

Does Trade Openness Influence Democracy? Evidence from Ex-communist Countries

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Abstract. *This paper analyses the influence of trade on democracy, aiming to understand whether becoming more open to trade also makes a country more democratic. So far, the scientific literature that investigate this topic is scarce, and has not reached any solid consensus: while some papers find a positive effect of trade openness on democracy levels, others find a negative effect, or no effect at all. Moreover, the empirical literature on this topic is also very prone to technical problems of the research design, such as endogeneity, which increases the risk of obtaining biased estimates. This paper uses an instrumental variable approach, this way avoiding any omitted variable bias and reverse causality problems. More precisely, we instrument trade openness with its natural, geography-determined rate, based on the gravity equation of trade; we then use the predicted rate of trade openness to capture its effect on democracy, employing an OLS regression on a panel sample of 27 post-communist countries across a period of 24 years. Democracy is measured using the polity index (from Polity V dataset), and also five other variables that capture different facets of democracy – electoral, liberal, participatory, deliberative and egalitarian dimension (from V-Dem dataset). Empirical results suggest that trade openness has a significant, positive effect on democracy. The effect is only marginally higher for the liberal dimension of democracy, and rather similar in magnitude for the rest of four dimensions.*

Keywords: international trade, gravity equation, trade openness, democracy, former communist countries.

Introduction

Democracy is vital because it embodies fundamental values such as freedom, equality, and justice, serving as a cornerstone of modern governance and societal progress. Its importance for the well-being of humans and societies has been discussed extensively, so there is no need to justify why looking at its determinants is an extremely important endeavor. International trade plays a pivotal role as a determinant of democracy, due to its profound influence on economic, social, and political dynamics within societies. Trade openness often correlates with economic prosperity, creating opportunities for wealth generation, job creation, and improved standards of living. In democratic systems, economic well-being is closely tied to citizens' satisfaction and support for the political establishment, thereby strengthening the stability of democratic institutions. Conversely, the absence of trade or protectionist policies may hinder economic growth, exacerbate social inequalities, and potentially undermine democratic stability. This paper aims to investigate to what extent trade openness encourages democracy, and what dimension of democracy is influenced the most. We start by reviewing existing literature on this topic, and then we implement an empirical approach that consists in instrumenting trade openness with its natural, geography-determined rate, based on the gravity equation of trade; we

then use the predicted rate of trade openness to capture its effect on democracy, employing an OLS regression on a panel sample of 27 post-communist countries across a period of 24 years.

Literature review

There is no consensus yet in the literature (neither theoretical, nor empirical) about the potential effect of trade openness on democracy. On one hand, the theoretical arguments in favor of a positive effect are summarized by the view of a pioneer of the work on this topic, Lipset (1959). He argued that trade increases wealth and helps the emergence of a middle class, which will support the development of democracy. Many years after, two renowned figures in development economics, Acemoglu & Robinson (2006), formulate the main theoretical argument supporting a negative effect of trade openness on democracy. They suggest that, in some conditions, dependent on the distribution of labor force, trade openness may increase income inequality which, in turn, discourages democratization.

In terms of empirical work, only a few papers in the literature explore the causal effect of trade openness on democracy, and among them there is no consensus. Moreover, these papers are exposed to a great extent to the endogeneity problem that stems from the relationship between these two variables, and which needs special attention when it comes to choosing the research design. One of the oldest papers is Bussmann (2001), which establishes a framework of simultaneous equations to explore the relationship between trade openness, democracy, economic growth, and peace. The study reveals no notable influence of globalization on democracy, yet the econometric design has been criticized, for instance by López-Córdova and Meissner (2008) and Eichengreen and Leblang (2008), for having endogeneity problems. No impact of trade openness on democracy was also found by Giavazzi and Tabellini (2005), although they use a method that is less prone to endogeneity problems, namely a difference in differences research design (they compare countries where trade openness has significantly changed over time with countries where it remained unchanged).

