

# Do Autocratic States Trade Less?

Toke S. Aidt\* and Martin Lassebnær†

November 2008

## Abstract

The paper analyzes whether the political regime of a country influences its involvement in international trade. Firstly, we develop a theoretical model that predicts that autocracies trade less than democracies. Secondly, we test the predictions of the model empirically using a panel of more than 130 countries for the years 1962 to 2000. In contrast to the existing literature, we use political data on individual importing and exporting countries, rather than a regime dyadic set-up. In line with the model, we find that autocracies import substantially less than democracies, even after controlling for official trade policies. This finding is very stable and does not depend on a particular set-up or estimation technique.

*J L classification:* F13; F14; O24; P45; P51

*Keywords:* international trade; democracy; autocracy; gravity model

## 1 Introduction

Is there a systematic relationship between economic and political liberalization? Does the political regime of a country systematically affect how involved that country is in international trade? The first question has received a lot of attention recently in the economic literature with studies of the determinants of democracy (e.g., Barro, 1999; Acemoglu et al., 2008) and economic freedom (e.g., Boockmann and Dreher, 2003; Bjørnskov, 2006; Dreher and Rupprecht, 2007) as well as studies of the relationship between democracy and economic freedom (e.g., Sturm and de Haan, 2003; Giavazzi and Tabellini, 2005).<sup>1</sup> The second, more specific question, is, in contrast, much less well researched and the purpose of this paper is to provide some new answers to the question.

Existing knowledge about how political regimes may influence international trade comes from the political science literature. Two seminal papers in this literature find that democracy encourages trade. Mansfield et al. (2000) stress the importance of the congruence between the political

---

\*Faculty of Economics, University of Cambridge; CB3 9DD Cambridge; U.K.; [toke.aidt@econ.cam.ac.uk](mailto:toke.aidt@econ.cam.ac.uk)

† OF Swiss Economic Institute, ETH Zurich; Weinbergstrasse 35; CH-8092

regime of pairs of trading countries. They show that pairs of democratic countries trade more than pairs consisting of a democracy and an autocracy.<sup>2</sup> Milner and Kubota (2005) test whether democratization leads to trade policy liberalizations in a sample of developing countries and sho

with this issues partly by allowing for unobserved country and time fixed effects in our empirical specification, partly by lagging the empirical indicators used to capture institutional differences between countries and partly by using instrumental variables.

By addressing whether there exist systematic differences in trade integration between democracies and autocracies, our paper contributes to the broader debate about trade and development and the role of "good governance" in fostering economic progress. Firstly, trade integration is often seen an engine of economic development. The fact that autocracies trade less may therefore be one reason why so many of them remain under-developed. Secondly, we argue that trade integration and the underlying effective trade distortions are endogenous outcomes generated by the quality of political institutions and the type of bureaucracy governments decide to build. The natural policy implication that flows from this is that improvements in the quality of institutions will lead to better policies and less inefficiency and ultimately enhance trade integration. This highlights the importance of the recent emphasis given by the World Bank and other international institutions to the "good governance agenda" around the world.

The reminder of the paper is organized as follows. Section 2 presents the model, contrasts it to existing models and develops the two hypotheses that govern the empirical investigation. Next, we develop our empirical strategy. In section 4, we present our main result. After that, an extensive set of tests of robustness, including IV estimates, is presented. In section 6, we provide some concluding remarks.

## 2 A Model of Political Regimes and Trade Flows

In this section, we present a model that illuminates two new channels through which regime types can affect trade flows. One channel is the political accountability channel. It is harder for citizens in autocratic countries to hold their rulers accountable. As a consequence, rulers are relatively free to use trade taxes to extract rents. The other channel is the external monitoring channel. Lack of a free press, for example, weakens external monitoring in autocratic societies. Rulers can compensate for this by building internal control mechanisms designed to weed out red tape and other distortionary unofficial trade obstructions introduced by the customs services. Importantly, however, complementarity between external monitoring and these internal control mechanisms, which we model as an efficiency wage, implies that autocratic rulers have *less* incentive to build or strengthen such internal control mechanisms. As a consequence, the customs service in an autocracy is relatively free to introduce and maintain red tape. Both of these channels suggest

that autocracies, *ceteris paribus*, trade less than democracies and that this continues to be true conditional on similar official trade policies.

The existing theoretical work on the link between political regime types and trade flows or policy have either focused on the role of international agreemen

The other approach is taken by Milner and Kubota (2005). In particular, they maintain that the link between democratization and freer trade is an enlargement of the constituency of government that yields a shift of the median voter/supporter. Under autocracy the constituency of government is typically a small group of individuals who are well-endowed with capital. Under democracy with universal suffrage, the median voter is a worker with a low capital endowment. In countries with an advantage in the production of labor-intensive goods (e.g., in developing countries), the Stolper-Samuelson Theorem implies that the median voter benefits from trade liberalization both as a consumer and as a laborer. Our model is complementary to this. We ignore the effect that political transitions may have on the constituency of government and the role that special interests may play both in an autocracy and in a democracy. Instead, we highlight that the degree to which rulers/politicians can be held accountable for their actions and their incentives to invest in “good” institutions varies systematically across regime types within a specific-factors model of international trade.

