Trade, Factor Proportions and Political Rights*

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Abstract:
   This paper tests the implication of the Stolper-Samuelson theorem that capital-poor individuals prefer more trade openness in poor (capital-scarce) countries and less trade in rich (labor-scarce) countries, by using a broad panel of countries and new exogenous determinants of trade openness. According to the seminal work in Mayer (1984), capital-poor individuals prefer more trade openness in poor (capital-scarce) countries and less trade openness in rich (labor-scarce) countries. We use the level of political rights as a proxy for the relative capital-labor endowment of the median voter so that an increase in political rights should have asymmetric effects in poor and rich countries: an increase in political rights should lead to more openness in capital poor countries and less openness in capital rich countries. Our results show that, while both income per capita and political rights are positively associated with import intensity, their interaction has a negative and very robust negative association with openness. Increases in political rights lead to sizeable decreases in import intensity after a given income per capita threshold has been surpassed. Our results are robust to the inclusion of structural, geography and cultural determinants of openness, different estimation methods and different proxies for country endowments.

1. Introduction

The world experienced, in the last few decades, a dramatic increase in the volume of international trade, similar to the experience of trade integration of the late 19th century. However, unlike the increase in trade of the late 19th century, in the 20th century the exchange of goods across borders takes place between established democracies or democratizing countries, which award progressively more political and civil rights to their citizens. As an illustration, the Freedom House Index of political rights increased from 42 to 59 between 1972 and 1999 - higher figures denoting more political rights – for a broad cross-section of countries, while average import intensity increased from 31 percent to 45 percent of GDP for the same sample of countries in the same period.[1] The rise in trade is accompanied in rich countries by fears that inexpensive imports from low-wage developing countries drive out jobs or drive down wages. In the United States there has been an absolute decline in the wage rate of the unskilled since the mid 1970´s, partly attributable to increased international integration,[2] while Europe has experienced an increase in the unemployment rate.[3] If policy-makers, in the US or other developed nations, respond to the desires of their electorates, there is a risk of a rise in protectionism, cutting short the potential benefits of world integration and specialization.[4]

The literature on the political economy of protection has so far focused almost exclusively on studies of demand for protection across industries and individuals, virtually ignoring aggregate macro data.[5] However, the response of trade policy to individual

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[1] Trade intensity is measured as the value of imports over country GDP and political rights is the Freedom House Index, scaled for convenience to the 0-100 scale. The data is available from the World Bank (2002) and Freedom House (2001).

[2] The tendency for real wages to rise in the US has conspicuously halted in the early 70's, while imports as a share of Gross Domestic Product started a marked increase.

[3] Other forces, such as technology, have been put forward as possible causes of the reversal in the wages of the unskilled. This paper exploits and emphasizes the trade link, not because it is stronger. While policy-makers can do little about technology, they can do something about trade openness. See Blum (2002) for a recent reference on testing the trade and technology channels in explaining US inequality.

[4] The relationship between trade openness and economic growth has been widely documented, as in Frankel and Romer (1999), Wei (2000) and Quah and Rauch (1990). Rodriguez and Rodrik (2000) present a skeptical view.

[5] See Rodrik (1995) for an early survey of the empirical literature on the political economy of trade.

preferences should be discernible in aggregate data. Several reasons make it worthwhile to investigate how the interaction of factor endowments and political rights affects trade openness. First, the factor proportions theory of trade has clear distributional predictions: the Stolper-Samuelson theorem postulates that, as countries integrate with world markets, the return to the domestically scarce factor decreases while the return to the abundant factor increases. In other words, world market integration has a starkly asymmetric impact in capital-abundant and labor-abundant countries: it harms workers where capital is relatively abundant and benefits workers where capital is relatively scarce. The classical paper Mayer (1984) uses the Stolper-Samuelson effect to derive the formal relationship between the capital-labor ratio of the median voter and her preferred level of trade openness. Our paper argues that the level of political rights proxies for the influence of capital-poor individuals in the design of trade policy. Since most of the electorate – and, notably, the median voter – are relatively capital poor in any given country, more democracy may lead to less openness in capital-abundant countries and more openness in labor-abundant countries. By using the interaction of political rights and an indicator of country relative endowments, this paper tests formally the link between factor proportions and trade as the level of political rights changes. In the process this paper suggests answers to two broader questions. Can increased world integration potentially foster a protectionist response in the industrialized world? Are political and trade liberalization in the developing world just concurring trends or does the former further the latter, that is, does more democracy lead to higher trade openness?