Further on, Li and Reuveny (2003) use a pooled time-series cross-sectional statistical model on a sample of 127 countries, which assesses globalization by considering the extent of trade openness, foreign direct investment, and portfolio capital flows, alongside the number of democracies within the region to which a country is affiliated. They find a negative relationship between trade openness and democracy, yet their econometric specification is also faced with several problems, as explained by Eichengreen and Leblang (2008). Rigobón and Rodrik (2004) also find that trade openness has a negative impact on democracy, as part of a broader study; they rely on identification through heteroscedasticity, but in this case also the robustness of the technique is not fully valid. However, Lee et al. (2004), who apply the same identification strategy, come to the opposite conclusion.

Other papers find as well a positive link between trade openness and democracy. Milner and Kubota (2005) for instance find that democracy exerts a positive influence on trade openness in developing countries, their rhetoric being constructed around the Stolper-Samuelson theorem, which anticipates that trade liberalization in developing countries will increase the demand for unskilled labor, which is cheap and abundant in such countries. Ruda (2005) finds that globalization positively affects democracy if, simultaneously, the governments use other safety nets for providing political stability and building political support. Papaioannou and Siourounis (2008) also find a conditional impact of trade openness but for non-democracies, i.e. trade openness plays an important role in driving transition to democracy if the country is, in the

beginning, non-democratic. An unconditional positive impact of trade openness on democracy was found by Eichengreen and Leblang (2008) and Lopez-Cordoba and Meissner (2008). They both use the same empirical strategy that we do in this paper, namely they employ an instrumental variable for openness.

Methodology

For the empirical assessment of the impact of trade openness on democracy levels we use a sample of 27 former communist countries¹ from Central and Eastern Europe and Central Asia. This sample was chosen because these states are considered a perfect “laboratory” for analyzing various determinants and evolutions of democracy levels, as they went through a change of regime relatively at the same time, starting somehow simultaneously to build from scratch their democratic frameworks. The sample is a panel that includes 24 years (1995-2018)², being selected according to data availability. Regarding the data used, democracy levels for each country and year were measured using the *polity* score from the Polity V dataset, which ranges from +10 (strongly democratic) to -10 (strongly autocratic). Figure 1 plots the value of the *polity* indicator for each country in our sample, at the beginning and at the end of the analyzed period. We notice that the majority of countries strongly improved their democratic systems across the time, while a few others made less progress (or they even regressed/stagnated). In addition, we also investigate the impact of trade openness on five other variables that capture different facets of democracy – electoral, liberal, participatory, deliberative and egalitarian dimension (from the V-Dem dataset) – each ranging from 0 to 1. Trade openness is assessed using an indicator from the World Bank, which is computed as the sum of exports and imports of goods and services expressed as a share of gross domestic product. Figure 2 depicts the value of the trade openness indicator, also at the beginning and at the end of the analyzed period, for each country. We observe that, in general, over time countries became more open to international trade.

¹ Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

² For the estimation of the predicted trade value, which is the instrument that we use in the democracy regressions, we use a larger sample, of 28 years (1995-2022), because data availability allows us to do so. For the democracy regressions we use the smaller sample (1995-2018) because the *polity* index is available only for this period. We considered that predicting trade openness on a larger sample would add value and precision to the estimation, and is a constructive choice as long as data gives us the possibility to do so.

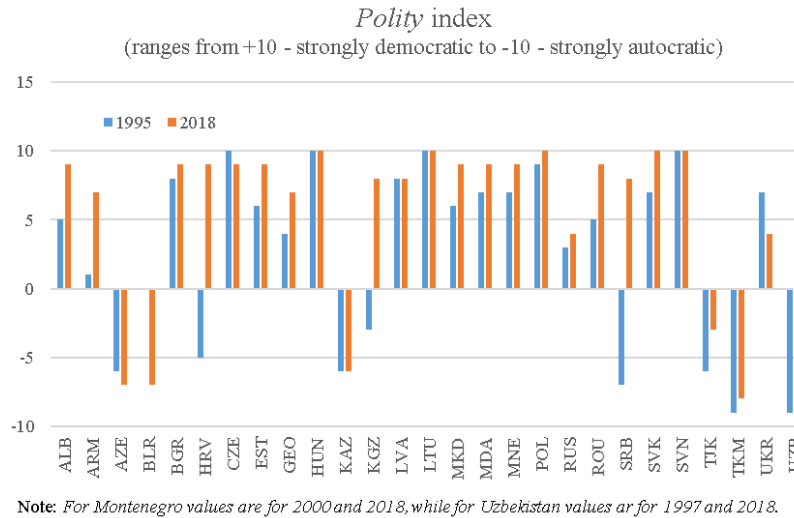


Figure 1. Democracy levels

Source: Polity V dataset.