## 2.1 The Economy

We consider a small open economy that produces two goods and has an infinite time horizon. The stage model is similar to the specific-factors model of trade employed by Grossman and Helpman (1994) and many others. Good 0 is a numeraire good produced with constant returns to scale with labor as the only input and with an input-output coefficient of 1. Good 1 is produced by labor and sector-specific capital.<sup>5</sup> The profit function is  $\pi(p)$  where  $p$  is the domestic price of the good;  $p^*$  is the international price. Domestic supply is  $\frac{\partial \pi}{\partial p} = y(p)$ . Labor can move freely between sectors and consequently the wage rate in the private sector is  $w^p = 1$ .

The economy is populated by a continuum of agents with measure 1, which we shall call workers. Workers earn wage income as each supplies one unit of labor inelastically to the labor market. They also own an equal share of the specific factor used in the production of good 1 and

the domestic price of good 1 for two reasons. Firstly, it affects them as consumers and, secondly, it affects their profit income. Taking the derivative of the indirect utility function with respect to  $p$  yields:

$$\frac{\partial v}{\partial p} = -m(p). \quad (1)$$

Accordingly, if good 1 is imported ( $m(\cdot) > 0$ ), workers want the domestic price to be as low as possible, while if good 1 is exported ( $m(\cdot) < 0$ ) they want, to boost their profit income, the

## 2.2 Politics

The society is governed by a

ing. The media and the press play an important part in these activities. A free press, for example, can report on malfeasance and appropriate action can be taken by the ruler. We assume that the external monitoring technology discovers malfeasance with probability  $1 - z(\cdot)$ . The effectiveness of external monitoring is exogenous, but systematically related to the quality of institutions,  $Q$ . We assume that  $z'(Q) < 0$  and that  $z(1) = 0$  and  $z(0) = 1$ . That is, external monitoring is more effective in societies with high quality institutions. This reflects systematic differences in media freedom.

In case of discovery, which happens with probability  $1 - z(Q)$ , the bureaucrat is immediately fired. Consequently, he loses his wage income from the public sector, the rent from red tape, and returns to the private sector. In the private sector, he receives  $w^p$  starting from next period onwards. With probability  $z(Q)$ , he is not discovered. In this case, he keeps the public sector

w

judged to extract too much rent. The extent to which they can do this also depends on the quality of institutions,  $Q$ . In a fully democratic society, elections and a free press provide accountability (Ferejohn, 1986; Persson and Tabellini, 2000; Besley and Prat, 2006), but even in autocracies and dictatorships, rulers may be constrained by the threat of a coup or a popular revolt (Acemoglu and Robinson, 2001). Formally, at the beginning of each period, workers announce a performance standard that the ruler has to satisfy to get “reappointed” at the end of the period. Workers base their performance standard on the level of utility they get from the policies implemented by the ruler and the bureaucrat within the period. We denote the performance standard announced at the beginning of period  $t$  by  $\hat{v}_t$ . The standard requires the ruler to introduce a policy package  $(\tau_t, w_t)$  that yields at least the utility level  $\hat{v}_t$  in order to be considered for reappointment.

In a well-functioning democracy with a free press (high  $Q$ ), a ruler (politician) who complies with the standard is guaranteed reappointment while a ruler (politician) who does not comply is certain of dismissal. Accountability is, however, seriously weakened in societies with dysfunctional institutions (low  $Q$ ). Absence of regular and fair elections, intimidation of the opposition, electoral

©i8olt)øGS77øH5MMM6i8y)YiøG5-H6777SSHH is, hoAbsen

incumbent ruler or not. This together with random events, as captured by  $q$ , determines whether the incumbent is, in fact, replaced by another ruler. After this the sequence of events is repeated.

### 2.3 Analysis and Results

Given a sequence of standards  $\{\widehat{v}_t\}_{t=0}^{\infty}$ , the ruler faces the choice between complying and hoping to stay in power (which allows him to collect rents in the future) or not complying and collecting the maximum rent now.

If the ruler decides not to comply at time  $t$  (i.e., to deviate ( $D$ )), he sets

$$\{\tau_t^D, w_t^D\} = \arg \max_{\tau_t, w_t} r(\tau_t, \theta(w_t)) - E(w_t). \quad (6)$$

In doing so, he anticipates how the public wage affects the choices of the bureaucrat. It is costly to provide wage incentives and the expected wage bill is

$$E(w_t) = \begin{cases} zw_t & \text{if } w_t < w^e \\ w_t & \text{if } w_t \geq w^e \end{cases}. \quad (7)$$

The ruler knows that he only has to pay the wage if the bureaucrat is not discovered adding red tape. Clearly, either  $w_t^D = 0$  or  $w_t^D = w^e$  is optimal. In the former case, the optimal tariff is

$$\tau^{D1} = \arg \max_{\tau_t} r(\tau_t, \bar{\theta}) \quad (8)$$

and the rent is  $r(\tau^{D1}, \bar{\theta})$  for all  $t$ , and in the later case, it is

$$\tau^{D2} = \arg \max_{\tau_t} r(\tau_t, 0) - w^e \quad (9)$$

and the rent is  $r(\tau^{D2}, 0) - w^e$  for all  $t$ . In either case, the workers attempt to replace the ruler at time  $t + 1$  but with probability  $q(Q)$  fail to do so. The ruler's expected payoff is

$$V_t(D) = \max \{r(\tau^{D1}, \bar{\theta}), r(\tau^{D2}, 0) - w^e\} + \beta q(Q) V_{t+1}^*, \quad (10)$$

where  $V_{t+1}^*$  is the continuation value of holding office at the beginning of period  $t + 1$ . The optimal deviation policy depends on the quality of the monitoring institutions as described by Lemma 1.