A second reason to examine aggregate data on the issue is that the debate over trade policy is almost always framed in aggregate terms, namely as a conflict between the high-wage capital-abundant industrialized world and low-wage capital-scarce developing world. The argument that integration may lead to a protectionist backlash involves a political mechanism working at the national level, suggesting an examination of aggregate entities, "invisible" to sectorial studies.

The paper adds to the literature on the political economy of protection, following on Dutt and Mitra (2002). Previously, Baak and Ray (1982) had presented some evidence that the extension of the franchise in the United States was accompanied by declining tariffs on capital-intensive imports and rising tariffs on labor-intensive imports. Dutt and Mitra (2002) presents evidence that the interaction of income inequality and the level of GDP per capita - a proxy for factor endowments - explains openness measured by average tariff levels and other indicators. How does inequality enter the story? The argument in Dutt and Mitra (2002), as well as in the present paper, relies in the model in Mayer (1984), suggesting that as the distance between the median and average voters in terms of relative capital/labor endowments increases, so does increase the demand for openness in poor countries and for closeness in rich countries. In this paper we argue that a proxy for the position of the median voter – such as an index of political rights – is at least as important as inequality index in explaining the demand for openness. As shown in Rodriguez (1999), inequality can have the opposite effect by redistributing power to lobbies, which tend to be formed mostly by producers - high capital-per-worker individuals.[6] In this case, increased inequality may lead to the exact opposite effect: a demand for closeness in labor-abundant countries and for openness in capital-abundant ones. In sum, the effect of inequality on the demand for openness in poor and rich countries is ambiguous.[7] As to the effect of political rights, the predictions are clear-cut: political rights are associated with yielding power to the low capital-per-worker median voter. In relatively capital-abundant countries this median voter has an incentive to block imports while in labor-abundant countries the median voter has an interest in doing the opposite. This paper uses a broad sample of countries over time, as well as a new measure of

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[6] This is also a factor in Mitra (2002), who analyzes the relationship between the fixed costs of lobbying and the choice of free trade.

[7] Furthermore, the effect of inequality on the demand for openness depends on a level of redistribution of tariff money, a fact that is highly unlikely to occur in reality. Benabou (1996) surveys cross-country evidence testing the link between inequality and redistribution and finds that nine out of ten studies do not find a relationship of any sign between the variables, while Perotti (1996) regresses six indicators of redistribution on an indicator of inequality and finds very little evidence of a pattern, whether the sample is restricted to democracies or not.

exogenous import intensity[8] and finds that political rights are an important driving force of import intensity.

The paper is organized as follows: Section 2 discusses the literature on the political economy of trade in view of the factor proportions theory, Section 3 provides an empirical test and checks for robustness. Section 5 concludes.

2. Trade and Politics: An Overview of the Literature

In this section we motivate the relationship between political rights and trade openness. We present our argument in two steps: the "economic link" connects international trade to the returns of factor of production, given the relative factor endowments of a country. The "political link" connects individual factor endowments to preferences over trade openness.

2.1. Trade and Factor Returns

Economists tend to look for differences in factor endowments where they see trade. The most basic tool to think about trade, the Hecksher-Ohlin model, proposes a simple mechanism: domestic factor supplies and exogenous international product prices determine domestic production and consumption. Trade is the difference between domestic production and domestic consumption. If all countries have similar consumption patterns, a given country will tend to export the goods that use intensively the factor that is relatively abundant at home, and import the goods using the domestically scarce factor.[9] An important

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[8] This measure of exogenous openness, from which an indicator of policy-induced openness will be derived, is in the spirit of Frankel and Romer (1999) and Wei (2000). These authors use exogenous determinants of openness – namely, the geographical characteristics of the country – to estimate "exogenous openness", correct for endogeneity and make inferences for the impact of openness on growth.
[9] Leontieff (1956), has shown that the capital-labor ratio of US exports was lower than that of US imports, in what became known as "Leontieff´s Paradox", by Leamer (1980) has subsequently exposed the "simple conceptual

result deriving from the factor proportions theory of trade is the Stolper-Samuelson theorem, stating that when a country opens up to trade it experiences a decrease in the return to the domestically scarce factor and an increase in the return to the abundant factor.[10] Opening an economy raises the real return to the factor that is relatively abundant at home through a rise in the price of the good that uses that same factor intensively.[11] The existence of winners and losers to trade liberalization is thus a conspicuous feature of trade models. In a world with many goods and many factors who gains and who loses becomes less clear cut but Leamer (1994) has shown that it is always true that a factor "scarce enough" at the domestic level will lose from trade.[12]

