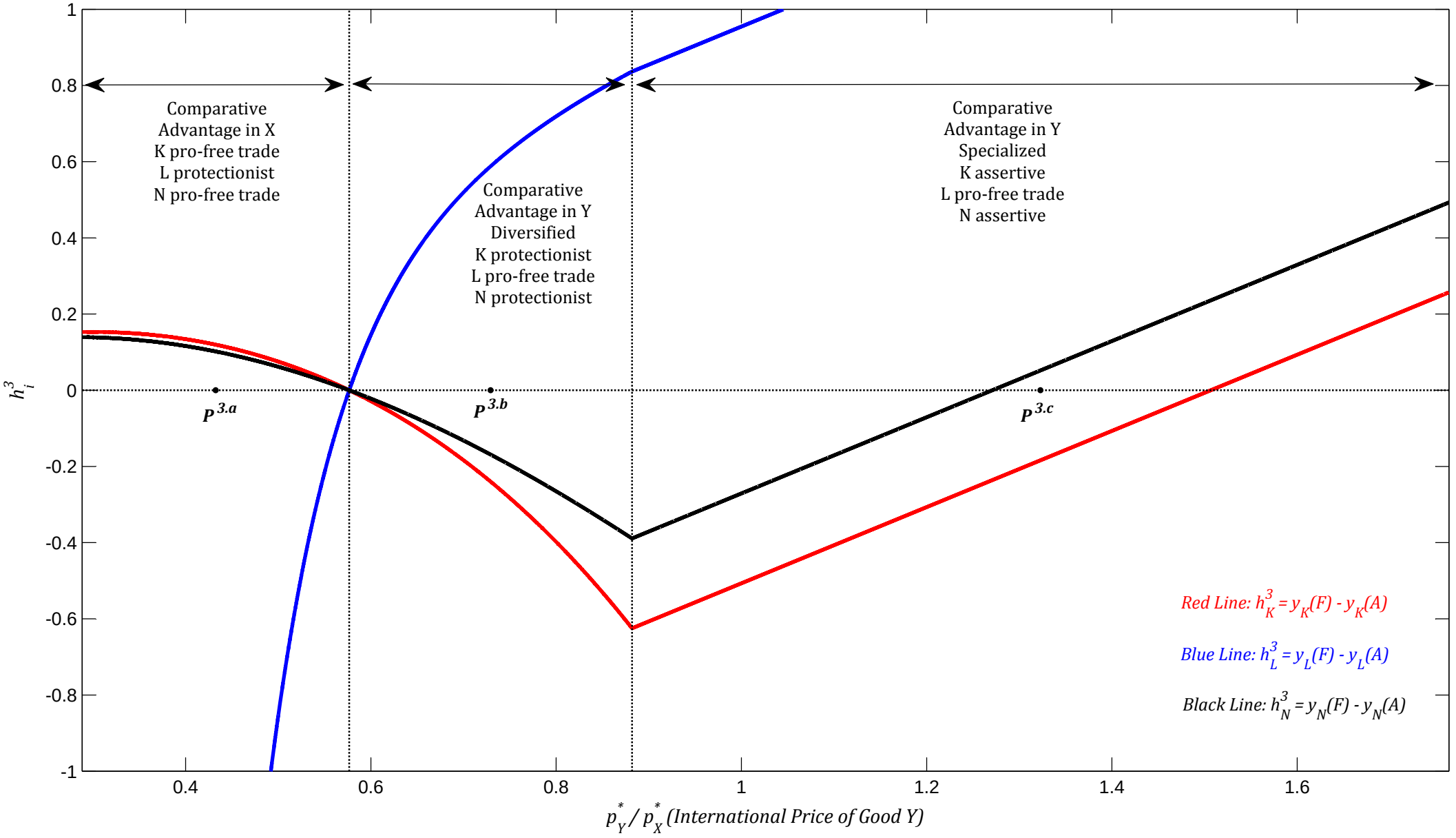


Figure 10: Simple Model with a Non-tradeable Good (Model 3)

Fig. 10.a: N pro-free-trade, K pro-free-trade and L protectionist

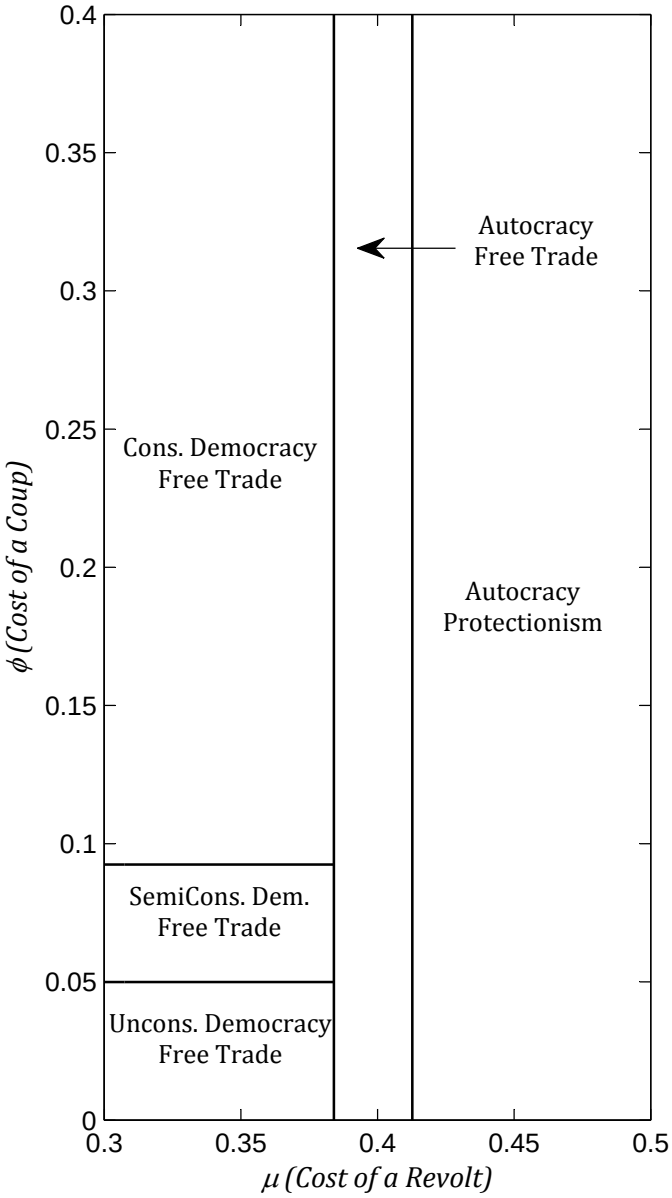


Fig. 10.b: N protectionist, K protectionist and L pro-free-trade

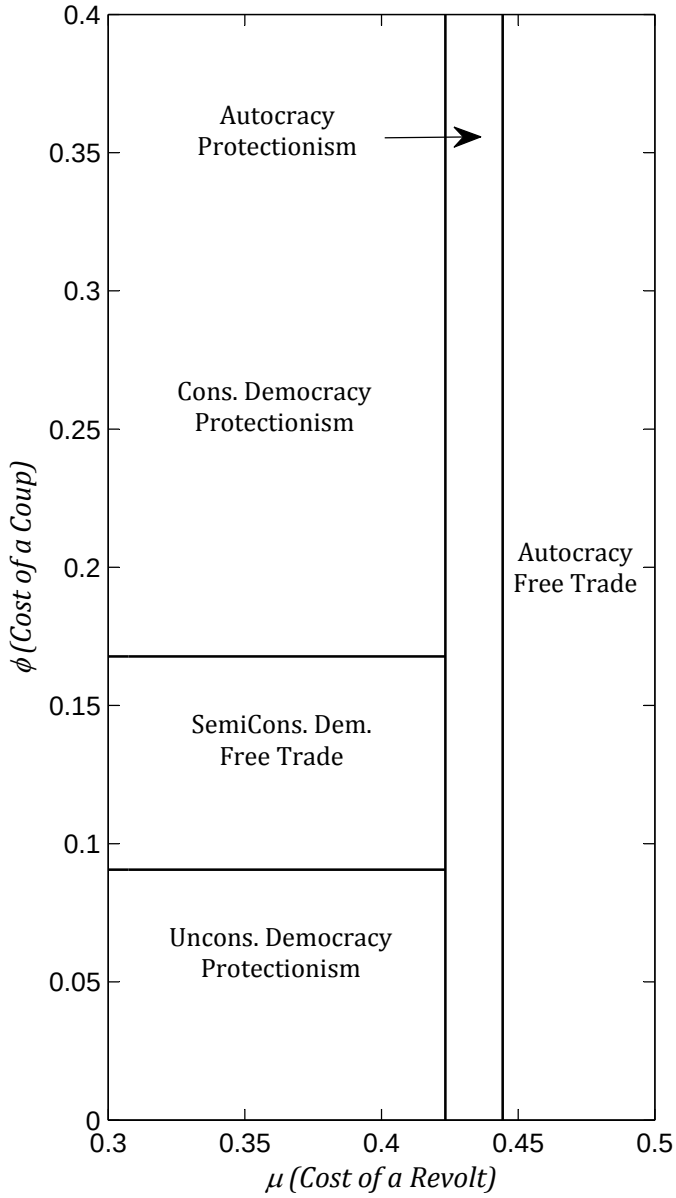


Fig. 10.c: N pro-free-trade, K protectionist and L pro-free-trade

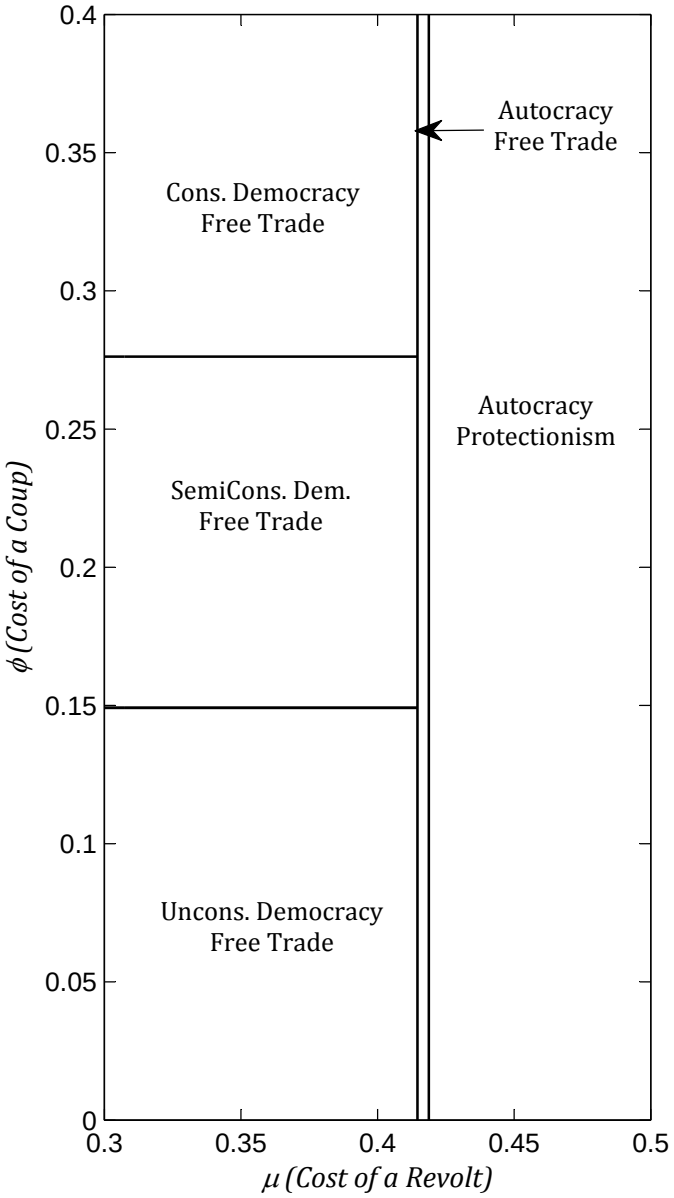


Figure 11: Simple Model with a Non-tradeable Good (Model 3)