**Lemma 1** (*The Optimal Deviation Policy*) Let  $Z(Q) = \frac{z(Q)}{1-z(Q)}$  with  $Z' < 0$ . More

reduce the tariff below the respective rent maximizing lev

would ever comply with any standard other than the rent maximizing one. It is also clear from equation (16) that workers' welfare is increasing in the quality of institutions, i.e.,  $\frac{\partial \hat{w}^*}{\partial Q} > 0$ .

We are interested in why the volume of international trade is different in autocracies and democracies. To study this, we shall make a comparison between two extremes. At one end of the spectrum, we have a society with well-functioning democratic institutions and a free press:  $Q \rightarrow 1^-$ . At the other end, we have a society with seriously dysfunctional institutions:  $Q \rightarrow 0^+$ . We shall refer to the former as a "democracy" and to the latter as an "autocracy" acknowledging that in the real world most societies fall somewhere in between these extremes. The following Proposition states the main implications of the model.

**Proposition 1** (*Regime Type and the Volume of Trade*).

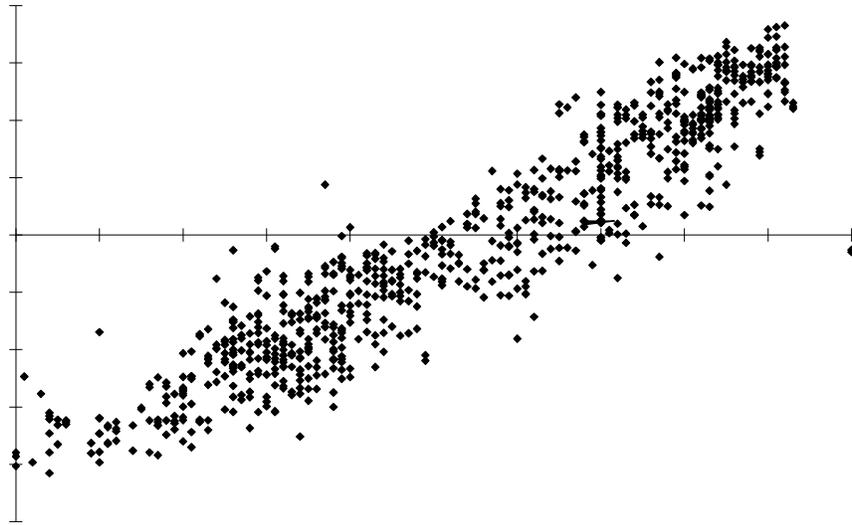
1. *The effective trade distortion is higher in autocracies than in democracies and as a consequence, autocracies trade less with the rest of the world than democracies.*
2. *For given official trade policy ( $\tau$ ), autocracies trade less with the rest of the world than democracies because of differences in embedded trade and other unofficial trade distortions.*

**Proof.** Part 1. Consider an autocracy with  $Q = 0$ . This implies that  $q(0) = 1$  and

utility than what is obtained under autocracy,  $v(\tau^{D1} + \bar{\theta})$ . Since indirect utility is decreasing in the effective tariff rate, it follows that  $\tau^{D1} + \bar{\theta} > \tau^{C2}(v^{**})$  and thus, as stated in part 1 of the Proposition, that autocracies trade less.

Part 2. Begin by observing that  $\tau^{D1}(\theta) \leq \tau^{D2}$ . This follows from the fact that  $\tau^{D1}(0) = \tau^{D2}$  and the assumption that the revenue maximizing tariff falls with  $\theta$ , i.e.,

Figure 1: Accountability and Press Freedom



relationship between the level of democracy and measures of the quality of the bureaucracy in a sample of about 100 countries for the period 1980-95. This directly supports the notion that autocratic rulers have less incentive to build incentives for their bureaucrats.

### **3 Empirical Specification**

We want to estimate the relationship between the political regime of a country and its involvement in international trade thereby testing the two implications of our model listed in Proposition 1 and to answer the question of the title of the paper. To this end, we employ a standard gravity model of trade for a sample of up to 130 countries covering the y

dummy variable equal to 1 if the two trading partners share the same official language (*common language*), a dummy variable equal to 1 if the trading partners have a common border (*common bo de*), a dummy variable equal to 1 if the trading partners were ever in a colonial relationship (*colonial ties*), a dummy variable equal to 1 if the trading partners share a common colonizer post 1945 (*common colonize*), a dummy variable equal to 1 if the trading partners were in a colonial relationships post 1945 (*colony post 1945*), and a dummy taking the value of 1 if the trading partners are or were in the past the same nation (*same count y*). Our choice of gravity variables follows Rose (2004) and we have no interest in these variables except as control variables.<sup>20</sup> We list the sources and exact definitions of all the variables used in our analysis in Table 1.

It is important to notice that our panel model allows us to estimate the effect of regime type on trade flows separately for an importing and for an exporting country. This allows us to test the theoretical implications of our model which would not be possible within the pairwise set-up of Morrow et al. (1998) and Mansfield et al. (2000).