A related issue is whether, empirically, trade has an impact on factor returns. Leamer (1997) shows that increased imports from low-wage developing countries in the 1970s impacted the US economy by decreasing the price of US labor-intensive products and lowering employment in these industries. In a long-run study of factor returns, O'Rourke and Williamson (1997) show that between 1870 and 1913 labor-scarce economies in the American continent saw their wage-rental ratios decrease as world markets integrated. On the other hand, labor-abundant open economies in Europe experienced an increase in wage-rental ratios, which is entirely consistent with the Stolper-Samuelson theorem.

In contrast with the Hecksher-Ohlin model, the specific-factor model suggests that owners of immobile factors have a lot to gain from sectorial protection. Furthermore, it

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misunderstanding" behind this finding: when both net exports of capital and of labor are positive, as was the case for the US in the 1950's, the relevant comparison is between the capital per capita of net exports and capital per capita of domestic consumption. Leamer also showed that Leontieff's finding is not present in current trade data. However, Leontieff has initiated a tradition of skepticism as to the predictive power of factor proportions theory, which we will not debate here.

[10] See Samuelson (1949).

[11] The main assumptions necessary for this result to hold are that the two countries share similar technologies and product mixes, and display no factor-intensity reversals.

[12] This mechanism is at work when countries have completely diversified production, that is, each country produces some quantity of all goods. Davis (1997) presents another model where the difference in endowments across countries is large enough so that each will produce only a subset of the existing goods. Countries subdivide into different diversification cones, defined by the subset of goods produced and changes in the price of a good translate into changes in the domestic factor returns only if the good is produced locally. Trade with countries outside the cone will still benefit all individuals within a country as consumers but not benefit some at the expense of others through changes in factor returns.

explains how they obtain protection from policy makers at the expense of owners of factors employed in other sectors.[13] In a specific factors model an individual will share the same interests as the industry where her factor ownership is concentrated; because specific factors have concentrated interests they organize better than the diffused interests opposed to protection. The plausibility of the Hecksher-Ohlin versus the specific factors model depends crucially on the degree of integration of national factor markets. When factors are highly mobile, trade will affect a factor's return whatever the sector it is employed in: labor and capital flow to equalize returns across sectors. The Hecksher-Ohlin model of trade links industry fortunes to factor fortunes; the specific factors model claims that industry of employment, *not* factor endowments, explain the demand for protection. However, the difference between the two may be no more than that between the short and the long run, as factors are given time to move between sectors.[14]

The empirical issue is whether and how individual factor endowments determine preferences over trade. Magee (1978) presented evidence, from congressional hearings in the US, that the interests of workers and employers in the same industry are aligned. Irwin (1997) studied the British General Election of 1923, fought mainly over the trade issue, concluding that sectorial employment, not class divisions, determined preferences over trade policy. Both authors conclude against the relevance of factor proportions theory. On the other hand several authors reveal a close connection between endowments and policy preferences. Rogowski (1989) explains party and coalition formation in 19th century Europe as an endogenous response by social groups differently affected by trade. Scheve and Slaughter (1997) use large individual survey datasets to demonstrate a connection between individual endowments and trade preferences. They find, for a cross-section of US

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[13] The mechanism through which sectorial protection affects negatively other sectors is the increase in the price of the protected sector's output and/or the increase in the return to the mobile factor. Since the return to the mobile factor is a cost for all sectors that use it, there is a "social" cost to protection which is overlooked by both the sector requesting protection and the policy-maker.