Fig. 11.a: N pro-free-trade, K pro-free-trade and L protectionist

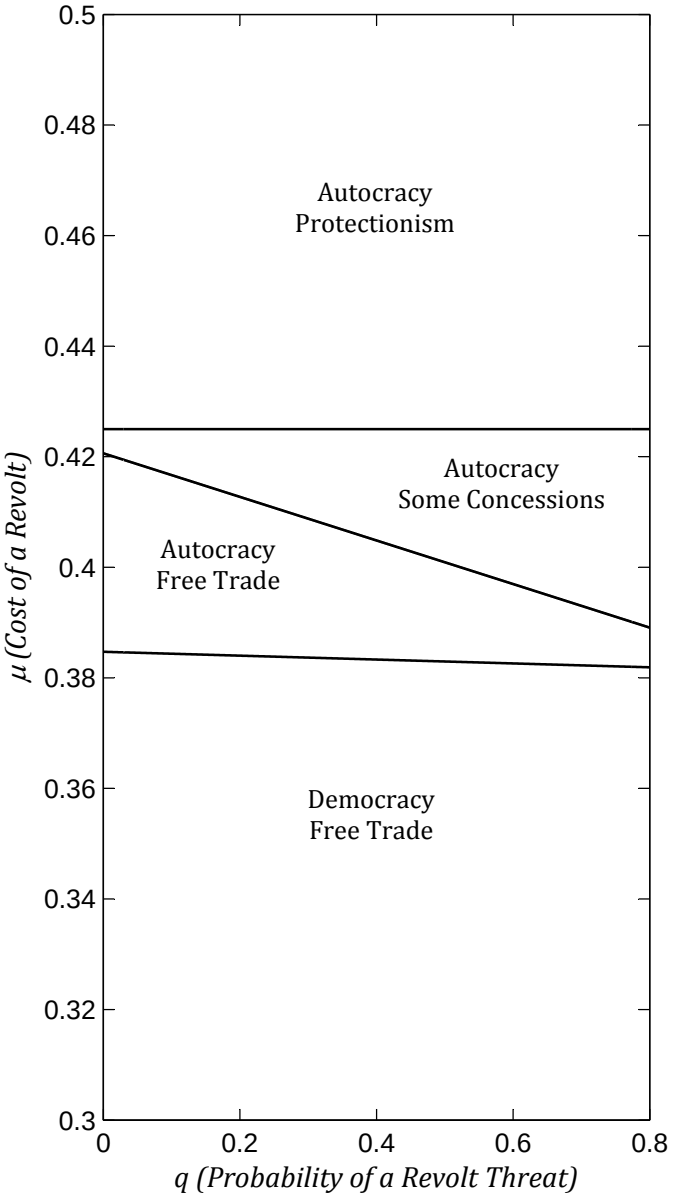


Fig. 11.b: N protectionist, K protectionist and L pro-free-trade

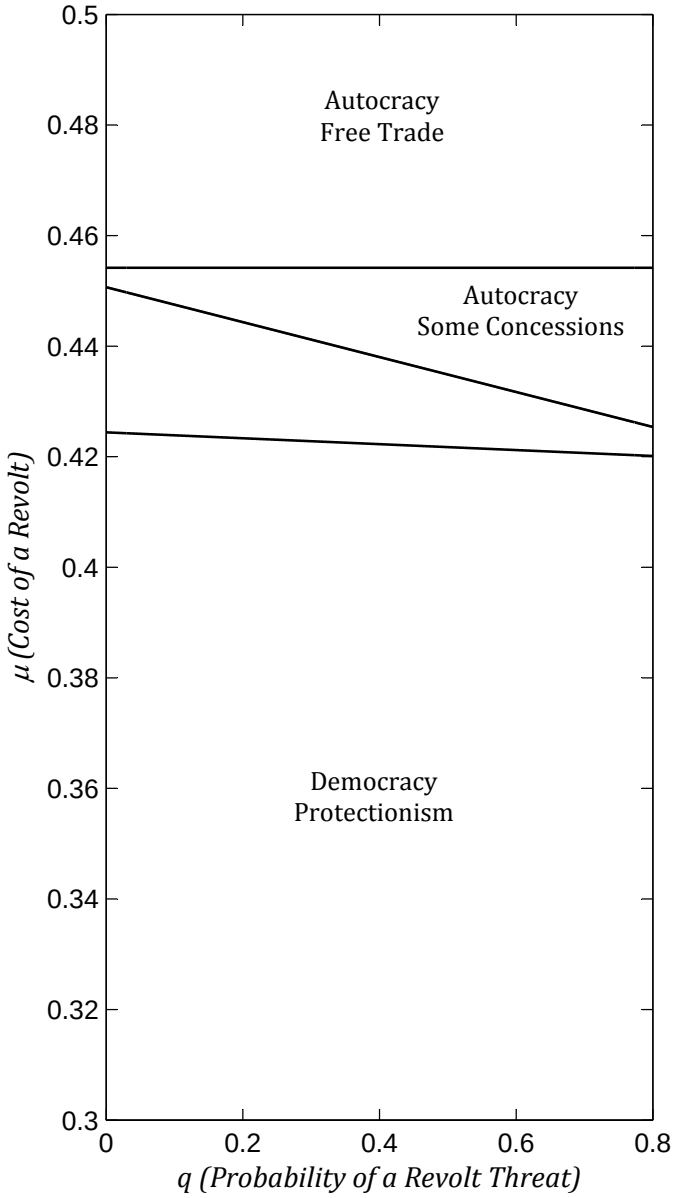


Fig. 11.c: N pro-free-trade, K protectionist and L pro-free-trade

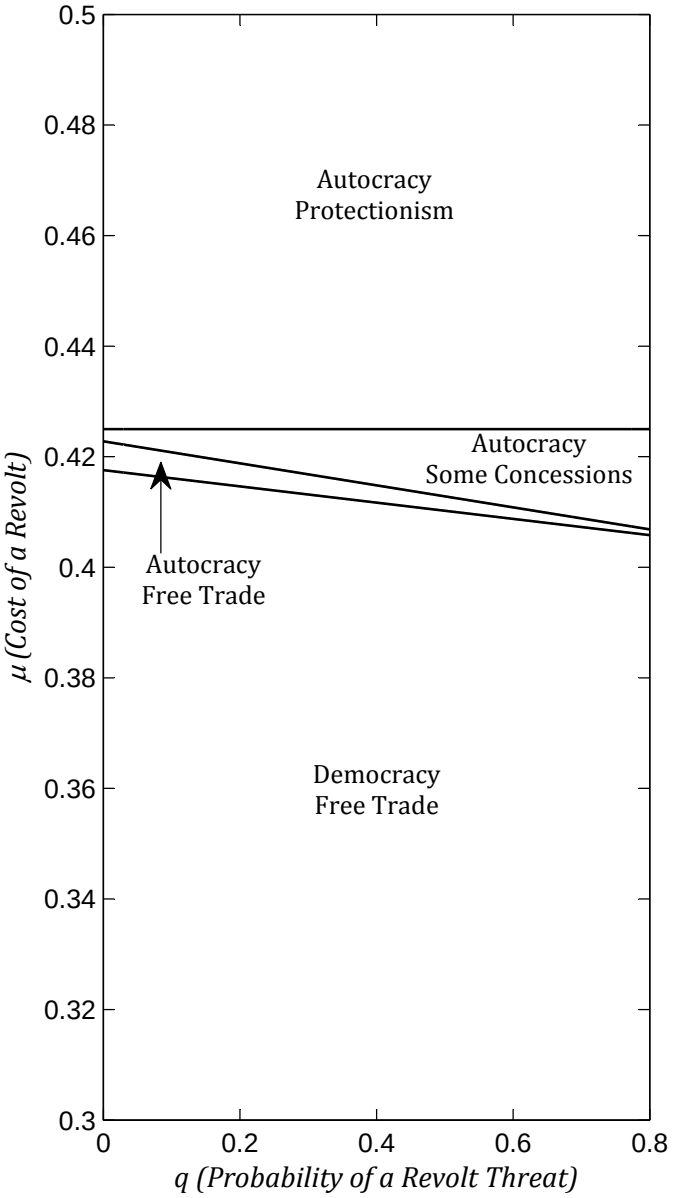


Figure 12: Simple Model with a Non-tradeable Good (Model 3)