Given the difficulty of obtaining reliable quantitative measures of regime type, we use three differen

Table 1: Variables – definitions and sources

| Variable                             | Description   | Source  |
|--------------------------------------|---|---|
| nimp                                 | nominal imports in dollars (for 1962-2000)<br>(for 2001-2003)   | Feenstra (2000)<br>Comtrade (2006)  |
| defl                                 | U GDP deflator (2000 = 1)   | IMF (2005)  |
| log of real imports                  | ln (nimp/defl)  | own calculations  |
| Polity IV*                           | inverse of “polity2” indicator: 1 = most democratic,<br>21 = most autocratic  | Gurr et al. (2003)  |
| Freedom House*                       | average of “political rights” and “civil liberties” indi-<br>cators: 1 = most democratic, 7 = most autocratic   | Freedom House<br>(2006)   |
| Przeworski et al.*                   | dummy variable taking the value of 1 for autocratic<br>states   | Ivarez et<br>al. (1996); Prze-<br>worski et al. (2000);<br>Cheibub and<br>Gandhi (2004) |
| log GDP*                             | ln (GDP) (constant 2000 U \$)   | World Bank (2006)   |
| landlocked                           | dummy for at least one trading partner being land-<br>locked  | CEPII (2006)  |
| common language                      | dummy for both trading partners sharing an official<br>language   | CEPII (2006)  |
| common border                        | dummy for common border   | CEPII (2006)  |
| colonial ties                        | dummy for pairs ever in colonial relationship   | CEPII (2006)  |
| common colonizer                     | dummy for common colonizer post 1945  | CEPII (2006)  |
| colony post 1945                     | dummy for pairs in colonial relationship post 1945  | CEPII (2006)  |
| same country                         | 1 if countries were or are the same country   | CEPII (2006)  |
| log distance                         | ln of simple distance (most populated cities, km)   | CEPII (2006)  |
| restriction index*                   | sub-index economic restrictions of the KOF Index of<br>Globalization; combines data on hidden import bar-<br>riers, mean tariff rate, taxes on international trade<br>(in percent of current revenue) and capital account<br>restrictions | Dreher (2006)   |
| log GDP per capita*                  | ln (GDP/population) (constant 2000 U \$)  | World Bank (2006)   |
| log population                       | ln (total population)   | World Bank (2006)   |
| common currency                      | dummy for pairs with a common currency  | Rose (2004)   |
| generalized system of<br>preferences | dummy for pairs with a generalized system of prefer-<br>ences (G P)   | Rose (2004)   |
| regional trade<br>agreement          | dummy for pairs that are a member of the<br>same regional trade agreement   | Rose (2004)   |
| WTO membership*                      | dummy for WTO/G TT members  | WTO (2007)  |

\* for these variables  $i$  and  $e$  indicate the values of an importing and exporting country, respectively.

IV index has been criticized for the way values are assigned to its various subcomponents. Freedom House sometimes draws critique because its indicators are completely survey based. Przeworski's regime type indicator uses the most clear-cut definition of the three, but has the disadvantage of being a dummy variable without "shades of grey." Furthermore, the three indicators focus on slightly different aspects of political institutions and can therefore perhaps best be viewed as complements rather than substitute measures of democracy/autocracy. The Polity IV index is basically a measure of political competition that ignores how widely extended the voting franchise is and other aspects of popular participation in politics.<sup>22</sup> The Freedom House index focuses more on political rights and civil liberties than on de facto political competition and participation. Przeworski et al. (2000) focus on a combination of political participation and contestability of political power. The complementarity of the three measures is another good reason to use all three indicators in the analysis.<sup>23</sup> Finally, as argued by Milner and Kubota (2005), it takes time for changes in political institutions to affect trade patterns and the effects of democratic transitions are likely to be long-lasting. For this reason, we enter the three institutional indicators either with a one year lag or as the average of the five preceding years. This also mitigates potential endogeneity problems arising if international trade encourages the development of democratic institutions.

All regressions include fixed effects for the importing and exporting country ( $\alpha_i, \gamma_e$ ) as well as year fixed effects ( $\delta_t$ ). This is a variant of the approach adopted by Feenstra (2004) who introduced the notion of country-specific effects as multilateral resistance terms. The country effects control for unobserved country characteristics that are fixed over time with the subtlety that we allow these unobservable effects to differ between importers and exporters, even if the same country is involved in import and export. The importance of correcting for these importer, exporter and time fixed effects is pointed out by Baltagi et al. (2003) as well as Baldwin (2006) who calls the omission of these effects the "gold-medal of gravity mistakes." As pointed out by Baldwin (2006) these fixed effects only control for the time-invariant part of multilateral resistance. However, including time-varying fixed effects would preclude the identification of our coefficients of interest.