[14] The specific factors model can be seen as the short-run equivalent of the Hecksher-Ohlin model. Mussa (1978) formalizes how costs to intersectorial-mobility akin to specific factors models still deliver Stolper-Samuelson results in the long-run.

individuals, that "factor type dominates industry of employment in explaining support for trade barriers". This result is robust to whether education or average hourly wage are used as proxies for skills. [15] Furthermore, these authors find that employment in industries more exposed to trade is not significantly correlated with support for trade barriers.[16] These results are consistent with a Hecksher-Ohlin trade model where the US is relatively well endowed in skilled labor relative to the rest of the world. More recently, Mayda and Rodrik (2002) have crossed individual and country characteristics to assess what determines trade preferences. They find that attitudes towards trade are influenced buy economic and non-economic considerations. Specifically they find that individuals that are relatively with a high level of education and skills tend to be pro-trade in countries that well endowed with human capital and against trade in countries poorly endowed with human capital. If the latter countries are likely to import relatively more human capital-intensive goods than the former, the results in Mayda and Rodrik (2002) are supportive of the story in this paper. Mayda (2002) finds evidence of a similar effect when studying the relationship between individual and country relative endowments in human capital and the response to immigration flows. In sum, the empirical literature is strongly supportive of a link between individual endowments, country endowments, and trade.

2.2. Political Rights and Trade

Free trade is the optimal policy prescription for a small country, and it would be would be chosen by all voters and factor owners if there were no restrictions on income transfers. However, redistributive schemes that compensate those who lose from trade policy

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[15] See Balistreri (1997) and Beaulieu (1996) for studies on Canada. Beaulieu (1996) uses results from the 1988 Canadian election, widely regarded as a referendum on the Canadian-United States Free Trade Agreement and individual-level survey data, concluding that factor types, not sector of employment, determine trade preferences. Balistreri (1997) uses data on relative abundance of occupations in the United States and Canada to find that an individual is more likely to favor trade, the more her occupation is abundant in Canada relative to the United States.

[16] The measures of sectorial exposure to trade are net exports and tariff rates for the sector. The assumption is that sectors which have more to lose from trade are likely to be those for which the US is a net importer and which are subject to higher tariff rates. Whatever the indicator used, there is no relationship between employment in an exposed sector and support for trade barriers.

changes are rarely, if ever, put in place. As argued in Spector (2001), in some cases it may be altogether infeasible to redistribute the gains from trade. Given this restriction on redistribution, factor owners will display trade policy preferences that diverge from the optimal policy recommendation of free trade. "Who" actually makes trade policy choices becomes a relevant issue. Plausibly, in democratic regimes political representatives reflect, however imperfectly, the trade preferences of individuals. Baldwin (1976) first argued that in capital-abundant countries a majority of workers who own only labor prefers to decrease international trade.[17]   Mayer (1984) extended the framework in Baldwin (1976) and examined the case where individuals own more than one factor of production and are ordered along a continuum in terms of their relative capital-labor endowment. Mayer computed how the preferred tariff rate depends on individual factor endowments. He considers two goods traded in world markets at prices that are exogenous to a given country. Production is constant returns to scale in capital and labor but one sector uses capital more intensively. There is no unemployment of factors of production and each sector uses capital and labor up to the point where the value of marginal productivity equals cost. The country can impose and *ad valorem* tariff on the imported good. Mayer (1984) found that the preferred tariff rate is positive for individuals relatively well endowed with the factor used intensively in the production of the imported good. The preferred tariff rate is zero for individuals whose personal capital-labor ratio equals the national capital-labor ratio. In other words, if individual and national factor endowments coincide in an economy that takes international prices as given, free trade (tariff rate equal to zero) is the policy which maximizes individual welfare: the individually optimal policy coincides with the optimal policy for the economy as a whole. The greater the difference between individual and national endowment ratios the greater the deviation of the individually optimal tariff rate from free-trade policy. This is the result that motivates Dutt and Mitra (2002) in their study of the relationship between inequality and openness. However, as mentioned above,

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[17] Tavares and Wacziarg (2001), in a study of the impact of democracy on economic growth, find a robust negative relationship between a country's level of political rights and trade volume, after controlling for GDP per capita and other plausible determinants of trade policy.

Rodriguez (1999) has shown that higher inequality can redistribute power in favor of lobbies, formed mostly by high capital-per-worker individuals – the producers.[18] Increased inequality may lead to a demand for closeness in labor-abundant countries if it redistributes power towards individuals relatively well endowed with capital.