Fig. 12.a: N pro-free-trade, K pro-free-trade and L protectionist

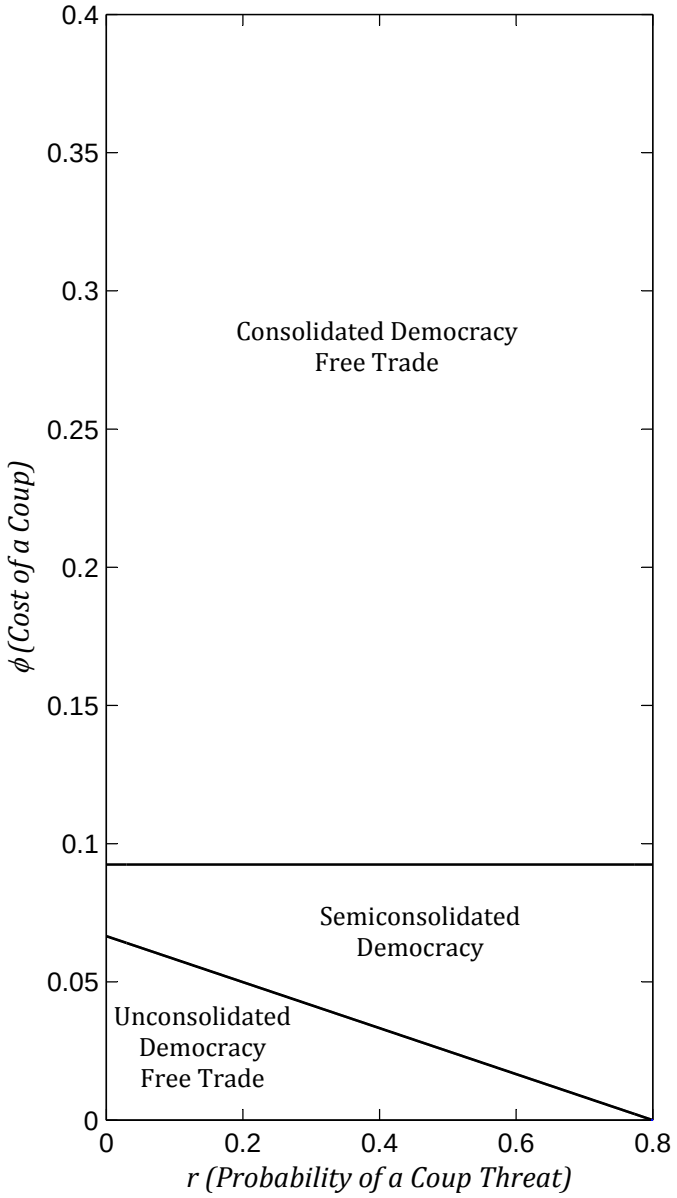


Fig. 12.b: N protectionist, K protectionist and L pro-free-trade

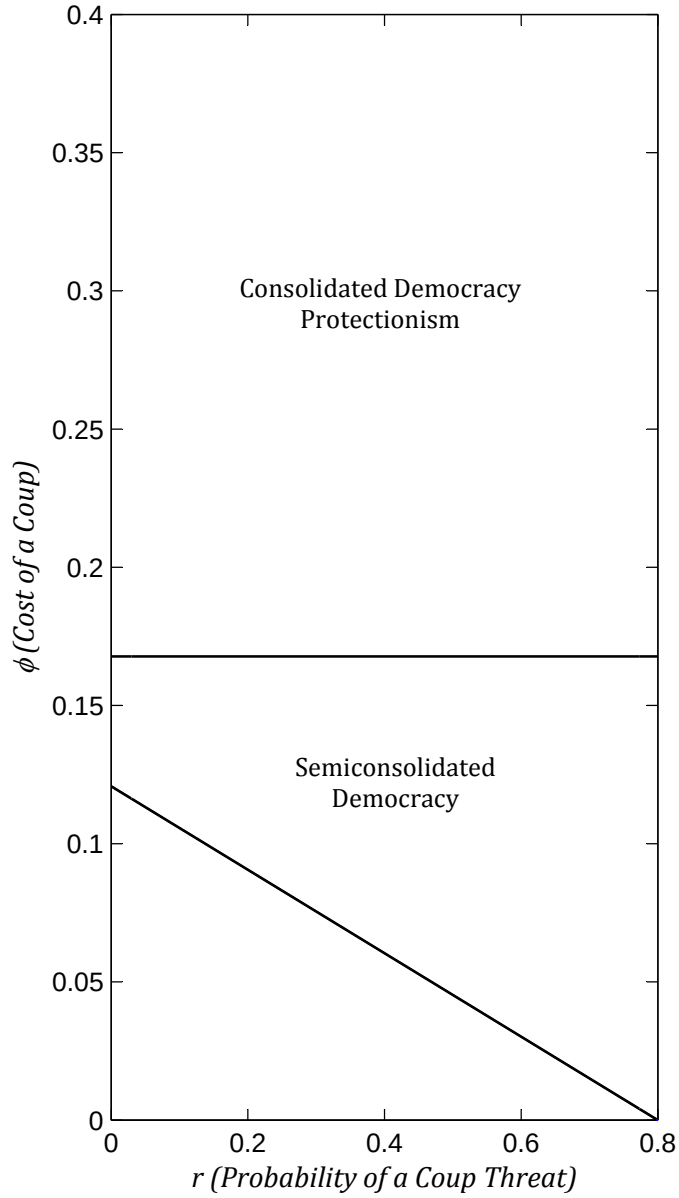
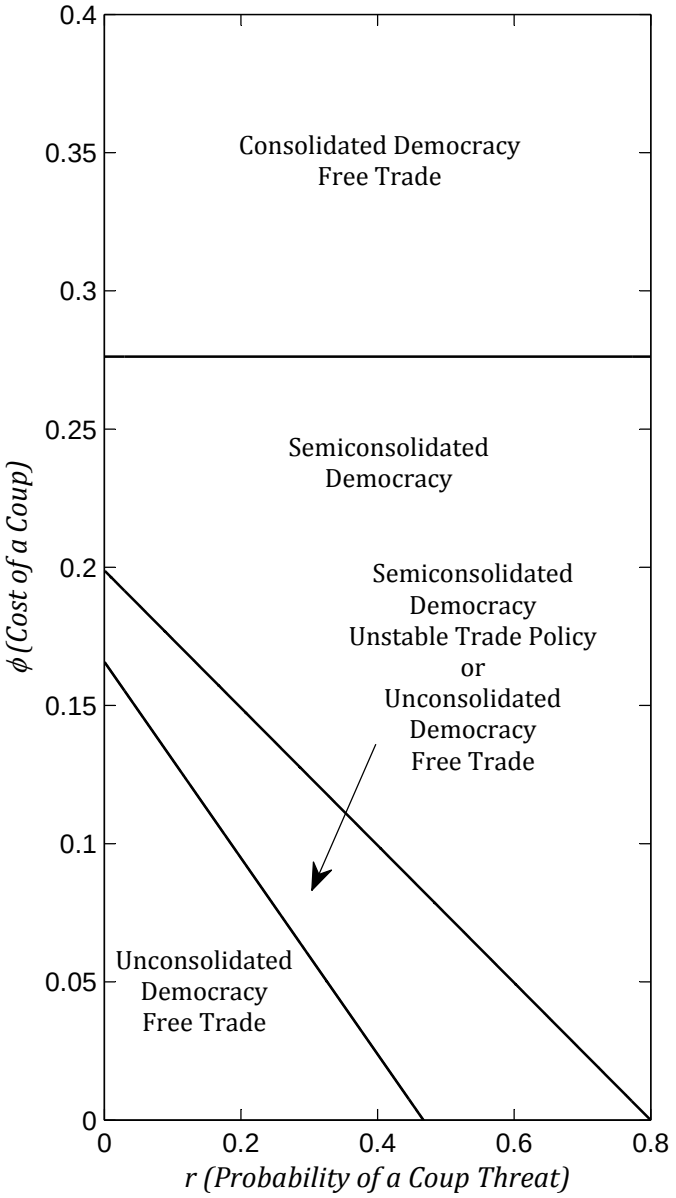


Fig. 12.c: N pro-free-trade, K protectionist and L pro-free-trade



Appendix to Autocracy, Democracy and Trade Policy

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Appendix 1: The Economy

In this appendix we deduce the trade policy stance of each socioeconomic group for three different international trade models.

Consider an economy with three primary inputs indexed by $i = K, L, N$ and three final goods indexed by $j = X, Y, Z$. Let Y_j denote the consumption of j and Q_j the production of good j. Assume that preferences and the production function are Cobb-Douglass, i.e.:

$$U = (Y_X)^{\beta_X} (Y_Y)^{\beta_Y} (Y_Z)^{\beta_Z}, \; Q_j = (K_j)^{\alpha_{K,j}} (N_j)^{\alpha_{N,j}} (L_j)^{\alpha_{L,j}} \text{ for } j = X, Y, Z.$$

We can represent this economy by the tuple $\mathbf{M} = \langle \mathbf{A}, \mathbf{B}, \mathbf{E}, (TG, NTG) \rangle$, where:

$$\mathbf{A} = \begin{bmatrix} \alpha_{K,X} & \alpha_{K,Y} & \alpha_{K,Z} \\ \alpha_{L,X} & \alpha_{L,Y} & \alpha_{L,Z} \\ \alpha_{N,X} & \alpha_{N,Y} & \alpha_{N,Z} \end{bmatrix}, \mathbf{B} = \begin{bmatrix} \beta_X \\ \beta_Y \\ \beta_Z \end{bmatrix}, \mathbf{E} = (K, L, N),$$

$$\alpha_{i,j} \geq 0, \sum\nolimits_i \alpha_{i,j} = 1 \text{ for } j = X, Y, Z, \; \beta_j \geq 0, \; \sum\nolimits_j \beta_j = 1,$$

$$(TG, NTG) \text{ such that } TG \cap NTG = \emptyset \text{ and } TG \cup NTG = \{X, Y, Z\}.$$

Let $p = [p_X, p_Y, p_Z]$, where p_j is the price of good $j = X, Y, Z$, let $w = [w_K, w_L, w_N]$, where w_i is the price of factor $i = K, L, N$, let $p^* = [p_X^*, p_Y^*, p_Z^*]$, where p_j^* is the international price of good $j = X, Y, Z$,

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and let e be the exchange rate. Then, equilibrium conditions are[1]:

$$p_X \alpha_{K,X} \frac{Q_X}{K_X} = p_Y \alpha_{K,Y} \frac{Q_Y}{K_Y} = p_Z \alpha_{K,Z} \frac{Q_Z}{K_Z} = w_K, \sum\nolimits_{j=X,Y,Z} K_j = K, \tag{14a}$$

$$p_X \alpha_{L,X} \frac{Q_X}{L_X} = p_Y \alpha_{L,Y} \frac{Q_Y}{L_Y} = p_Z \alpha_{L,Z} \frac{Q_Z}{L_Z} = w_L, \sum\nolimits_{j=X,Y,Z} L_j = L, \tag{14b}$$

$$p_X \alpha_{N,X} \frac{Q_X}{N_X} = p_Y \alpha_{N,Y} \frac{Q_Y}{N_Y} = p_Z \alpha_{N,Z} \frac{Q_Z}{N_Z} = w_N, \sum\nolimits_{j=X,Y,Z} N_j = N, \tag{14c}$$

$$p_j Y_j = \beta_j \left(w.\mathbf{E} \right), \text{ for } j = X, Y, Z, \tag{14d}$$

$$\text{Closed Economy: } Y_j = Q_j \text{ for } j = X, Y, Z, \tag{14e}$$

$$\text{Open Economy: } p_j = e p_j^* \text{ and } p_j^* \text{ given for } j \in TG, \sum\nolimits_{j \in TG} p_j \left(Y_j - Q_j \right) = 0, \text{ and } Y_j = Q_j \text{ for } j \in NTG. \tag{14f}$$

For a closed economy, equilibrium quantities are:

$$K_j = \gamma_{K,j} K,\ N_j = \gamma_{N,j} N,\ L_j = \gamma_{L,j} L,\ Q_j = c_j \left(k \right)^{\alpha_{K,j}} \left(l \right)^{\alpha_{L,j}} N, \tag{15}$$

where $\gamma_{i,j} = \alpha_{i,j} \beta_j \left(\sum\nolimits_{j=X,Y,Z} \alpha_{i,j} \beta_j \right)^{-1}$ for $i = K, L, N$ and $j = X, Y, Z$ and $c_j = \prod\nolimits_{i \in K,N,L} \left(\gamma_{i,j} \right)^{\alpha_{i,j}}$ for $j = X, Y, Z$ are constants that depends only on the matrices $\mathbf{A}$ and $\mathbf{B}$. Define the consumer price index as $P = \left(p_X \right)^{\beta_X} \left(p_Y \right)^{\beta_Y} \left(p_Z \right)^{\beta_Z}$ and assume that $P = \left(\beta_X \right)^{\beta_X} \left(\beta_Y \right)^{\beta_Y} \left(\beta_Z \right)^{\beta_Z}$. Then, equilibrium prices are:

$$\begin{bmatrix} p_X \\ p_Y \\ p_Z \end{bmatrix} = c \begin{bmatrix} \left(\frac{\beta_X}{c_X} \right) (k)^{\left(\sum_{j=X,Y,Z} \alpha_{K,j} \beta_j - \alpha_{K,X} \right)} (l)^{\left(\sum_{j=X,Y,Z} \alpha_{L,j} \beta_j - \alpha_{L,X} \right)} \\ \left(\frac{\beta_Y}{c_Y} \right) (k)^{\left(\sum_{j=X,Y,Z} \alpha_{K,j} \beta_j - \alpha_{K,Y} \right)} (l)^{\left(\sum_{j=X,Y,Z} \alpha_{L,j} \beta_j - \alpha_{L,Y} \right)} \\ \left(\frac{\beta_Z}{c_Z} \right) (k)^{\left(\sum_{j=X,Y,Z} \alpha_{K,j} \beta_j - \alpha_{K,Z} \right)} (l)^{\left(\sum_{j=X,Y,Z} \alpha_{L,j} \beta_j - \alpha_{L,Z} \right)} \end{bmatrix}, \tag{16}$$

where $c = \left(c_X \right)^{\beta_X} \left(c_Y \right)^{\beta_Y} \left(c_Z \right)^{\beta_Z}$. Note that relative prices are $\frac{p_Y}{p_Z} = \frac{\beta_Y}{\beta_Z} \frac{c_Z (k)^{\alpha_{K,Z}} (l)^{\alpha_{L,Z}}}{c_Y (k)^{\alpha_{K,Y}} (l)^{\alpha_{L,Y}}}$, $\frac{p_X}{p_Z} = \frac{\beta_X}{\beta_Z} \frac{c_Z (k)^{\alpha_{K,Z}} (l)^{\alpha_{L,Z}}}{c_X (k)^{\alpha_{K,X}} (l)^{\alpha_{L,X}}}$. Finally, equilibrium factor prices are:

$$\begin{bmatrix} w_K \\ w_L \\ w_N \end{bmatrix} = c \begin{bmatrix} \left(\frac{\alpha_{K,X} \beta_X}{\gamma_{K,X}} \right) (k)^{\left(\sum_{j=X,Y,Z} \alpha_{K,j} \beta_j \right)^{-1}} (l)^{\left(\sum_{j=X,Y,Z} \alpha_{L,j} \beta_j \right)} \\ \left(\frac{\alpha_{L,Y} \beta_Y}{\gamma_{L,Y}} \right) (k)^{\left(\sum_{j=X,Y,Z} \alpha_{K,j} \beta_j \right)} (l)^{\left(\sum_{j=X,Y,Z} \alpha_{L,j} \beta_j \right)^{-1}} \\ \left(\frac{\alpha_{N,Z} \beta_Z}{\gamma_{N,Z}} \right) (k)^{\sum_{j=X,Y,Z} \alpha_{K,j} \beta_j} (l)^{\left(\sum_{j=X,Y,Z} \alpha_{L,j} \beta_j \right)} \end{bmatrix}. \tag{17}$$

Note that real factor prices are simply w divided by the price index P, a constant.

In order to compute the competitive equilibrium of a domestic economy under autarky, we plug in domestic factor endowments (i.e., $\mathbf{E}_d = (K_d, L_d, N_d)$) into expressions (15)-(17). Analogously, in order to

[1] If the economy does not produce Q_j, the corresponding equalities in (14a)-(14d) must be replaced by inequalities.

compute the competitive equilibrium of an integrated world economy, we plug in world factor endowments (i.e., $\mathbf{E}_w = (K_w, L_w, N_w)$) in the same expressions. International trade replicates the integrated economy equilibrium if and only the distribution of factor endowments among countries belong to the Factor Price Equalization set (FPE) (see, for example, Krugman and Helpman, 1985). For a two-country world economy and assuming that all intermediate goods are tradeable, FPE is given by:

$$FPE = \{\mathbf{e}_R : \mathbf{e}_R = \mathbf{\Gamma x}, \text{ and } \mathbf{0} \leq \mathbf{x} \leq \mathbf{1}\}.$$

where:

$$\mathbf{\Gamma} = \begin{bmatrix} \gamma_{K,X} & \gamma_{K,Y} & \gamma_{K,Z} \\ \gamma_{L,X} & \gamma_{L,Y} & \gamma_{L,Z} \\ \gamma_{N,X} & \gamma_{N,Y} & \gamma_{N,Z} \end{bmatrix}, \mathbf{e}_R = \begin{bmatrix} \frac{K_d}{K_w} \\ \frac{L_d}{L_w} \\ \frac{N_d}{N_w} \end{bmatrix}, \mathbf{x} = \begin{bmatrix} x_X \\ x_Y \\ x_Z \end{bmatrix}$$

When some intermediate goods are non-tradeable, FPE is given by:

$$FPE = \left\{ \mathbf{e}_R : \mathbf{e}_R = \mathbf{\Gamma x}, \mathbf{0} \leq \mathbf{x} \leq \mathbf{1}, \text{ and } x_i = \tfrac{w.E_d}{w.E_w} \text{ for all } i \in NTG \right\}.$$

If the distribution of factor endowments among countries belong to FPE, it is easy to deduce the trade policy stance of each socioeconomic group simply comparing factor prices under autarky and under the integrated equilibrium. When the distribution of factor endowments among countries does not belong to FPE it can be more involved to compute the world economy competitive equilibrium under free trade. A simpler solution is to assume a small open economy and take the international prices of tradeable goods as exogenous variables.