The baseline model allows us to test the first implication of the



Table 2: Results OLS – dependent variable: ln(real imports)

|  | P lity IV            |                      | Freed m H use        |                      | Przew rski et al.    |                      |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| aut cracy <sub>i t-1</sub>               | -0.018***<br>(0.002) | -                    | -0.055***<br>(0.009) | -                    | -0.237***<br>(0.027) | -                    |
| aut cracy <sub>e t-1</sub>               | -0.012***<br>(0.002) | -                    | -0.050***<br>(0.009) | -                    | -0.202***<br>(0.027) | -                    |
| average aut cracy <sub>i (t-1-t-5)</sub> | -                    | -0.023***<br>(0.003) | -                    | -0.079***<br>(0.013) | -                    | -0.286***<br>(0.036) |
| average aut cracy <sub>e (t-1-t-5)</sub> | -                    | -0.014***<br>(0.002) | -                    | -0.046***<br>(0.012) | -                    | -0.218***<br>(0.035) |
| l g GDP <sub>i</sub>                     | 1.327***<br>(0.049)  | 1.299***<br>(0.053)  | 1.260***<br>(0.053)  | 1.209***<br>(0.053)  | 1.318***<br>(0.053)  | 1.272***<br>(0.053)  |

(0.053)(0.053)

1.327 1.299 1.260 1.209 1.318 1.272



its imports and about 24% of its exports. On the 1 to 7 scale of the Freedom House index, a hypothetical country that went through the same transition would lose about 33% of its imports and about 30% of its exports. To give a more concrete example. Imagine that the political regime of Switzerland was transformed into that of Myanmar in the year 2000. The consequence would be a reduction of imports and exports of 29.6% and 20.4% according to the Polity IV index and 33% and 30% according to Freedom House index, *ceteris paribus*. Although differences exist, it is striking how similar the results obtained with the three different indicators are.

Milner and Kubota (2005) show in a sample of developing countries that democracies have lower tariff rates than autocracies. Thus, the results reported in Table 2 – autocracies trade less – could simply be a result of this effect. To investigate this, we add the restriction index, introduced in the previous section, to the specification in equation (18) and re-run the estimation (again employing trading-pair clustered standard errors). The results are shown in Table 3. Not surprisingly, the restriction index has a positive impact on trade flows and is highly significant for importing countries. This indicates that a country with fewer trade restrictions imports more. For exporting countries, the coefficients on the restriction index is also positive albeit statistically insignificant.

More importantly, we see from Table 3 that the main finding from the baseline model persists: autocracies trade less, even after controlling for differences in trade policy. The coefficients on the Polity IV index and on Przeworski's regime type indicator are somewhat lower than those reported in Table 2, but they are still highly significant. The coefficients on the Freedom House index remain virtually unchanged. This finding shows that the tariff channel, as identified by Milner and Kubota (2005), is not the only transmission mechanism. Our model points to two alternative transmission channels (the accountability channel and the busbussfNi67776H8standar7,YNi8rep)n)YiS772F

Table 3: Results OLS with restriction index – dependent variable:  $\ln(\text{real imports})$

|   | P lity IV            |                      | Freed m H use        |                      | Przew rski et al.    |                      |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| aut cracy <sub><i>i t-1</i></sub>               | -0.013***<br>(0.003) | –                    | -0.054***<br>(0.012) | –                    | -0.161***<br>(0.034) | –                    |
| aut cracy <sub><i>e t-1</i></sub>               | -0.013***<br>(0.002) | –                    | -0.063***<br>(0.011) | –                    | -0.180***<br>(0.032) | –                    |
| average aut cracy <sub><i>i (t-1-t-5)</i></sub> | –                    | -0.019***<br>(0.003) | –                    | -0.082***<br>(0.017) | –                    | -0.215***<br>(0.042) |
| average aut cracy <sub><i>e (t-1-t-5)</i></sub> | –                    | -0.013***<br>(0.003) | –                    | -0.055***<br>(0.015) | –                    | -0.179***<br>(0.041) |
| restricti n index <sub><i>i</i></sub>           | 0.109***<br>(0.019)  | 0.104***<br>(0.020)  | 0.123***<br>(0.019)  | 0.138***<br>(0.020)  | 0.118***<br>(0.019)  | 0.109***<br>(0.020)  |
| restricti n index <sub><i>e</i></sub>           | 0.020<br>(0.020)     | 0.022<br>(0.020)     | 0.015<br>(0.019)     | -0.014<br>(0.020)    | 0.026<br>(0.020)     | 0.020<br>(0.020)     |
| l g GDP <sub><i>i</i></sub>                     | 1.185***<br>(0.065)  | 1.152***<br>(0.067)  | 1.134***<br>(0.066)  | 1.051***<br>(0.077)  | 1.168***<br>(0.065)  | 1.117***<br>(0.067)  |
| l g GDP <sub><i>e</i></sub>                     | 1.316***<br>(0.066)  | 1.339***<br>(0.067)  | 1.268***<br>(0.067)  | 1.253***<br>(0.077)  | 1.298***<br>(0.066)  | 1.315***<br>(0.067)  |
| landl cked                                      | -0.077<br>(0.157)    | -0.053<br>(0.153)    | -0.066<br>(0.159)    | -0.063<br>(0.149)    | -0.090<br>(0.159)    | -0.096<br>(0.159)    |
| c mm n language                                 | 0.395***<br>(0.063)  | 0.356***<br>(0.064)  | 0.388***<br>(0.062)  | 0.307***<br>(0.063)  | 0.392***<br>(0.063)  | 0.352***<br>(0.064)  |
| c mm n b rder                                   | 0.1371*134           |                      |                      |                      |                      |                      |

indicating a generalized system of preferences, a dummy variable taking on the value 1 if the trading partners are members in the same regional trading agreement, a dummy indicating WTO/GATT membership, and, finally, all of the above at the same time.<sup>26</sup> The results of this are presented in Table 4. To save space, we only display the coefficients on the regime type indicators (*autoc*) in the table. We see that the results are not much affected by the inclusion of these additional variables. The significance level remains unchanged and the changes in the size of the coefficients are minuscule.