While the effect of inequality on openness in poor and rich countries is ambiguous, the effect of political rights is not: more political rights are generally associated with distributing power towards the low capital-per-worker median voter. Either because of rules, personal incentives or the influence of money in policy-making, the political process may be biased against individuals with lower capital-labor ratios. In this paper we assume that political liberalization - the increase in the level of political rights - increases the ability of poor individuals, who own almost exclusively labor, to influence the political process.[19] In other words, we assume that more mature democracies are more inclusive towards lower income (low capital-labor ratio) individuals. If this is the case, in developed countries we should observe increases in political rights associated with resistance to labor-abundant imports and the reverse should hold for developing countries, where the capital-labor ratio is lower than the world average. In relatively capital-abundant countries the median voter wants to block imports while in labor-abundant countries the median voter is interested in doing the opposite.

3. Trade, Factor Proportions and Political Rights: The Evidence

In this section we test whether import intensity depends on the interaction of country factor endowments with the level of political rights. The rationale, as explained above, is that the demand for trade openness should reflect how openness affects factor returns and the capital-labor endowment of the median voter, here proxied by the extent of political rights.

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[18] See also Mitra (2002), on the relation between the fixed costs of lobbying and trade policy choices.
[19] The "one man, one vote" principle suggests how political participation through the vote tends to be independent of individual characteristics, including income.

Our dataset covers the period from 1980 to the late 1990´s and a broad cross-section of developed and developing countries.[20] Since there are noticeable outliers in terms of import intensity – namely East Asian countries such as Singapore – we have first excluded from our sample any observation that is deemed an outlier in import intensity according to the method of Hadi and Simonoff (1993).

Our first step is to create a measure of exogenous import intensity. We regress actual import intensity (imports over GDP) on four exogenous variables, namely the interaction of indicators of geographical and cultural proximity between each country in the sample and the twenty largest economies with the total export impulse (absolute exports in constant prices) of the latter.[21] For example, the variable Import-Distance for country I in the sample is given by

$$\text{Import-Dstance}_i = \text{SUM}_{\text{country } j=1 \text{ to } 20 \text{ of largest economies}} \{(\text{ Inverse of Bilateral Distance}_{i,j}) * \text{Exports}_j\}$$

The closest a country is to one of the twenty largest economies and the more the latter exports (to the world as a whole) the larger the value of the variable Import-Distance.[22] The Import Policy Indicator, meant to capture trade openness as determined by policy choices, is computed as the difference between actual import intensity and the predicted value of import intensity from its regression on the four exogenous indicators. We also built an Alternative Import Policy Indicator by using additional explanatory variables – geographical, historical and structural variables – in the regression of actual imports. These indicators of exogenous openness and the associated indicator of policy-induced openness are constructed in the spirit of Frankel and Romer (1999) and Wei (2000), which use exogenous determinants of openness, such as geographical characteristics, to obtain estimates of "exogenous openness", correct for endogeneity and make inferences on the impact of openness on growth.

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[20] See the Data Appendix for a full explanation of variable sources.
[21] The list of the twenty largest economies by Gross Domestic Product in 1990 are presented in Appendix I below.
[22] See appendix I for a full description of the variables involved.

Table 1 presents simple correlations of openness and political rights for different samples. While there is virtually no association between openness and political rights for the complete sample, in the sub-sample of poor countries more political rights are associated with increased import intensity – whether actual or policy - while the opposite holds in rich countries. For exogenous import intensity we find no difference between poor and rich countries.

[Table 1 about here]

The aim of this paper is to check whether import intensity as determined by policy depends on the interaction of country factor endowments and political rights (proxying for the endowments of the median voter). We estimate the following benchmark regression:

Import Policy = α + β1 * Log GDPpc + β2 * Political Rights + β3 * (Log GDPpc * Political Rights) + θ* Z + ε

where the βs are the parameters of interest, associated with country income per capita, political rights and their interaction. Income per capita proxies for relative capital endowment of the country under study and allows us to exploit a larger sample than the use of variables such as the ratio of physical capital to labor force. Z stands for other controls, entered to test for the robustness of the results. All specifications include time dummies. Table 2 below presents results for this specification, using Actual Imports, the Import Policy Indicator and the Alternative Import Policy Indicator. In all three specifications we find that higher income per capita and more political rights are associated with higher levels of openness or policy openness, while the interaction of the two variables is negatively and significantly associated with import intensity. In other words, more political rights increases import intensity in poor countries but tends to decrease it at higher levels of income per

capita. Notably, the threshold level at which more political rights are reflected in a lower import intensity is between 6.34 and 7.71. The average level of income per capita in the sample is 7.82, indicating the plausibility of our estimates.[23]