Model 1: Simple Factor-Specific Model. Assume that all goods are tradeable and $Q_X = K$, $Q_Y = L$, $Q_Z = N$. In terms of our general model, $\mathbf{A}^1 = \mathbf{I}_{3\times 3}$ and $TG^1 = \{X, Y, Z\}$. Thus, for this model $\mathbf{\Gamma}^1 = \mathbf{I}_{3\times 3}$ and, hence, $FPE^1 = \{\mathbf{e}_R : \mathbf{0} \leq \mathbf{e}_R \leq \mathbf{1}\}$. Then, factor prices under free trade will always be the same as under the integrated equilibrium. For a domestic economy under autarky equilibrium factor prices are $w_K^A = \beta_X (k_d)^{\beta_X - 1}(l_d)^{\beta_Y}$, $w_L^A = \beta_Y (k_d)^{\beta_X}(l_d)^{\beta_Y - 1}$, and $w_N^A = \beta_Z (k_d)^{\beta_X}(l_d)^{\beta_Y}$. For an integrated world economy equilibrium factor prices are $w_K^A = \beta_X (k_w)^{\beta_X - 1}(l_w)^{\beta_Y}$, $w_L^A = \beta_Y (k_w)^{\beta_X}(l_w)^{\beta_Y - 1}$, and $w_N^A = \beta_Z (k_w)^{\beta_X}(l_w)^{\beta_Y}$. Therefore, $w_i^F > w_i^A$ if and only if $h_i^1(E_d, E_w) > 0$, where:

$$h_K^1(E_d, E_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X - 1} \left(\frac{l_w}{l_d}\right)^{\beta_Y} - 1 \tag{18a}$$

$$h_L^1(E_d, E_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X} \left(\frac{l_w}{l_d}\right)^{\beta_Y - 1} - 1 \tag{18b}$$

$$h_N^1(E_d, E_w) = \left(\frac{k_w}{k_d}\right)^{\beta_X} \left(\frac{l_w}{l_d}\right)^{\beta_Y} - 1 \tag{18c}$$

Finally, consider a small open economy. Then, $w_K = ep_X^*$, $w_L = ep_Y^*$, and $w_N = ep_Z^*$. Since $P = (\beta_X)^{\beta_X}(\beta_Y)^{\beta_Y})(\beta_Z)^{\beta_Z}$, the equilibrium exchange rate is $e = P/((p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z})$. Hence, equilibrium factor prices are $w_K^F = \frac{P}{(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z}} p_X^*$, $w_L^F = \frac{P}{(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z}} p_Y^*$, and $w_N^F =$

$\frac{P}{(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z}}p_Z^*$. Therefore $w_i^F > w_i^A$ if and only if $h_i^1(E_d, p^*) > 0$, where:

$$h_K^1(E_d, p^*) = \frac{P}{(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z}}p_X^* - \beta_X(k_d)^{\beta_X - 1}(l_d)^{\beta_Y} \tag{19a}$$

$$h_L^1(E_d, p^*) = \frac{P}{(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z}}p_Y^* - \beta_Y(k_d)^{\beta_X}(l_d)^{\beta_Y - 1} \tag{19b}$$

$$h_N^1(E_d, p^*) = \frac{P}{(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}(p_Z^*)^{\beta_Z}}p_Z^* - \beta_Z(k_d)^{\beta_X}(l_d)^{\beta_Y} \tag{19c}$$

Model 2: Ricardo-Viner Factor-Specific Model. Assume that all goods are tradeable, $U = (Y_X)^{\beta_X}(Y_Y)^{\beta_Y}$, $Q_X = (K)^{\alpha_{K,X}}(N_X)^{\alpha_{N,X}}$, and $Q_Y = (L)^{\alpha_{L,Y}}(N_Y)^{\alpha_{N,Y}}$. In terms of our general model we have:

$$\mathbf{A}^2 = \begin{bmatrix} \alpha_{K,X} & 0 & 0 \\ 0 & \alpha_{L,Y} & 0 \\ \alpha_{N,X} & \alpha_{N,Y} & 0 \end{bmatrix}, \mathbf{B}^2 = \begin{bmatrix} \beta_X \\ \beta_Y \\ 0 \end{bmatrix}, TG^2 = \{X, Y, Z\}.$$

Thus, for this model

$$\mathbf{\Gamma}^2 = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ \frac{\beta_X\alpha_{N,X}}{\beta_X\alpha_{N,X}+\beta_Y\alpha_{N,Y}} & \frac{\beta_Y\alpha_{N,Y}}{\beta_X\alpha_{N,X}+\beta_Y\alpha_{N,Y}} & 0 \end{bmatrix}.$$

Note that $\mathbf{e}_R = \mathbf{\Gamma}^2\mathbf{x}$ if and only if $\left[\frac{K_d}{K_w}, \frac{L_d}{L_w}, \frac{N_d}{N_w}\right] = \left[x_X, x_Y, \frac{\beta_X\alpha_{N,X}}{\beta_X\alpha_{N,X}+\beta_Y\alpha_{N,Y}}x_X + \frac{\beta_Y\alpha_{N,Y}}{\beta_X\alpha_{N,X}+\beta_Y\alpha_{N,Y}}x_Y\right]$. Since $0 \leq x_X \leq 1$, the first equality implies $0 \leq \frac{K_d}{K_w} \leq 1$. Since $0 \leq x_X \leq 1$, the second equality implies $0 \leq \frac{L_d}{L_w} \leq 1$. Finally, since $0 \leq x_X \leq 1$ and $0 \leq x_Y \leq 1$, the third equality implies $0 \leq \frac{L_d}{L_w} \leq 1$. Hence, $FPE = \{\mathbf{e}_R : \mathbf{0} \leq \mathbf{e}_R \leq \mathbf{1}\}$. Then, factor prices under free trade will always be the same as factor prices in the integrated equilibrium. For a domestic economy under autarky equilibrium factor prices are $w_K^A = c\alpha_{K,X}\beta_X(k_d)^{\alpha_{K,X}\beta_X - 1}(l_d)^{\alpha_{L,Y}\beta_Y}$, $w_L^A = c\alpha_{L,Y}\beta_Y(k_d)^{\alpha_{K,X}\beta_X}(l_d)^{\alpha_{L,Y}\beta_Y - 1}$, and $w_N^A = c(\alpha_{K,X}\beta_X + \alpha_{L,Y}\beta_Y)(k_d)^{\alpha_{K,X}\beta_X}(l_d)^{\alpha_{L,Y}\beta_Y}$. For an integrated world economy equilibrium factor prices are $w_K^F = c\alpha_{K,X}\beta_X(k_w)^{\alpha_{K,X}\beta_X - 1}(l_w)^{\alpha_{L,Y}\beta_Y}$, $w_L^F = c\alpha_{L,Y}\beta_Y(k_w)^{\alpha_{K,X}\beta_X}(l_w)^{\alpha_{L,Y}\beta_Y - 1}$, and $w_N^F = c(\alpha_{K,X}\beta_X + \alpha_{L,Y}\beta_Y)(k_w)^{\alpha_{K,X}\beta_X}(l_w)^{\alpha_{L,Y}\beta_Y}$. Therefore $w_i^F > w_i^A$ if and only if $h_i^2(E_d, E_w) > 0$, where:

$$h_K^2(E_d, E_w) = \left(\frac{k_w}{k_d}\right)^{\alpha_{K,X}\beta_X - 1}\left(\frac{l_w}{l_d}\right)^{\alpha_{L,Y}\beta_Y} - 1 \tag{20a}$$

$$h_L^2(E_d, E_w) = \left(\frac{k_w}{k_d}\right)^{\alpha_{K,X}\beta_X}\left(\frac{l_w}{l_d}\right)^{\alpha_{L,Y}\beta_Y - 1} - 1 \tag{20b}$$

$$h_N^2(E_d, E_w) = \left(\frac{k_w}{k_d}\right)^{\alpha_{K,X}\beta_X}\left(\frac{l_w}{l_d}\right)^{\alpha_{L,Y}\beta_Y} - 1 \tag{20c}$$

Finally, consider a small open economy. Let $\gamma_{N,X}(F)$ denote the fraction of labor employed in industry X. In equilibrium, $\gamma_{N,X}(F)$ is the unique solution to the following equation

$$p_X^*\alpha_{N,X}\left(\frac{k_d}{\gamma_{N,X}(F)}\right)^{\alpha_{K,X}} = p_Y^*\alpha_{N,Y}\left(\frac{l_d}{1 - \gamma_{N,X}(F)}\right)^{\alpha_{L,Y}}$$

Since $P = (\beta_X)^{\beta_X}(\beta_Y)^{\beta_Y}$, the equilibrium exchange rate is $e = P/(p_X^*)^{\beta_X}(p_Y^*)^{\beta_Y}$. Hence, equilibrium factor prices are $w_K^F = P\left(\frac{p_X^*}{p_Y^*}\right)^{\beta_Y}\alpha_{K,X}\left(\frac{\gamma_{N,X}(F)}{k_d}\right)^{\alpha_{N,X}}$, $w_L^F = \left(\frac{p_Y^*}{p_X^*}\right)^{\beta_X}\alpha_{L,Y}\left(\frac{1-\gamma_{N,X}(F)}{l_d}\right)^{\alpha_{N,Y}}$, and $w_N^F = P\left(\frac{p_X^*}{p_Y^*}\right)^{\beta_Y}\alpha_{N,X}\left(\frac{k_d}{\gamma_{N,X}(F)}\right)^{\alpha_{K,X}}$. Therefore $w_i^F > w_i^A$ if and only if $h_i^2(E_d, p^*) > 0$, where:

$$h_K^2(E_d,p^*) = \frac{(k_d)^{\alpha_{K,X}}}{(l_d)^{\alpha_{L,Y}}}\left(\frac{p_X^*}{p_Y^*}\right)(\gamma_{N,X}(F))^{\frac{\alpha_{N,X}}{\beta_Y}} - \left(\frac{c\beta_X}{P}\right)^{\frac{1}{\beta_Y}} \tag{21a}$$

$$h_L^2(E_d,p^*) = \frac{(l_d)^{\alpha_{L,Y}}}{(k_d)^{\alpha_{K,X}}}\left(\frac{p_Y^*}{p_X^*}\right)(1-\gamma_{N,X}(F))^{\frac{\alpha_{N,Y}}{\beta_X}} - \left(\frac{c\beta_Y}{P}\right)^{\frac{1}{\beta_X}} \tag{21b}$$

$$h_N^2(E_d,p^*) = \frac{(k_d)^{\alpha_{K,X}}}{(l_d)^{\alpha_{L,Y}}}\left(\frac{p_X^*}{p_Y^*}\right)(\gamma_{N,X}(F))^{\frac{-\alpha_{K,X}}{\beta_Y}} - \left(\frac{c\beta_X}{P\gamma_{N,X}}\right)^{\frac{1}{\beta_Y}} \tag{21c}$$

It is easy to prove that $h_K^2(E_d, p^*) > 0$ if and only if $\frac{p_Y^*}{p_X^*} < \frac{\beta_Y c_X}{\beta_X c_Y}$, while $h_L^2(E_d, p^*) > 0$ if and only if $\frac{p_Y^*}{p_X^*} > \frac{\beta_Y c_X}{\beta_X c_Y}$. Thus, for a small open economy there is always intra-elite conflict over trade policy.