Secondly, to further elaborate on the robustness of the baseline results, we have employed different estimation techniques that reduce the risk that outliers are driving the results. Again, the specification of Table 3 is used as the starting point and the results are presented in the top of Table 5 and we only report the results for the regime type indicators. As a first step, we re-estimate the model using re-weighted least squares (RLS). This robust regression technique weighs observations in an iterative process.<sup>27</sup> Starting with OLS, estimates are obtained through weighted least squares where observations with relatively large residuals get smaller weights. We see that the coefficients remain highly significant although their magnitudes are somewhat reduced. Comparing the coefficients reported in Tables 3 and 5, we see that the coefficients on the political regime indicator of importing countries are approximately halved, while coefficient on supply-side

Table 4: Results OLS additional variables – dependent variable:  $\ln(\text{real imports})$ 

| Additi nal Variable(s)           |                        | P lity IV | Freed m H use | Przew rski et al. |           |           |           |
|----------------------------------|------------------------|-----------|---------------|-------------------|-----------|-----------|-----------|
| l g GDP per capita (i and e)     | aut $c_{i\ t-1}$       | -0.012*** | -             | -0.055***         | -         | -0.159*** | -         |
|                                  | aut $c_{e\ t-1}$       | -0.013*** | -             | -0.065***         | -         | -0.178*** | -         |
|                                  | aut $c_{i\ (t-1-t-5)}$ | -         | -0.019***     | -                 | -0.079*** | -         | -0.214*** |
|                                  | aut $c_{e\ (t-1-t-5)}$ | -         | -0.013***     | -                 | -0.053*** | -         | -0.179*** |
| l g p pulati n (i and e)         | aut $c_{i\ t-1}$       | -0.012*** | -             | -0.055***         | -         | -0.159*** | -         |
|                                  | aut $c_{e\ t-1}$       | -0.013*** | -             | -0.065***         | -         | -0.178*** | -         |
|                                  | aut $c_{i\ (t-1-t-5)}$ | -         | -0.019***     | -                 | -0.079*** | -         | -0.214*** |
|                                  | aut $c_{e\ (t-1-t-5)}$ | -         | -0.013***     | -                 | -0.053*** | -         | -0.179*** |
| c mm n currency                  | aut $c_{i\ t-1}$       | -0.015*** | -             | -0.054***         | -         | -0.173*** | -         |
|                                  | aut $c_{e\ t-1}$       | -0.015*** | -             | -0.060***         | -         | -0.188*** | -         |
|                                  | aut $c_{i\ (t-1-t-5)}$ | -         | -0.020***     | -                 | -0.083*** | -         | -0.232*** |
|                                  | aut $c_{e\ (t-1-t-5)}$ | -         | -0.015***     | -                 | -0.052*** | -         | -0.197*** |
| generalized system f preferences | aut $c_{i\ t-1}$       | -0.015*** | -             | -0.053***         | -         | -0.173*** | -         |
|                                  | aut $c_{e\ t-1}$       | -0.015*** | -             | -0.060***         | -         | -0.189*** | -         |
|                                  | aut $c_{i\ (t-1-t-5)}$ | -         | -0.020***     | -                 | -0.082*** | -         | -0.233*** |
|                                  | aut $c_{e\ (t-1-t-5)}$ | -         | -0.015***     | -                 | -0.051*** | -         | -0.198*** |
| regi nal trade agreement         | aut $c_{i\ t-1}$       | -0.014*** | -             | -0.053***         | -         | -0.173*** | -         |
|                                  | aut $c_{e\ t-1}$       | -0.014*** | -             | -0.059***         | -         | -0.188*** | -         |
|                                  | aut $c_{i\ (t-1-t-5)}$ | -         | -0.019***     | -                 | -0.081*** | -         | -0.228*** |
|                                  | aut $c_{e\ (t-1-t-5)}$ | -         | -0.014***     | -                 | -0.050*** | -         | -0.193*** |
| WTO membership (i and e)         | aut $c_{i\ t-1}$       | -0.013*** | -             | -0.054***         | -         | -0.160*** | -         |
|                                  | aut $c_{e\ t-1}$       | -0.013*** | -             | -0.063***         | -         | -0.179*** | -         |
|                                  | aut $c_{i\ (t-1-t-5)}$ | -         | -0.019***     | -                 | -0.082*** | -         | -0.215*** |
|                                  | aut $c_{e\ (t-1-t-5)}$ | -         | -0.013***     | -                 | -0.054*** | -         | -0.178*** |
| all f the ab ve <sup>a</sup>     | aut $c_{i\ t-1}$       | -0.014*** | -             | -0.054***         | -         | -0.170*** | -         |
|                                  | aut $c_{e\ t-1}$       | -0.014*** | -             | -0.060***         | -         | -0.186*** | -         |
|                                  | aut $c_{i\ (t-1-t-5)}$ | -         | -0.019***     | -                 | -0.077*** | -         | -0.226*** |
|                                  | aut $c_{e\ (t-1-t-5)}$ | -         | -0.014***     | -                 | -0.048*** | -         | -0.192*** |

Notes:  $autoc_{t-1}$  represents the one year lagged autocracy score while  $autoc_{(t-1-t-5)}$  is the average of the five years prior to the observation;  $i$  and  $e$  stand for importing and exporting country, respectively; (i and e) indicate separate variables for importing and exporting countries. See notes to Table 2 for the explanation of the autocracy data. Only the results for the autocracy variables are shown in the table. However, the base specification is taken from Table 3. All regressions contain importer-, exporter- and time-specific fixed effects all of which are significant at the 1% level. Standard errors are clustered at the trading-pair level. \*/\*\*/\*\* indicates significance at the 10/5/1-% significance level.