In columns (4) through (9) we add the Gini coefficient and its interactions with income per capita and with democracy to test for the effect of inequality on import intensity. We find that they inequality does not significantly affect import intensity insofar as it reflects trade policy choices. In fact, the indicator of inequality and its interactions are associated with insignificant coefficients whenever import policy indicators are used. Only when actual imports are the variable to be explained do we obtain a significant effect of inequality (and its interaction with income) on imports. We checked whether inequality and its interaction with income per capita affected exogenous import intensity, as defined in Appendix I, and found that that is indeed the case. In sum, inequality seems to be associated with indicators of exogenous rather than endogenous openness. Alternatively, we have used interactions of political rights and inequality with membership of OECD, proxying for high income per capita. We also used different estimation methods – such as random effects. The results were confirmed.

[Table 2 about here]

Table 3 performs a robustness test of the results in Table 2 by adding indicators of the structure of the economy, its geographic characteristics and its cultural characteristics. An indicator of ethnic and linguistic fractionalization, whether the colony was a colony after 1820, whether it acceded to independence after World War II and whether it is an oil exporter capture important features of the structure of the economy. Dummies for island countries and landlocked countries, the size of the population and the distance to major

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[23] We computed the value of this threshold fro different specifications and estimation methods and the values were almost all located in the interval [7.5, 8].

economies mimic geographical characteristics. Finally, the origin of the legal system and the majoritarian religious affiliation capture important cultural characteristics. The results are quite robust: we find that the asymmetric effect of political rights on openness remains significant irrespective of our using actual imports or an import policy indicator. The fact that political rights tend to increase openness in poor countries and decreases in richer economies is actually more robust than the effect of income per capita on openness, which is sensitive to the inclusion of geographical indicators. We

[Table 3 about here]

In Figure 1 we represent, in a three dimensional diagram, how the level of import intensity – in the vertical axis – depends on income per capita and political rights – in the two axes that define the horizontal plane. We use the coefficients as estimated in column (1) of Table 2 to draw import intensity as a function of political rights and import share of GDP. As can be verified, for poor countries (logarithm of per capita GDP close to 5) an increase in political rights increases the share of imports in GDP, from 45 to about 60 percent of GDP. For rich countries the same increase in political rights leads to a decrease in import intensity from 90 to 60 percent.[24]

[Figure 1 about here]

4. Conclusions

This paper uses the insight in Mayer (1984) of the relationship between country endowments, individual endowments and trade policy. Using the Stolper-Samuelson theorem on the relation between relative goods prices and domestic factor returns Mayer (1984) suggests that capital-poor individuals prefer more trade openness in poor/labor-

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[24] The same qualitative result can be observed for the extreme levels of political rights.

abundant, countries and less trade openness in rich/labor-scarce countries. This is in accordance with recent results linking the crossing of individual and country endowments with trade preferences.

We argue that political rights are a proxy for the relative capital-labor endowment of the median voter influencing trade policy. More political rights lead to a lower capital-labor ratio of the median voter that influences policy. The implication is that an increase in political rights should lead to more openness in capital poor countries and less openness in capital rich countries. We test these results for a broad cross section of countries using new exogenous indicators of openness to construct measure of import intensity as influenced by policy. We find that , while both income per capita and political rights increase import intensity, their interaction is negatively and very robustly negatively associated with openness. Thus, increases in political rights lead to decreases in import intensity after some income per capita threshold has been surpassed. Our results are robust to the inclusion of structural, geographical and cultural variables and to different estimation methods.

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Appendix I – Determining Exogenous and Policy Openness

In this appendix we explain the procedure used to develop new indicators of a country's exogenous and endogenous levels of import intensity. Our aim is to find variables affecting a country's import intensity but not affected by it. We use four variables, computed according to the following procedure:

1. Select the 20 largest economies by Gross Domestic Product in 1990. The full list consists of Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Iran, Italy, Japan, South Korea, Mexico, Netherlands, Poland, Spain, Turkey, the United Kingdom and the United States.

2. Compute, for each pair (country in the sample, each of the 20 largest economies), four variables that capture the geographic and cultural closeness between each country in the sample and each of the 20 largest economies. The variables used are: bilateral distance in miles, a dummy that takes the value 1 if the country pair has a common land border, a dummy taking the value 1 if the country pair has the same majoritarian religious denomination and a dummy taking the value 1 if the country pair shares an official language.