Model 3: Simple Model with a Non-Tradable Good. Assume that goods X and Y are tradeable but Z is non-tradeable, $Q_X = (K_X)^{\alpha_{K,X}}(N_X)^{\alpha_{N,X}}$, $Q_Y = (K_Y)^{\alpha_{K,Y}}(L_Y)^{\alpha_{L,Y}}$, and $Q_Z = N_Z$. In terms of our model we have:

$$\mathbf{A}^3 = \begin{bmatrix} \alpha_{K,X} & \alpha_{K,Y} & 0 \\ 0 & \alpha_{L,Y} & 0 \\ \alpha_{N,X} & 0 & 1 \end{bmatrix}, TG^3 = \{X, Y\}, NTG = \{Z\}$$

Thus, for this model

$$\mathbf{\Gamma}^3 = \begin{bmatrix} \frac{\alpha_{K,X}\beta_X}{\alpha_{K,Y}\beta_Y+\alpha_{K,X}\beta_X} & \frac{\alpha_{K,Y}\beta_Y}{\alpha_{K,Y}\beta_Y+\alpha_{K,X}\beta_X} & 0 \\ 0 & 1 & 0 \\ \frac{\alpha_{N,X}\beta_X}{\alpha_{N,X}\beta_X+\beta_Z} & 0 & \frac{\beta_Z}{\alpha_{N,X}\beta_X+\beta_Z} \end{bmatrix}$$

Note that $\mathbf{e}_R = \mathbf{\Gamma}^3\mathbf{x}$ if and only if $\left[\frac{K_d}{K_w}, \frac{L_d}{L_w}, \frac{N_d}{N_w}\right] = [\gamma_{K,X}x_X + \gamma_{K,Y}x_Y, x_Y, \gamma_{N,X}x_X + \gamma_{N,Z}x_Z]$. Since $0 \leq x_X \leq 1$, the first two equalities imply $\gamma_{K,Y}\frac{L_d}{L_w} \leq \frac{K_d}{K_w} \leq \gamma_{K,X} + \gamma_{K,Y}\frac{L_d}{L_w}$ (note that $\frac{L_d}{L_w} = x_Y$). Since Z is non-tradeable $x_Z = \frac{w.\mathbf{E}_d}{w.\mathbf{E}_w}$. Then, the first and third equalities imply that $\frac{K_d}{K_w} = \frac{\gamma_{K,X}}{\gamma_{N,X}}\left[\frac{N_d}{N_w} - \gamma_{N,Z}\left(\frac{w.\mathbf{E}_d}{w.\mathbf{E}_w}\right)\right] + \gamma_{K,Y}\frac{L_d}{L_w}$. Merging these two inequalities we obtain that $FPE = \left\{\mathbf{e}_R : \gamma_{N,Z}\left(\frac{w.\mathbf{E}_d}{w.\mathbf{E}_w}\right) \leq \frac{N_d}{N_w} \leq \gamma_{N,X} + \gamma_{N,Z}\left(\frac{w.\mathbf{E}_d}{w.\mathbf{E}_w}\right), \frac{K_d}{K_w} = \frac{\gamma_{K,X}}{\gamma_{N,X}}\left[\frac{N_d}{N_w} - \gamma_{N,Z}\left(\frac{w.\mathbf{E}_d}{w.\mathbf{E}_w}\right)\right] + \gamma_{K,Y}\frac{L_d}{L_w}\right\}$. Therefore, in general there is no factor price equalization in this model. In other words, in the trading equilibrium one country will be specialized in Q_Y.

For a domestic economy under autarky equilibrium factor prices are $w_K^A = c(\alpha_{K,Y}\beta_Y + \alpha_{K,X}\beta_X)(k_d)^{(\alpha_{K,X}\beta_X+\alpha_{K,Y}\beta_Y)-1}(l_d)^{(\alpha_{L,Y}\beta_Y)}$, $w_L^A = c\beta_Y(k_d)^{(\alpha_{K,X}\beta_X+\alpha_{K,Y}\beta_Y)}(l_d)^{(\alpha_{L,Y}\beta_Y)-1}$, and $w_N^A = c(\alpha_{N,X}\beta_X + \beta_Z)(k_d)^{\alpha_{K,X}\beta_X+\alpha_{K,Y}\beta_Y}(l_d)^{(\alpha_{L,Y}\beta_Y)}$.

Consider a diversified small open economy and let $\gamma_{i,j}(F)$ denote the fraction of factor $i = K, L, N$ employed in the production of good $j = X, Y, Z$. From (14a) we have $p_X\alpha_{K,X}\left(\frac{N_X}{K_X}\right)^{\alpha_{N,X}} =$

$p_Y \alpha_{K,Y} \left(\frac{L}{K_Y}\right)^{\alpha_{L,Y}}$ and $p_Y Q_Y = \frac{\alpha_{K,X}}{\alpha_{K,Y}} \frac{K_Y}{K_X} p_X Q_X$; from (14c) and (14f) we have $p_X Q_X = \frac{N_X p_Z}{\alpha_{N,X}}$; and, from (14d) and (14f) we have $p_X Q_X + p_Y Q_Y = \left(\frac{\beta_X + \beta_Y}{\beta_Z}\right) p_Z N_Z$. Combining these expressions we obtain the following equations:

$$g\left(\gamma_{K,X}\left(F\right)\right) = \left[\frac{\alpha_{K,Y}}{\alpha_{K,X}} \frac{p_Y}{p_X} \left(l_d\right)^{\alpha_{L,Y}} \left(k_d\right)^{\alpha_{N,X} - \alpha_{L,Y}}\right]^{\frac{1}{\alpha_{N,X}}}$$

$$\text{where } g\left(\gamma_{K,X}\left(F,D\right)\right) = \frac{\alpha_{N,X}\alpha_{K,Y}\left(\beta_X + \beta_Y\right)\left[1 - \gamma_{K,X}\left(F\right)\right]^{\frac{\alpha_{L,Y}}{\alpha_{N,X}}}}{\alpha_{K,X}\beta_Z + \left[\alpha_{N,X}\alpha_{K,Y}\left(\beta_X + \beta_Y\right) + \left(\alpha_{K,Y} - \alpha_{K,X}\right)\beta_Z\right]\gamma_{K,X}\left(F,D\right)}$$

$$\gamma_{N,X}\left(F\right) = \frac{\alpha_{N,X}\alpha_{K,Y}\left(\beta_X + \beta_Y\right)\gamma_{K,X}\left(F\right)}{\alpha_{K,X}\beta_Z + \left[\alpha_{N,X}\alpha_{K,Y}\left(\beta_X + \beta_Y\right) + \left(\alpha_{K,Y} - \alpha_{K,X}\right)\beta_Z\right]\gamma_{K,X}\left(F\right)},$$

The RHS of the first equation is a constant, while $g\left(\gamma_{K,X}\left(F\right)\right)$ is an strictly decreasing function of $\gamma_{K,X}\left(F\right)$. Thus, the first equation has a unique solution $\gamma_{K,X}\left(F\right) \in (0,1)$ if and only if

$$\left(l_d\right)^{\alpha_{L,Y}} \left(k_d\right)^{\alpha_{N,X} - \alpha_{L,Y}} \left(\frac{p_Y}{p_X}\right) < \frac{\alpha_{K,X}}{\alpha_{K,Y}} \left[\frac{\alpha_{N,X}\alpha_{K,Y}\left(\beta_X + \beta_Y\right)}{\alpha_{K,X}\beta_Z}\right]^{\alpha_{N,X}}. \tag{22}$$

From the second equation, $\gamma_{N,X}\left(F\right) \in (0,1)$ provided that $\gamma_{K,X}\left(F\right) \in (0,1)$. Since $P = \left(p_X\right)^{\beta_X}\left(p_Y\right)^{\beta_Y}\left(p_Z\right)^{\beta_Z}$ and assume that $P = \left(\beta_X\right)^{\beta_X}\left(\beta_Y\right)^{\beta_Y}\left(\beta_Z\right)^{\beta_Z}$, $p_X = e p_X^*$, $p_Y = e p_Y^*$ and $p_Z = p_X \alpha_{N,X} \left[\frac{\gamma_{K,X}(F)}{\gamma_{N,X}(F)}\right]^{\alpha_{K,X}} \left(k_d\right)^{\alpha_{K,X}}$, the equilibrium exchange rate is given by:

$$e = \frac{\left(\beta_X\right)^{\beta_X}\left(\beta_Y\right)^{\beta_Y}\left(\beta_Z\right)^{\beta_Z}}{\left(p_X^*\right)^{\beta_X}\left(p_Y^*\right)^{\beta_Y}\left(p_Y^* \frac{\alpha_{K,Y}\alpha_{N,X}}{\alpha_{K,X}} \frac{\gamma_{K,X}(F)}{\gamma_{N,X}(F)(1-\gamma_{K,X}(F))^{\alpha_{L,Y}}} (l_d)^{\alpha_{L,Y}} (k_d)^{\alpha_{K,Y}}\right)^{\beta_Z}}.$$

Hence, equilibrium factor prices are:

$$\begin{bmatrix} w_K^F \\ w_L^F \\ w_N^F \end{bmatrix} = P \begin{bmatrix} \left(\frac{p_X^*}{p_Y^*}\right)^{\beta_Y} \frac{\alpha_{K,X}}{\left(\alpha_{N,X}\right)^{\beta_Z}} \left[\frac{\gamma_{N,X}(F)}{\gamma_{K,X}(F)}\right]^{\alpha_{N,X} + \alpha_{K,X}\beta_Z} \frac{1}{\left(k_d\right)^{\alpha_{N,X} + \alpha_{K,X}\beta_Z}} \\ \left(\frac{p_Y^*}{p_X^*}\right)^{\beta_X + \beta_Z} \frac{\alpha_{L,Y}}{\left(\alpha_{N,X}\right)^{\beta_Z}} \frac{\left[1 - \gamma_{K,X}(F)\right]^{\alpha_{K,Y}}}{\left[\frac{\gamma_{K,X}(F)}{\gamma_{N,X}(F)}\right]^{\alpha_{K,X}\beta_Z}} \frac{\left(k_d\right)^{\alpha_{K,Y} - \alpha_{K,X}\beta_Z}}{\left(l_d\right)^{\alpha_{K,Y}}} \\ \left(\frac{p_Y^*}{p_X^*}\right)^{\beta_X} \left(\frac{\alpha_{N,X}\alpha_{K,Y}}{\alpha_{K,X}}\right)^{(1-\beta_Z)} \left[\frac{\gamma_{K,X}(F)}{\gamma_{N,X}(F)(1-\gamma_{K,X}(F))^{\alpha_{L,Y}}}\right]^{(1-\beta_Z)} \left(k_d\right)^{\alpha_{K,Y}(1-\beta_Z)} \left(l_d\right)^{\alpha_{L,Y}(1-\beta_Z)} \end{bmatrix},$$

If condition (22) does not hold, then under free trade the economy specializes in the production of Q_Y. In this case $\gamma_{K,X}(F) = \gamma_{N,X}(F) = 0$ and the equilibrium exchange rate is given by:

$$e = \frac{\left(\beta_X\right)^{\beta_X}\left(\beta_Y\right)^{\beta_Y}\left(\beta_Z\right)^{\beta_Z}}{\left(p_X^*\right)^{\beta_X}\left(p_Y^*\right)^{\beta_Y}\left(p_Y^* \left(\frac{\beta_Z}{\beta_X + \beta_Y}\right) \left(k_d\right)^{\alpha_{K,Y}} \left(l_d\right)^{\alpha_{L,Y}}\right)^{\beta_Z}}.$$

Hence, equilibrium factor prices are:

$$\begin{bmatrix} w_K^F \\ w_L^F \\ w_N^F \end{bmatrix} = P \begin{bmatrix} \left(\frac{p_Y^*}{p_X^*}\right)^{\beta_X} \frac{\alpha_{K,Y}}{\left(\frac{\beta_Z}{\beta_X+\beta_Y}\right)^{\beta_Z}} \frac{(l_d)^{\alpha_{L,Y}(1-\beta_Z)}}{(k_d)^{\alpha_{L,Y}+\alpha_{K,Y}\beta_Z}} \\ \left(\frac{p_Y^*}{p_X^*}\right)^{\beta_X} \frac{\alpha_{L,Y}}{\left(\frac{\beta_Z}{\beta_X+\beta_Y}\right)^{\beta_Z}} \frac{(k_d)^{\alpha_{K,Y}(1-\beta_Z)}}{(l_d)^{\alpha_{K,Y}+\alpha_{L,Y}\beta_Z}} \\ \left(\frac{p_Y^*}{p_X^*}\right)^{\beta_X} \left(\frac{\beta_Z}{\beta_X+\beta_Y}\right)^{(1-\beta_Z)} (k_d)^{\alpha_{K,Y}(1-\beta_Z)} (l_d)^{\alpha_{L,Y}(1-\beta_Z)} \end{bmatrix}.$$