<sup>a</sup> Due to perfect collinearity population is excluded in the estimation.

Table 5: Results tests of robustness – dependent variable:  $\ln(\text{real imports})$

| Technique /<br>Sample | P lity IV              | Freed m H use | Przew rski et al. |
|-----------------------|------------------------|---------------|-------------------|
| reweighted            | aut $c_{i,t-1}$ -0.008 |               |                   |

$\omega_{ie} \neq \omega_{ei}$ . Moreover, we alter the way we model the error term in the following way:

$$\varepsilon_{iet} = \rho\varepsilon_{iet-1} + \eta_{iet}, \quad (19)$$

where  $\eta_{iet}$  is i.i.d. with a zero mean. In addition to the results for the regime variables we report the results for the AR coefficient  $\rho$ . Turning to the results, we see that the political regime effects for importing countries are in line with the results obtained by the robust estimation techniques with one exception. However, the effects of exporting countries turn statistically insignificant in three out of the six regressions.

Fifth, although we use lags of the three regime type indicators, this might not be enough to avoid all endogeneity problems and one concern about our results is that they may be contaminated by feedback effects from trade to democracy. As argued by, e.g., López-Córdova and Meisner (2008), involvement in international trade may foster democracy. If so, the coefficients on the regime type indicators reported so far might be biased. To deal with this issue, we re-estimate the model using instrumental variables (IV) techniques. In choosing the instruments, we largely follow the existing literature. Milner and Kubota (2005) use the average age of the parties in the political system as an instrument for regime type.<sup>30</sup> As a second instrument, we use an ordinal index of checks and balances constructed by Keefer and Stasavage (2003). Finally, we use the percentage of votes cast in line with the Group of 7 (G7) countries in the United Nations General Assembly in the IV regressions. Dreher and Sturm (2006) show that more democratic countries vote more in line with the G7.<sup>31</sup> We contend that neither of these variables are correlated with the error term in equation (18).<sup>32</sup> We report a summary of the results using all three instruments simultaneously in Table 5. In all specifications, the first stage F-statistic, indicating the relevance of the instruments, easily passes the threshold of 10 as proposed by Staiger and Stock (1997).<sup>33</sup> We also report the p-value of the Hansen J statistic for over-identification and note that the test always fails to reject at the 10 percent level. Furthermore, the Anderson canonical correlation, the Cragg-Donald statistics and the Anderson-Rubin test all suggest that our instruments are not under-identified and are not weak. All specifications basically show the same pattern, namely that our previous results if an

coefficients on the regime type indicators for importing countries remain significant at the five percent level and significantly increase their (absolute) size. In contrast, the coefficients on the regime type indicators for exporting countries hardly change their size but are no longer significant at conventional levels. Based on the IV estimates, we conclude that our previous results can be interpreted as a lower bound of the effect of autocracy on imports, while our baseline results on the impact of regime type on exports cannot be considered robust.<sup>34</sup>

## 6 Conclusions

The question that motivates this paper is a simple one: does the political regime of a country systematically affect how involved the country is in international trade? Our theoretical model provides two reasons why the answer to this question is likely to be yes. In contrast to previous theoretical work, we argue that the root cause of regime differences in trade flows is differences in political accountability. These differences affect trade flows directly through the impact on trade taxes (which are more prevalent in autocracies than in democracies), but they also work through a more subtle indirect channel. R,Erlev

In other words, a democracy trades more with the rest of the world because democratically elected politicians are less tempted to use trade taxes to extract rents and because these politicians face the right incentives to build institutions that weed out trade-distorting red tape in the customs service.

## References

- Acemoglu, D., Johnson, S., Robinson, J.A. and Yared, P. (2008) Income and Democracy. *American Economic Review* 98(3): 808-842.
- Acemoglu, D. and Robinson, J.A. (2001) A Theory of Political Transitions. *American Economic Review* 91(4): 938-963.
- Adserà, A., Boix, C. and Payne, M. (2003) Are You Being Served? Political Accountability and Quality of Government. *Journal of Law, Economics, & Organization* 19(2): 445-490.
- Aidt, T.S. (1997) Cooperative Lobbying and Endogenous Trade Policy. *Public Choice* 93(3-4): 455-475.
- Aidt, T.S. and Dutta, J. (2004) Transitional Politics: Emerging Incentive-based Instruments in Environmental Regulation. *Journal of Environmental Economics and Management* 47(3): 458-479.
- Aidt, T.S. and Eterovic, D. (2007) Give and Take: Political Competition, Participation and Public Finance in 20th Century Latin America. Cambridge Working Papers in Economics 0714, University of Cambridge.
- Alvarez, M., Cheibub, J.A., Limongi, F. and Przeworski, A. (1996) Classifying Political Regimes. *Studies in Comparative International Development* 31(2): 3-34.
- Anderson, J.E. and van Wincoop, E. (2003) Gravity with Gravitas: A Solution to the Border Puzzle. *American Economic Review* 93(1): 170-192.
- Baldwin, R. (2006) The Euro's Trade Effects. European Central Bank Working Paper WPS/594.
- Baltagi, B.H., Egger, P. and Pfaffenmayer, M. (2003) A Generalized Design for Bilateral Trade Flow Models. *Economics Letters* 80(3): 391-397.
- Barro, R. (1999) Determinants of Democracy. *Journal of Political Economy* 107(S6): S158-S183.
- Beck, T., Clarke, G., Groff, A., Keefer, P. and Walsh, P. (2001) New Tools in Comparative Political Economy: The Database of Political Institutions. *World Bank Economic Review* 15(1): 165-176.
- Becker, G. and Stigler, G. (1974) Law Enforcement, Malfeasance and the Compensation of Enforcers. *Journal of Legal Studies* 3(1): 1-19.