3. Take the value of total exports of each of the 20 largest economies, in constant US dollar terms and averaged for each five-year period. Multiply total exports by the dummy variables constructed in 2 above. For bilateral distance, multiply exports by the inverse of the distance. The sum in each of the four categories (distance, contiguity, religion and language) constitutes the exogenous determinant for import intensity of each country in the sample.

For example, each country in the sample will have four exogenous variables that will serve as instruments for its degree of import intensity, defined as:

$$\text{Import-DI}_{\text{country } i} = \text{SUM}_{\text{country } j=1 \text{ to 20 of largest economies}} \{(1/\text{Bilateral Distance}_{i,j}) * \text{Absolute Exports}_{j \text{ of 20 largest economies}}\}$$

$$\text{Import-CO}_{\text{country } i} = \text{SUM}_{\text{country } j=1 \text{ to 20 of largest economies}} {}_0\{\text{Contiguous}_{i,j} * \text{Absolute Exports}_{j \text{ of 20 largest economies}}\}$$

$$\text{Import-RE}_{\text{country } i} = \text{SUM}_{\text{country } j=1 \text{ to 20 of largest economies}} \{\text{Religion}_{i,j} * \text{Absolute Exports}_{j \text{ of 20 largest economies}}\}$$

$$\text{Import-LA}_{\text{country } i} = \text{SUM}_{\text{country } j=1 \text{ to 20 of largest economies}} \{\text{Language}_{i,j} * \text{Absolute Exports}_{j \text{ of 20 largest economies}}\}$$

We are left with a group of exogenous variables that capture the export impulses from the largest economies and weigh them by the geographical and cultural proximity to each of the economies in the sample. We then regress actual import intensity on the exogenous determinants presented above. The correlation between the exogenous and actual openness indicators is about 0.38. The predicted value of the dependent variable in that regression is the exogenous level of import intensity and its difference to actual imports gives us the Import Policy Indicator. As a robustness check we also compute an Alternative Import Policy Indicator by adding to the four exogenous variables above country population, distance to the major exporters and dummies for island, landlocked country, postwar independence, former colony and oil exporter.

Appendix II - Data Sources

Import Intensity – **Source:** World Bank (2002). **Definition:** Imports as a share of the economy's GDP. **Unit:** Percent.

GDPpc - **Source:** World Bank (2002). **Definition:** Level Gross Domestic Product per capita. **Unit:** Log of **constant** US Dollars.

Political Rights – **Source:** Barro and Lee (1994). **Definition:** Freedom House Index of Political Rights. **Unit:** Between 0 and 1, increasing in political rights.

Gini Coefficient - **Source:** Deininger and Squire (1996). **Definition:** Gini coefficient of inequality. **Unit:** Between 0 and 1, increasing in inequality.

Ever Colony – **Source:** Barro and Lee (1994). **Definition**: Countries that were colonies after 1825. **Unit:** Dummy variable with 1 denoting colony.

Postwar Independence – **Source:** Barro and Lee (1994). **Definition**: Countries that became independent after World War II. **Unit:** Dummy variable with 1 denoting independence after WWII.

Area – **Source:** Barro and Lee (1994). **Definition**: Country area. **Unit:** Thousand square kilometers.

Population – **Source:** Barro and Lee (1994). **Definition:** Country population. **Unit:** 1000 millions.

Island – **Source:** Barro and Lee (1994). **Definition**: Island countries indicator. **Unit:** Dummy variable with 1 denoting island.

Landlocked – **Source:** Barro and Lee (1994). **Definition**: Landlocked countries indicator. **Unit:** Dummy variable with 1 denoting landlocked.

Fractionalization – **Source:** LaPorta et al. (1999). **Definition:** Measures ethno-linguistic fractionalization: the probability that two random selected individuals within the country belong to the same religious and ethnic group. **Unit:** Continuous variable between 0 and 100, with 100 denoting lower fractionalization.

Oil Exporter – **Source:** Barro and Lee (1994). **Definition:** Dummy for oil exporting-countries. **Unit:** Dummy.

Distance to Major Economies – **Source:** Own computation. **- Definition**: Average distance to 20 largest economies by GDP in 1980, as defined in Appendix I. **Unit:** Kilometers.