Therefore, $w_i^F > w_i^A$ if and only if $h_i^3(E_d, p^*) > 0$, where:

$$h_K^3(E_d,p^*) = h^3(k_d,l_d)\frac{p_Y^*}{p_X^*}\left(\frac{\gamma_{N,X}(F)}{\gamma_{K,X}(F)}\right)^{\frac{\beta_Z}{\beta_X}}(1-\gamma_{K,X}(F))^{-\frac{\alpha_{L,Y}(1-\beta_Z)}{\beta_X}} - \left(\frac{\beta_Y c}{P\gamma_{K,Y}}\right)^{\frac{1}{\beta_X}}\overline{h}^3 \tag{23a}$$

$$h_L^3(E_d,p^*) = h^3(k_d,l_d)\frac{p_Y^*}{p_X^*}\left(\frac{\gamma_{N,X}(F)}{\gamma_{K,X}(F)}\right)^{\frac{\beta_Z}{\beta_X}}(1-\gamma_{K,X}(F))^{\frac{\alpha_{K,Y}+\beta_Z\alpha_{L,Y}}{\beta_X}} - \left(\frac{\beta_Y c}{P}\right)^{\frac{1}{\beta_X}}\overline{h}^3 \tag{23b}$$

$$h_N^3(E_d,p^*) = h^3(k_d,l_d)\frac{p_Y^*}{p_X^*}\left(\frac{\gamma_{K,X}(F)}{\gamma_{N,X}(F)}\right)^{\frac{1-\beta_Z}{\beta_X}}(1-\gamma_{K,X}(F))^{-\frac{\alpha_{L,Y}(1-\beta_Z)}{\beta_X}} - \left(\frac{\beta_X c}{P\gamma_{N,X}}\right)^{\frac{1}{\beta_X}}\overline{h}^3 \tag{23c}$$

$$h^3(k_d,l_d) = (l_d)^{\alpha_{L,Y}}(k_d)^{\alpha_{N,X}-\alpha_{L,Y}} \tag{23d}$$

$$\overline{h}^3 = \begin{cases} \left(\frac{\alpha_{N,X}\alpha_{K,Y}}{\alpha_{K,X}}\right)^{\frac{\beta_Z}{\beta_X}}, & \textit{if condition (22) holds,} \\ \left(\frac{\beta_Z}{\beta_X+\beta_Y}\right)^{\frac{\beta_Z}{\beta_X}}, & \textit{if condition (22) does not hold.} \end{cases} \tag{23e}$$

Appendix 2: Politics

In this Appendix we present the proofs of Propositions 1 and 2. We begin by writing the Bellman equation of each group in each possible state of the world. Each state consists of a combination of a political regime (revolution, autocracy controlled by elite faction j, or democracy) and a cost of changing the regime (μ for mounting a revolt and φ for mounting a coup).

Revolution. Since the revolution is an absorbing state, it is easy to compute the expected utility for each group when the people mount a revolt.

$$V_i\left(rev,\mu_t\right)=\begin{cases}0 & \text{if } i=l,s,\\ \frac{(1-\mu_t)\bar{y}^A}{(1-\delta)n_N} & \text{if } i=N.\end{cases} \tag{24}$$

Autocracy. Suppose that the political regime is $aut(j)$. If $\mu_t=\infty$, then j can implement $(0,\lambda_j)$. In the next period, the political regime will also be $aut(j)$. Moreover, with probability q, $\mu_{t+1}=\mu$, and with probability $(1-q)$, $\mu_{t+1}=\infty$. Therefore:

$$V_i\left(aut(j),\infty\right)=v_i\left(0,\lambda_j\right)+\delta\left[qV_i\left(aut(j),\mu\right)+(1-q)\,V_i\left(aut(j),\infty\right)\right].$$

If $\mu_t=\mu$, then j has several alternative means of placating the revolt. First, j can concede a transitory change in policy (with this policy being denoted as(τ,λ)) without any modification in political institutions. Second, j can transfer the control of the autocracy to the other elite group. Finally, j can offer democratization. Suppose that j uses the first strategy and N does not mount a revolution. Then, the expected utility of group i is given by

$$V_i\left(aut(j),\mu,\tau,\lambda\right)=v_i\left(\tau,\lambda\right)+\delta\left[qV_i\left(aut(j),\mu\right)+(1-q)\,V_i\left(aut(j),\infty\right)\right].$$

If j and N follow the same strategy every time $\mu_t=\mu$, it must be the case that $V_i\left(aut(j),\mu\right)=V_i\left(aut(j),\mu,\tau,\lambda\right)$ and, therefore:

$$V_i\left(aut(j),\infty\right) = \frac{\delta q v_i\left(\tau,\lambda\right)+(1-\delta q)\,v_i\left(0,\lambda_j\right)}{1-\delta}, \tag{25}$$

$$V_i\left(aut(j),\mu,\tau,\lambda\right) = \frac{\left[1-\delta\left(1-q\right)\right]v_i\left(\tau,\lambda\right)+\delta\left(1-q\right)v_i\left(0,\lambda_j\right)}{1-\delta}. \tag{26}$$

N is willing to accept j's offer if and only if $V_N\left(j,\mu,\tau,\lambda\right)\geq V_N\left(rev,\mu\right)$, which implies that we can define a critical value of μ, such that, for μ higher than this critical value, N agrees to stop the revolt in exchange for j's offer, while, for μ lower than this critical value, N mounts a revolt if j maintains the offer (τ,λ). This critical value is given by:

$$\left[1-\delta\left(1-q\right)\right]\bar{\mu}\left(\tau,\lambda\right)+\delta\left(1-q\right)\bar{\mu}\left(0,\lambda_j\right). \tag{27}$$

Only democracy placate the revolt. Suppose that $\mu<\left[1-\delta\left(1-q\right)\right]\bar{\mu}\left(\tau_N,\lambda_N\right)+\delta\left(1-q\right)\min_j\bar{\mu}\left(0,\lambda_j\right)$. Then, only democratization can placate the revolt, regardless of which elite group controls the autocracy. Thus, the first time that $\mu_t=\mu$ the political regime switches to dem. Thereafter,

N implements (τ_N, λ_N). During the next period, the political regime will also be *dem*. Moreover, with probability r $\varphi_{t+1} = \varphi$, while with probability $(1-r)$ $\varphi_{t+1} = \infty$. Therefore:

$$V_i(dem, \infty) = v_i(\tau_N, \lambda_N) + \delta\left[rV_i(dem, \varphi) + (1-r)V_i(dem, \infty)\right].$$

When $\varphi_t = \varphi$, N can try to avert a coup by conceding a temporary change in policy (with this policy being denoted as (τ, λ)). If the elite groups accept this concession, then:

$$V_i(dem, \varphi, \tau, \lambda) = v_i(\tau, \lambda) + \delta\left[rV_i(dem, \varphi) + (1-r)V_i(de, \infty)\right],$$

If N K, and L follow the same strategy every time $\varphi_t = \varphi$, it must be the case that $V_i(dem, \varphi) = V_i(dem, \varphi, \tau, \lambda)$. Therefore:

$$V_i(dem, \infty) = \frac{\beta r v_i(\tau, \lambda) + (1 - \delta r) v_i(\tau_N, \lambda_N)}{1-\delta}, \tag{28}$$

$$V_i(dem, \varphi, \tau, \lambda) = \frac{\left[1 - \delta(1-r)\right] v_i(\tau, \lambda) + \delta(1-r) v_i(\tau_N, \lambda_N)}{1-\delta}. \tag{29}$$

If the elite groups decide to mount a coup that gives rise to $aut(j)$, the expected utility of group i is

$$V_i^C(dem, \varphi) = (1-\varphi) v_i(0, \lambda_j) + \delta\left[qV_i(j, \mu) + (1-q)V_i(aut(j), \infty)\right],$$

Thereafter, when $\mu_t = \infty$, j implements $(0, \lambda_j)$, while when $\mu_t = \mu$, there is a switch to *dem*. Hence:

$$\begin{aligned} V_i\left(j, \mu^L\right) &= v_i(0, \lambda_j) + \beta\left[qV_i\left(j, \mu^H\right) + (1-q)V_i\left(j, \mu^L\right)\right], \\ V_i(j, \mu) &= V_i(dem, \infty). \end{aligned}$$

If each time $\varphi_t = \varphi$, there is a coup, then $V_i(dem, \varphi) = V_i^C(dem, \varphi)$ and, therefore:

$$V_i(dem, \infty) = \frac{\left[1 - \delta(1-q)\right] v_i(\tau_N, \lambda_N) + \delta r v_i(0, \lambda_j) - \delta r\left[1 - \delta(1-q)\right] \varphi v_i(0, \lambda_j)}{(1-\delta)\left[1 - \delta(1-q-r)\right]}, \tag{30}$$

$$V_i^C(dem, \varphi) = \frac{\left[1 - \delta(1-r)\right] v_i(0, \lambda_j) + \delta q v_i(\tau_N, \lambda_N) - \left[1 - \delta(1-r)\right]\left[1 - \delta(1-q)\right] \varphi v_i(0, \lambda_j)}{(1-\delta)\left[1 - \delta(1-q-r)\right]}, \tag{31}$$

while $V_i(aut(j), \infty) = V_i(dem, \varphi) + \varphi v_i(0, \lambda_j)$, and $V_i(aut(j), \mu) = V_i(dem, \infty)$.

The elite group i is willing to accept N's offer if and only if $V_i(dem, \varphi, \tau, \lambda) \geq V_i^C(dem, \varphi)$, which implies that we can define a critical value of φ such that, for all φ higher than this critical value, i prefers N's offer to a coup that gives rise to $aut(j)$. This critical value is given by:

$$\frac{r'\bar{\varphi}_i(\tau, \lambda, \lambda_j) + (1-r')\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j)}{\left[1 - \delta(1-q)\right]}, \tag{32}$$

where $r' = [1 - \delta(1-q-r)]$.

A coup that gives rise to $aut(j)$ occurs only when $\left[1 - \delta(1-q)\right]\varphi < r'\bar{\varphi}_i(\tau, \lambda, \lambda_j) + (1-r')\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j)$ for $i = K, L$. Therefore, for a given φ, the set of concessions that avert such a coup, denoted $\bar{S}_C(\varphi, \lambda_j)$, is given by:

$$\begin{aligned} \bar{S}_C(\varphi, \lambda_j) = \{&(\tau, \lambda) \in S : \text{there is } i \in \{L, K\} \text{ such that } \left[1 - \delta(1-q)\right]\varphi \geq \\ &\left[1 - \delta(1-q-r)\right]\bar{\varphi}_i(\tau, \lambda, \lambda_j) + \delta(1-q-r)\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j)\}. \end{aligned}$$

Moreover, if N decides to avert a coup, the best way for it to do so is by promising to embrace the policy that maximizes its expected utility from among the set of policies that will avert a coup, i.e., $(\tau,\lambda)=\arg\max_{(\tau,\lambda)\in\cap_j \bar{S}_C(\varphi,\lambda_j)}\{v_N(\tau,\lambda)\}$.

Only one elite group can placate a revolt without democratization. If $[1-\delta(1-q)]\bar{\mu}(\tau_N,\lambda_N)+\delta(1-q)\min_j\bar{\mu}(0,\lambda_j)<\mu<[1-\delta(1-q)]\bar{\mu}(\tau_N,\lambda_N)+\delta(1-q)\max_j\bar{\mu}(0,\lambda_j)$, then one elite group can placate a revolt only through democratization, while the other elite group can also stop it by making a temporary change in policy. Suppose that the first elite is j and the second is k. Moreover, assume that, for any given reason, society switches to a democratic regime. Sooner or later, $\varphi_t=\varphi$. The complication is that now there are two different types of coups. On the one hand, if a coup gives rise to $aut(j)$, it will be forced to democratize whenever $\mu_t=\mu$. For this coup, the relevant critical values are given by (32). On the other hand, a coup that gives rise to $aut(k)$ will lead to a permanent autocracy, since, whenever $\mu_t=\mu$, k can always stop a revolt by means of a temporary change in policy. Thus, for this coup, we must deduce new critical values.

Suppose that when $\varphi_t=\varphi$, the elite decides to mount a coup that gives rise to $aut(k)$. Then, in the present period, k implements $(0,\lambda_k)$. In the next period, if $\mu_{t+1}=\infty$, k implements the same policy again, while if $\mu_{t+1}=\mu$, k placates a revolt with $(\tau(k),\lambda(k))=\arg\max_{(\tau,\lambda)\in\bar{S}_R(\mu,\lambda_k)}v_k(\tau,\lambda)$ (see below for a definition of $\bar{S}_R(\mu,\lambda_k)$). Therefore:

$$V_i^C(dem,\varphi)=(1-\varphi)v_i(0,\lambda_k)+\frac{\delta}{1-\delta}\left[qv_i(\tau_E,\lambda_E)+(1-q)v_i(0,\lambda_k)\right].$$

The elite group i is willing to accept N's offer if and only if $V_i(dem,\varphi,\tau,\lambda)\geq V_i^C(dem,\varphi)$, which implies that we can define a critical value of φ such that, for all φ higher than this critical value, the i prefers N's offer to a coup that gives rise to $aut(k)$. This critical value is given by:

$$\frac{[1-\delta(1-r)]\bar{\varphi}_i(\tau,\lambda,\lambda_k)+\delta(1-r)\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_k)-\delta q\bar{\varphi}_i(\tau(k),\lambda(k),\lambda_k)}{(1-\delta)}. \tag{33}$$

A coup that gives rise to $aut(k)$ occurs only when $(1-\delta)\varphi<[1-\delta(1-r)]\bar{\varphi}_i(\tau,\lambda,\lambda_j)+\delta(1-r)\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)-\delta q\bar{\varphi}_i(\tau(j),\lambda(j),\lambda_j)$ for $i=K,L$. Therefore, for a given φ, the set of concessions that avert such a coup, denoted $\tilde{S}_C(\varphi,\mu,\lambda_k)$, is given by:

$$\begin{aligned}\tilde{S}_C(\varphi,\mu,\lambda_k) &= \{(\tau,\lambda)\in S:\text{there is } i\in\{L,K\} \text{ such that } (1-\beta)\varphi\geq\\ &\quad [1-\beta(1-r)]\bar{\varphi}_i(\tau,\lambda,\lambda_k)+\delta(1-r)\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_k)-\delta q\bar{\varphi}_i(\tau(k),\lambda(k),\lambda_k)\}\end{aligned}$$

Moreover, if N decides to avert a coup, the best way for it to do so is by choosing the policy from among the set of policies that can stop a coup which maximizes its expected utility. Therefore, N chooses $(\tau,\lambda)=\arg\max_{(\tau,\lambda)\in\tilde{S}_C(\varphi,\mu,\lambda_k)\cap\bar{S}_C(\varphi,\lambda_j)}\{v_N(\tau,\lambda)\}$.