Besley

- Dreher, A. (2006) Does Globalization Affect Growth? Evidence from a New Index of Globalization. *Applied Economics* 38(10): 1091-1110.
- Dreher, A. and Sturm, J.-E. (2006) Do IMF and World Bank Influence Voting in the UN General Assembly? CESifo Working Paper No. 1724.
- Dreher, A. and Rupprecht, S. (2007) IMF Programs and Reform – Inhibition or Encouragement? *Economics Letters* 95(3): 320-326.
- Feenstra, R. (2000) NBER-United Nations Trade Data 1962-2000;  
Available at <http://cid.econ.ucdavis.edu/data/undata/undata.html>.
- Feenstra, R. (2004) *Advanced International Trade: Theory and Evidence*. Princeton: Princeton University Press.
- Freedom House (2006) *Freedom in the World 2006: The Annual Survey of Political Rights and Civil Liberties*. Washington, D.C.: Freedom House.
- Freedom House (2007) *Freedom of the Press*. Washington, D.C.: Freedom House.
- Ferejohn, J. (1986) Incumbent Performance and Electoral Control. *Public Choice* 50(1-3): 5-25.
- Gassebner, M., Gaston, N. and Lamla, M. (2008) The Inverse Domino Effect: Are Economic Reforms Contagious? KOF Working Papers No. 187, ETH Zurich.
- Giavazzi, F. and Tabellini, G. (2005) Economic and Political Liberalizations. *Journal of Monetary Economics* 52(7): 1297-1330.
- Gorodnichenko, Y. and Sabirianova Peter, K. (2007) Public Sector Pay and Corruption: Measuring Bribery from Micro Data. *Journal of Public Economics* 91(5-6): 963-991.
- Grossman, G. M. and Helpman, E. (1994) Protection for Sale. *American Economic Review* 84(4): 833-850.
- Gurr, T.R., Jagers, K. and Moore, W. (2003) *Polity Handbook IV*. Boulder: University of Colorado Press.
- Hillman, A.L. (1982) Declining Industries and Political-Support Protectionists Moves. *American Economic Review* 72(5): 1180-1190.
- Hillman, A.L. (1989) *The Political Economy of Protection*. Chur: Harwood Publishers.

International Monetary Found (IMF) (2005) *International Financial Statistics*. Washington, D.C.: International Monetary Found.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2007) Governance Matters VI: Governance Indicators for 1996-2006. World Bank Policy Research Working Paper No. 4280.

Keefer, P. and Stasavage, D. (2003) The Limits of Delegation: Veto Players, Central Bank Independence and the Credibility of Monetary Policy. *American Political Science Review* 97(3): 407-423.

Li, Q. and Reuveny, R. (2003) Economic Globalization and Democracy: An Empirical Analysis. *British Journal of Political Science* 33(1): 29-54.

López-Córdova, J. E. and Meisner, C.M. (2008) The Impact of International Trade on Democracy: A Long-run Perspective. *World Politics*, forthcoming.

Mansfi4Ma7SHler, 1nd MR7SEmsediErf, B.

- Przeworski, A., Alvarez, M., Cheibub, J.A. and Limongi, F. (2000) *Democracy and Development: Political Regimes and Economic Well-being in the World, 1950-1990*. New York: Cambridge University Press.
- Rigobon, R. and Rodrik, D. (2005) The Rule of Law, Democracy, Openness and Income: Estimating the Interrelationships. *Economics of Transition* 13(3): 533-564.
- Rose, A.K. (2004) Do We Really Know that the WTO Increases Trade? *American Economic Review* 94(1): 98-114.
- Staiger, D. and Stock, J.H. (1997) Instrumental Variables Regression with Weak Instruments. *Econometrica* 63(3): 557-586.
- Sturm, J.-E. and de Haan, J. (2001) How Robust is the Relationship between Economic Freedom and Economic Growth Really? *Applied Economics* 33(7): 839-844.
- Sturm, J.-E. and de Haan, J. (2003) Does More Democracy Lead to Greater Economic Freedom? New Evidence for Developing Countries. *European Journal of Political Economy* 19(3): 547-563.
- Van Rijckeghem, C. and Weder, B. (2001) Bureaucratic Corruption and the Rate of Temptation: Do Wages in the Civil Service Affect Corruption, and by How Much? *Journal of Development Economics* 65(2): 307-331.
- World Bank (2006) *World Development Indicators*, CD-Rom. Washington, D.C.: World Bank.
- World Trade Organization (WTO) (2007) WTO webpage; Available at: [www.wto.org](http://www.wto.org)