Legal Origin – **Source:** LaPorta et al. (1999). **Definition**: Dummy for origin of legal system, English, French, German or Scandinavian. **Unit:** Dummy taking the value 1 for the corresponding legal origin.

Religious Affiliation – **Source:** Barro and Lee (1994). **Definition**: Dummy for majoritarian religious affiliation, Catholic, Protestant, Muslim, Hindu. **Unit:** Dummy taking the value 1 for the corresponding religious affiliation.

Table 1 – Simple Correlations
Political Rights and Openness

	All Countries	Poor Countries	Rich Countries
Import Intensity	0.02	0.23	-0.14
Import Policy Indicator	-0.03	0.18	-0.18
Exogenous Imports	0.13	0.15	0.08

Table 2
Trade, Political Rights and Income Inequality
Dependent Variable: Imports Over GDP and Import Policy Indicators - Ordinary Least Squares

	Imports Over GDP			Import Policy Indicator			Alternative Import Policy Indicator		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Income per capita	8.42** (3.45)	33.23** (3.57)	11.92** (2.75)	9.04** (3.76)	19.40** (3.15)	1.42 (0.35)	8.24** (4.14)	18.27** (2.70)	-0.26 (-0.08)
Political Rights	85.97** (4.16)	112.19** (3.58)	-	94.62** (4.87)	94.47** (3.22)	-	53.52** (3.24)	64.59** (2.62)	-
Income per capita * Political Rights	-11.15** (-4.15)	-15.34** (-2.82)	-	- 12.61** (-4.95)	-12.58** (-2.40)	-	-8.44** (-3.90)	-10.56** (-2.57)	-
Income Inequality	-	3.40** (3.12)	1.95** (2.01)	-	1.09 (1.02)	-0.003 (-0.00)	-	1.29* (1.65)	0.02 (0.04)
Income per capita * Income Inequality	-	-0.41** (-2.57)	-0.21* (-1.70)	-	-0.10 (-0.64)	0.04 (0.34)	-	-0.16 (-1.41)	0.01 (0.16)
Income per capita * Political Rights * Income Inequality		-0.03 (-0.59)			-0.04 (-0.87)			-0.01 (-0.31)	
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Income pc Threshold	7.71	-	-	7.50	-	-	6.34	-	-
R2	0.05	0.10	0.04	0.05	0.08	0.02	0.07	0.11	0.01
Nr. Observations	578	434	434	578	434	434	552	424	424

Note: The import policy indicator and its alternative are computed using the deviations of import intensity relative to the predicted value of a regression of import intensity on exogenous determinants as explained in Appendix I. All variables described in Appendix II. T-statistics are presented in parentheses below coefficients and are computed using heteroskedastic-consistent standard errors

Table 3
Trade and Political Rights - Robustness
Dependent Variable: Import Intensity and Import Policy Indicator – Ordinary Least Squares

	Imports Over GDP			Import Policy Indicator I		
	(1)	(2)	(3)	(4)	(5)	(6)
Income per capita	5,76**	3,30	4,84**	7,33**	3,60	5,07**
	(2,32)	(1,40)	(2,17)	(2,99)	(1,40)	(2,16)
Political Rights	49,34**	59,66**	78,43**	43,62**	43,42**	60,44**
	(2,09)	(2,61)	(3,27)	(1,71)	(1,70)	(2,53)
Income per capita * Political Rights	-6,19**	-8,24**	-9,82**	-5,78**	-6,66**	-8,31**
	(-2,07)	(-2,89)	(-3,24)	(-1,81)	(-2,09)	(-2,74)
Fractionalization, Ever Colony, Postwar Colonization and Oil Exporter	Yes	-	-	Yes	-	-
Island, Landlocked Country, Population and Distance to Major Economies	-	Yes	-	-	Yes	-
Legal Origin and Religious Affiliation	-	-	Yes	-	-	Yes
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Income pc Threshold	7.97	7.24	7.99	7.55	6.52	7.27
R2	0.24	0.23	0.14	0.19	0.12	0.16
Nr. Observations	275	303	315	275	303	315

Note: The import policy indicator is computed using the deviations of import intensity relative to the predicted value of a regression of import intensity on exogenous determinants as explained in Appendix I. All variables described in Appendix II. T-statistics are presented in parentheses below coefficients and are computed using heteroskedastic-consistent standard errors.

Figure 1:
Trade, Factor Proportions and Political Rights