Both elite groups can placate a revolt without democratization. If $\mu\geq[1-\delta(1-q)]\bar{\mu}(\tau_N,\lambda_N)+\delta(1-q)\max_j\bar{\mu}(0,\lambda_j)$, the elite that controls the autocracy can stop a revolt by promising to support a given policy. Therefore, for a given μ, the set of policies that j can offer in order to stop the revolt, denoted $\bar{S}_R(\mu,\lambda_j)$, is given by:

$$\bar{S}_R(\mu,\lambda_j)=\{(\tau,\lambda)\in S:\mu\geq[1-\delta(1-q)]\bar{\mu}(\tau,\lambda)+\delta(1-q)\bar{\mu}(0,\lambda_j)\}.$$

If j decides to stop a revolt, the best way for it to do so is by promising to implement the policy that maximizes its expected utility, i.e., $(\tau(j), \lambda(j)) = \arg\max_{(\tau,\lambda)\in\bar{S}_R(\mu,\lambda_j)} \{v_j(\tau,\lambda)\}$.

Proof of Proposition 1: Suppose that there is no intra-elite conflict over trade policy and assume than $\lambda_j = A$ for $j = K, L$, $\tau_N = \tau_N(F)$ and $\lambda_N = F$. The proof is analogous when $\lambda_j = F$ for $j = K, L$, $\tau_N = \tau_N(A)$ and $\lambda_N = A$. The only required modification is to replace each letter A with an F and vice versa.

From (27), if $\mu < [1-\delta(1-q)]\,\bar{\mu}(\tau_N(F), F) + \beta(1-q)\,\bar{\mu}(0, A)$, when $\mu_t = \mu$, then the elite cannot stop a revolt by making a temporary change in policy, since N will prefer to mount a revolt even if the elite offers $(\tau_N(F), F)$. Transferring the control over the autocracy to the other elite group does not work either, because both elite groups are protectionist and, hence, from the point of view of N, both elite groups offer the same policy when $\mu_t = \infty$. Therefore, the only available option is democratization. The value of φ will determine the type of democracy that emerges.

From (32), if $[1-\delta(1-q)]\,\varphi \geq \min_i \bar{\varphi}_i(\tau_N(F), F, A)$, then the democracy will be consolidated. The reason for this is that, after society switches to a democratic regime, even if $\varphi_t = \varphi$, N can always avert a coup by offering $(\tau_N(F), F)$. From (32), if $\delta(1-q-r)\min_i \bar{\varphi}_i(\tau_N(F), F, A) \leq [1-\delta(1-q)]\,\varphi < \min_i \bar{\varphi}_i(\tau_N(F), F, A)$, then the democracy will be semi-consolidated. In order to prove this, note that, after society switches to a democratic regime, whenever $\varphi_t = \varphi$ N can defend democracy by offering $(0, A)$, but N cannot defend it by offering $(\tau_N(F), F)$. Moreover, N is always willing to defend democracy, since the policy implemented by an autocracy is the worst possible policy for N. Given that democracy can be defended, N chooses to defend it in the least costly way possible. Thus, N promises $(\tau,\lambda) = \arg\max_{(\tau,\lambda)\in\bar{S}(\varphi,F)} v_N(\tau,\lambda)$. Finally, from (32), if $\varphi < \delta(1-q-r)\min_i \bar{\varphi}_i(\tau_N(F), F, A)$, then democracy will be unconsolidated. In order to prove this, note that there is no temporary change in policy that N can offer in order to stop a coup.

From (27), if $\mu \geq [1-\delta(1-q)]\,\bar{\mu}(\tau_N(F), F) + \delta(1-q)\,\bar{\mu}(0, A)$, when $\mu_t = \mu$, then the elite can placate a revolt by offering $(\tau_N(F), F)$ and, as a result, society remains non-democratic. Given that the elite can defend the autocracy, they choose to do so in the least costly way possible. Thus, the elite promises $(\tau,\lambda) = \arg\max_{(\tau,\lambda)\in\bar{S}_R(\mu,A)} \{v_l(\tau,\lambda)\}$, where l is the elite group that controls the autocracy. ■

Proof of Proposition 2 Parts a and b: Suppose that there is intra-elite conflict over trade policy. From (27), if $\mu \geq [1-\delta(1-q)]\,\bar{\mu}(\tau_N,\lambda_N) + \delta(1-q)\,\bar{\mu}(0,\lambda_l)$, then l selects the best way of defending the autocracy when $\mu_t = \mu$. Democratization, although an available option, is clearly dominated by (τ_N,λ_N), when $\mu_t = \mu$, and $(0,\lambda_l)$, when $\mu_t = \infty$; which always placates a revolt in this region. Thus, the relevant decision is between defending the autocracy with or without transferring the control to s. On the one hand, if l decides to placate the revolt without transferring control to s, the best way of doing so is to implement $(\tau(l), \lambda(l)) = \arg\max_{(\tau,\lambda)\in\bar{S}_R(\mu,\lambda_l)} \{v_l(\tau,\lambda)\}$, when $\mu_t = \mu$, and $(0,\lambda_l)$, when $\mu_t = \infty$. If such a policy is implemented, then expression (26) implies that the expected utility of group i when $\mu_t = \mu$ is given by:

$$V_i(aut(l),\mu) = \frac{[1-\delta(1-q)]\,v_i(\tau(l),\lambda(l)) + \delta(1-q)\,v_i(0,\lambda_l)}{1-\delta}.$$

On the other hand, if l transfers control to s, then s placates the revolt, and the best way in which s do so is to implement $(\tau(s), \lambda(s)) = \arg\max_{(\tau,\lambda)\in\bar{S}_R(\mu,\lambda_s)} v_s\{(\tau,\lambda)\}$, when $\mu_t = \mu$, and $(0,\lambda_s)$, when $\mu_t = \infty$. Since, for s, the preferred trade policy is λ_s, it must be the case that $v_s(\tau,\lambda_s) \geq v_s(\tau,\lambda)$ for

all $(\tau, \lambda) \in S$. Since N and s share the same trade policy preferences, we have $\bar{\mu}(\tau, \lambda) \geq \bar{\mu}(\tau, \lambda_s)$ for all (τ, λ). Therefore, $\lambda(s) = \lambda_s$. From expression (26), the expected utility of group i is given by:

$$V_i(aut(s), \mu) = \frac{[1 - \delta(1-q)] v_i(\tau(s), \lambda_s) + \delta(1-q) v_i(0, \lambda_s)}{1 - \delta}.$$

Therefore, l does not transfer control over the autocracy to s and instead defends the autocracy itself, if and only if $V_l(aut(l), \mu) \geq V_l(aut(s), \mu)$.

From (27), if $[1 - \delta(1-q)] \bar{\mu}(\tau_N, \lambda_N) + \delta(1-q) \bar{\mu}(0, \lambda_s) \leq \mu < [1 - \delta(1-q)] \bar{\mu}(\tau_N, \lambda_N) + \delta(1-q) \bar{\mu}(0, \lambda_l)$, then l has only two available options for placating the a revolt. First, l can transfer control over the autocracy to s, in which case the expected utility of l will be $V_l(aut(s), \mu)$. Second, l can democratize, in which case several political regimes can arise, depending on the cost of mounting a coup.

Suppose that $\varphi \geq \bar{\varphi}_1$, where

$$\bar{\varphi}_1 = \max \left\{ \frac{\min_i \bar{\varphi}_i(\tau_N, \lambda_N, \lambda_l)}{1 - \delta(1-q)}, \frac{\min \{\bar{\varphi}_i(\tau_N, \lambda_N, \lambda_s) - \delta q \bar{\varphi}_i(\tau(s), \lambda(s), \lambda_s)\}}{1 - \delta} \right\}.$$

Then, from (32) and (33), if the first time that $\mu_t = \mu$, l democratizes, then society switches to a consolidated democracy because N can stop any coup simply by implementing (τ_N, λ_N). Since, from the point of view of l, a consolidated democracy is the worst possible political regime, the first time that $\mu_t = \mu$, l transfers control over the autocracy to s and, thereafter, there is an autocracy controlled by s forever.

Suppose that $\min_\lambda \bar{\varphi}_2(\lambda) \leq \varphi < \bar{\varphi}_1$, where

$$\bar{\varphi}_2(\lambda) = \max \left\{ \begin{array}{c} \frac{\min_i \{r' \bar{\varphi}_i(0, \lambda, \lambda_l) + (1-r') \bar{\varphi}_i(\tau_N, \lambda_N, \lambda_l)\}}{1 - \delta(1-q)} \\ \frac{\min_i \{[1-\delta(1-r)] \bar{\varphi}_i(\tau, \lambda, \lambda_s) + \delta(1-r) \bar{\varphi}_i(\tau_N, \lambda_N, \lambda_s) - \delta q \bar{\varphi}_i(\tau(s), \lambda(s), \lambda_s)\}}{1 - \delta} \end{array} \right\}.$$

Then, from (32) and (33), if the first time that $\mu_t = \mu$, l democratizes, then N has the ability to stop any coup, although it must make some concessions when $\varphi_t = \varphi$. N is always willing to stop a coup that gives rise to $aut(l)$, since, for N, the worst conceivable semi-consolidated democracy is better than an unconsolidated democracy with periodic coups controlled by l. However, it is possible that N prefers a coup that gives rise to a permanent autocracy controlled by s to a semi-consolidated democracy (something that can happen only when N must promise $\lambda = \lambda_l$ in order to stop the coup when $\varphi_t = \varphi$). If this is the case, N has an incentive to promise a policy that induces a coup controlled by s.[2] If N decides to defend democracy, the best way for it to do so is to offer $(\tau, \lambda) = \arg\max_{(\tau,\lambda) \in \tilde{S}_C(\varphi, \mu, \lambda_s) \cap \bar{S}_C(\varphi, \lambda_l)} \{v_P(\tau, \lambda)\}$, when $\varphi_t = \varphi$. Then, from expressions (28) and (29), the expected utility of group i is given by:

$$V_i(dem, \infty) = \frac{\delta r v_i(\tau, \lambda) + (1 - \delta r) v_i(\tau_N, \lambda_N)}{1 - \delta},$$

whenever $\varphi_t = \infty$, while it is given by:

$$V_i(dem, \varphi, \tau, \lambda) = \frac{[1 - \delta(1-r)] v_i(\tau, \lambda) + \delta(1-r) v_i(\tau_N, \lambda_N)}{1 - \delta},$$

[2]Such a policy may not exist. If this is the case, the populace will defend democracy and, hence, democracy will be semi-consolidated.

whenever $\varphi_t = \varphi$. If N induces a coup that gives rise to a permanent autocracy controlled by s, from (25) and (26), the expected utility of group i when $\mu_t = \infty$ is given by:

$$V_i\left(aut(s), \infty\right) = \frac{\delta q v_i\left(\tau\left(s\right), \lambda_s\right) + \left(1 - \delta q\right) v_i\left(0, \lambda_s\right)}{1 - \delta},$$

while, when $\mu_t = \mu$, it is given by:

$$V_i\left(aut(s), \mu\right) = \frac{\left[1 - \delta\left(1 - q\right)\right] v_i\left(\tau\left(s\right), \lambda_s\right) + \delta\left(1 - q\right) v_i\left(0, \lambda_s\right)}{1 - \delta}.$$

Therefore, if l democratizes, there will be a semi-consolidated democracy whenever there is no $(\tau, \lambda) \in \bar{S}_C\left(\varphi, \lambda_l\right) - \tilde{S}_C\left(\varphi, \mu, \lambda_s\right)$ or:

$$V_P\left(dem, \varphi, \tau, \lambda\right) \geq \left(1 - \varphi\right) v_N\left(0, \lambda_s\right) + \beta\left[q V_N\left(aut(s), \mu\right) + \left(1 - q\right) V_N\left(aut(s), \infty\right)\right].$$

Otherwise, there will be a democracy until the first time that $\varphi_t = \varphi$, when a coup will give rise to $aut(s)$. Finally, we must consider the decision of l the first time that $\mu_t = \mu$. Suppose that democratization leads to a semi-consolidated democracy. Then, l prefers to transfer the control of the autocracy to s if $V_l\left(aut(s), \mu\right) \geq V_l\left(dem, \infty\right)$. Otherwise, l prefers to democratize. On the other hand, if democratization leads to $aut(s)$, l always prefers to transfer the control of the autocracy to s the first time that $\mu_t = \mu$, since it makes no sense for l to democratize for the sole purpose of postponing the arrival of $aut(s)$.[3]

Suppose that $\bar{\varphi}_3 \leq \varphi < \min_\lambda \bar{\varphi}_2\left(\lambda\right)$, where

$$\bar{\varphi}_3 = \min\left\{ \begin{array}{c} \frac{\min_{i,\lambda}\{r'\bar{\varphi}_i(0,\lambda,\lambda_l)+(1-r')\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_l)\}}{1-\delta(1-q)}, \\ \frac{\min_{i,\lambda}\{[1-\delta(1-r)]\bar{\varphi}_i(\tau,\lambda,\lambda_s)+\delta(1-r)\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_s)-\delta q\bar{\varphi}_i(\tau(s),\lambda(s),\lambda_s)\}}{1-\delta} \end{array} \right\}$$

Then, from (32) and (33), if l democratizes the first that time $\mu_t = \mu$, then, no matter what policy is implemented by N, a coup is always a possibility. Thus, democracy cannot be semi-consolidated, and the most that N can do is to influence which elite group controls the autocracy after the coup. From expressions (30) and (31), the expected utility of group i when $\mu_t = \mu$ ($\varphi_t = \infty$) is given by:

$$V_i\left(aut(l), \mu\right) = V_i\left(dem, \infty\right) = \frac{\left[1 - \delta\left(1 - q\right)\right] v_i\left(\tau_N, \lambda_N\right) + \delta r v_i\left(0, \lambda_l\right) - \delta r\left[1 - \delta\left(1 - q\right)\right] \varphi v_i\left(0, \lambda_l\right)}{\left(1 - \delta\right)\left[1 - \delta\left(1 - q - r\right)\right]},$$

while, when $\varphi_t = \varphi$ ($\mu_t = \infty$), it is given by:

$$\begin{array}{rl} & V_i\left(aut(l), \infty\right) - \varphi v_i\left(0, \lambda_l\right) = V_i\left(dem, \varphi\right) = \\ = & \frac{\left[1 - \delta\left(1 - r\right)\right] v_i\left(0, \lambda_l\right) + \delta q v_i\left(\tau_N, \lambda_N\right) - \left[1 - \delta\left(1 - r\right)\right]\left[1 - \delta\left(1 - q\right)\right] \varphi v_i\left(0, \lambda_l\right)}{\left(1 - \delta\right)\left[1 - \delta\left(1 - q - r\right)\right]}. \end{array}$$

[3] To prove this, suppose that the first time that $\mu_t = \mu$, l democratizes and, then, the first time that $\varphi_t = \varphi$, the elite mounts a coup controlled by s. Then, democratization would lead to (τ_N, λ_N) until the first time that $\varphi_t = \varphi$, when a coup gives rise to $aut(s)$ that lasts for ever (once s takes control of the autocracy, it will never have an incentive to give it up). However, if the first time that $\mu_t = \mu$, l transfers control over the autocracy to s, then the first policy to be implemented will be $\tau_E \leq \tau_N$ and $\lambda_E = \lambda_s = \lambda_P$, followed by $aut(s)$.

Therefore, if l democratizes, there will be an unconsolidated democracy if there is $(\tau,\lambda)\in\tilde{S}_C(\varphi,\mu,\lambda_s)-\bar{S}_C(\varphi,\lambda_l)$ and:

$$V_N(aut(l),\infty)-\varphi v_N(0,\lambda_l)\geq(1-\varphi)v_N(0,\lambda_s)+\delta\left[qV_N(aut(s),\mu)+(1-q)V_N(aut(s),\infty)\right].$$

Otherwise, the first time that $\varphi_t=\varphi$, there will be a coup that gives rise to $aut(s)$. Finally, we must consider the decision of l the first time that $\mu_t=\mu$. If democratization leads to an unconsolidated democracy, l prefers to transfer control over the autocracy to s if $V_l(aut(s),\mu)\geq V_l(dem,\infty)$. Otherwise, l prefers to democratize. On the other hand, if democratization leads to $aut(s)$, l always prefers to transfer control over the autocracy to s the first time that $\mu_t=\mu$. The reason for this is that it makes no sense for l, to democratize for the sole purpose of postponing the arrival of $aut(s)$.

Suppose that $\varphi<\bar{\varphi}_3$. Then, from (32) and (33), if l democratizes the first time that $\mu_t=\mu$, then, there is no way that N can stop a coup, nor can it influence who controls the autocracy after the coup. Therefore, if l democratizes, democracy will be unconsolidated if:

$$V_l(aut(l),\infty)-\varphi v_l(0,\lambda_l)\geq(1-\varphi)v_l(0,\lambda_s)+\delta\left[qV_l(aut(s),\mu)+(1-q)V_l(aut(s),\infty)\right].$$

Otherwise, the first time that $\varphi_t=\varphi$, there will be a coup that gives rise to $aut(s)$. Finally, we focus on the decision of l the first time that $\mu_t=\mu$. If democratization leads to an unconsolidated democracy, l prefers to transfer control over the autocracy to s if $V_l(aut(s),\mu)\geq V_l(dem,\infty)$. Otherwise, l prefers to democratize. On the other hand, if democratization leads to $aut(s)$, l always prefers to transfer control over the autocracy to s the first time that $\mu_t=\mu$.

Note that we have proved stronger statements than strictly necessary since we have deduced a complete characterization of the equilibrium when $[1-\delta(1-q)]\bar{\mu}(\tau_N,\lambda_N)+\delta(1-q)\bar{\mu}(0,\lambda_s)\leq\mu<[1-\delta(1-q)]\bar{\mu}(\tau_N,\lambda_N)+\delta(1-q)\bar{\mu}(0,\lambda_l)$, while in Proposition 2 we have weaker statements of the form 'if democratization leads to ... , then ... '. ■

Proof of Proposition 2 Part c: Suppose that there is intra-elite conflict over trade policy. From (27), if $\mu<\mu<[1-\delta(1-q)]\bar{\mu}(\tau_N,\lambda_N)+\delta(1-q)\bar{\mu}(0,\lambda_s)$, then, when $\mu_t=\mu$, the elite can placate a revolt only through democratization. Democratization can lead to the advent of several different political regimes, depending on the cost of mounting a coup.

From (32), if $\varphi'\geq\max_{\lambda_j}\min_i\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)$, then N can stop a coup by promising (τ_N,λ_N), which implies that democracy is consolidated.

From (32), if $\varphi'<\max_{\lambda_j}\min_i\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)$ and $\varphi'\geq\max_{\lambda_j}\min_i r'\bar{\varphi}_i(0,\lambda_N,\lambda_j)+(1-r')\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)$, then N can stop a coup by promising $(0,\lambda_P)$, but not by promising (τ_N,λ_N), which implies that democracy cannot be fully consolidated; it can be semi-consolidated, however, since N can always moderate income redistribution and at least one group of the elite will find that a coup would be too costly. Moreover, not only can N defend democracy, but it is also willing to do so. Therefore, in this region, democracy is semi-consolidated. Moreover, the best way of defending democracy is to offer $(\tau,\lambda)=\arg\max_{(\tau,\lambda)\in\cap_j\bar{S}_C(\varphi,\lambda_j)}\{v_N(\tau,\lambda)\}$.

From (32), if $\varphi'<\max_{\lambda_j}\min_i r'\bar{\varphi}_i(0,\lambda_P,\lambda_j)+(1-r')\bar{\varphi}_i(\tau_N,\lambda_N,\lambda_j)$ and $\varphi'\geq\min_\lambda\max_{\lambda_j}\min_i r'\bar{\varphi}_i(0,\lambda_N,\lambda)+(1-r')\bar{\varphi}_i(\tau_P,\lambda_P,\lambda_j)$, then N has the ability to stop any coup. Clearly, N is willing to stop a coup that gives rise $aut(l)$, since, for N, the worst semi-consolidated democracy is better than an unconsolidated democracy with periodic coups controlled by l. However, it is possible that N prefers a coup that gives rise to $aut(s)$ to a semi-consolidated democracy. If this is

the case, N has an incentive to promise to introduce a policy that induces a coup controlled by s. N can then stop a coup, but not by promising $(0, \lambda_N)$. Thus, N faces a dilemma: defend democracy with the promise $(0, \lambda)$ with $\lambda \neq \lambda_N$, or simply promise $(0, \lambda_N)$, which will lead to a coup. Therefore, if it is the people's will, democracy can be semi-consolidated. However, it is also possible that N prefers a coup that gives rise to $aut(s)$, rather than defend democracy by seducing l, which has the opposite trade policy preference. If N decides to defend democracy, the best policy that N can choose is $\lambda \neq \lambda_N$ and $\tau = \arg\max_{(\tau',\lambda') \in \cap_j \bar{S}_C(\varphi,\lambda_j)} \{v_N(\tau', \lambda)\}$. Then, from expressions (28) and (29), the expected utility of group i when $\varphi_t = \infty$ is given by:

$$V_i(dem, \infty) = \frac{\delta r v_i(\tau, \lambda) + (1 - \delta r) v_i(\tau_N, \lambda_N)}{1 - \delta},$$

while, when $\varphi_t = \varphi$, it is given by:

$$V_i(dem, \varphi, \tau, \lambda) = \frac{[1 - \delta(1 - r)] v_i(\tau, \lambda) + \delta(1 - r) v_i(\tau_N, \lambda_N)}{1 - \delta}.$$

If N does not defend democracy, and N can induce a coup controlled by s, i.e., there exists $(\tau', \lambda') \in \bar{S}_C(\varphi, \lambda_l) - \bar{S}_C(\varphi, \lambda_s)$, then, from expression (31), the expected utility of group i when $\varphi_t = \varphi$ is given by:

$$\begin{aligned} & V_i(aut(s), \infty) - \varphi v_i(0, \lambda_s) = V_i(dem, \varphi) = \\ = \; & \frac{[1 - \delta(1 - r)] v_i(0, \lambda_s) + \delta q v_i(\tau_N, \lambda_N) - [1 - \delta(1 - r)][1 - \delta(1 - q)] \varphi v_i(0, \lambda_s)}{(1 - \delta)[1 - \delta(1 - q - r)]}. \end{aligned}$$

Therefore, N defends democracy if and only if there is no $(\tau', \lambda') \in \bar{S}_C(\varphi, \lambda_l) - \bar{S}_C(\varphi, \lambda_s)$ or:

$$V_N(dem, \varphi, \tau, \lambda) \geq V_N(aut(s), \infty) - \varphi y_N^{\lambda_s}$$

Note, in particular, that if the choice to not defend democracy would lead to a coup controlled by l, N will always be willing to defend democracy. However, if the choice to not defend democracy would lead to a coup controlled by s, it is possible that N will prefer such a coup rather than a costly defense.

From (32), if $\varphi' < \min_\lambda \max_{\lambda_j} \min_i r' \bar{\varphi}_i(0, \lambda_N, \lambda) + (1 - r') \bar{\varphi}_i(\tau_N, \lambda_N, \lambda_j)$ and $\varphi' \geq \min_{i,\lambda} r' \bar{\varphi}_i(0, \lambda, \lambda_l) + (1 - r') \bar{\varphi}_i(\tau_N, \lambda_N, \lambda_l)$, then N can stop a coup controlled by l, but cannot stop a coup controlled by s. Thus, N cannot stop a coup, but they can influence who controls the autocracy after the coup. Since N always prefers $aut(s)$ to $aut(l)$, the coup will be controlled by s. Thus, in this region, we have an unconsolidated democracy with periodic coups controlled by s.

From (32), if $\varphi' < \min_{i,\lambda} r' \bar{\varphi}_i(0, \lambda, \lambda_l) + (1 - r') \bar{\varphi}_i(\tau_N, \lambda_N, \lambda_l)$, there is no credible promise that N can make to stop a coup controlled by l. Thus, in this region, democracy is unconsolidated; whenever $\varphi_t = \varphi$, there will be a coup controlled by l. ■