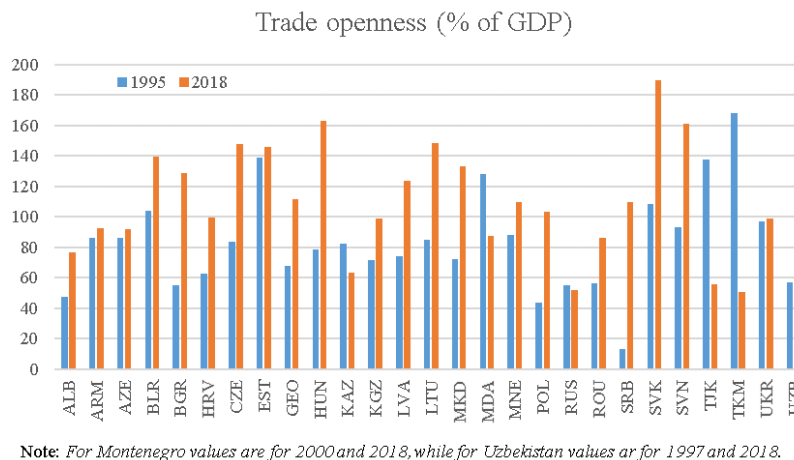


Figure 2. Trade openness levels

Source: World Bank.

In general, if we want to assess the effect of trade openness on democracy, we would run an OLS regression of democracy as a dependent variable on trade openness as an explanatory variable, and a series of other variables measuring country-specific characteristics, similar to the following model:

$$democracy_{it} = \alpha_0 + \beta_1 trade_openness_{it} + \beta_2 country_characteristics_{it} + \varepsilon_{it}$$

However, such a regression is prone to endogeneity issues, which may arise, for instance, because of reverse causality, or due to the omission of explanatory variables in the regression, as it is impossible to account for all possible variables that are correlated with both the dependent and the independent variables included in the model, resulting in inconsistent and biased estimates. Inspired by Frankel and Romer (1999) – a seminal paper that deals with identification issues in the analysis of trade's impact on various macroeconomic variables – as well as by López-Córdova and Meissner (2008), we will create an instrument for trade openness,

which has the property that it is not correlated with any other possible omitted determinants of democracy that are excluded from the model. For this, we will first of all estimate a simplified *gravity equation of trade* (Anderson, 1979), which estimates what trade flows would every country have based only on its geographical characteristics (the gravity model of trade demonstrates that geography is a powerful predictor of trade flows). The equation that we estimate has the following form:

$$trade_openness_{it} = \delta_0 + \gamma_1 area_{it} + \gamma_2 population_{it} + \gamma_3 landlocked_{it} + \epsilon_{it}$$

where $trade_openness_{it}$ represents our trade openness indicator (sum of imports and exports of a country with the rest of the world expressed as percentage of GDP), $area_{it}$ represents the surface of the country (in square kilometers), $population_{it}$ represents the population of the country (in number of people), $landlocked_{it}$ represents a dummy which takes value 1 if the country is landlocked and 0 otherwise, and ϵ_{it} represents the error term. Estimations are performed in Stata, and values are included in natural logarithms.

Further on, using the coefficients from this equation we predict $\widehat{trade_openness}_{it}$, which represents a “natural” geography-driven level of trade openness, and about which it is plausible to believe that this predicted value is uncorrelated with other determinants of democracy, and it is also not prone to reverse causality, as it only incorporates the geographic determinants of trade:

$$\widehat{trade_openness}_{it} = \hat{\delta}_0 + \hat{\gamma}_1 area_{it} + \hat{\gamma}_2 population_{it} + \hat{\gamma}_3 landlocked_{it}$$

The second step of our empirical analysis consists in performing an OLS regression of democracy levels on the predicted, “natural” level of trade openness, which we use as an instrument for overall level of trade openness:

$$democracy_{it} = \alpha_0 + \beta_1 \widehat{trade_openness}_{it} + \epsilon_{it}$$

where $democracy_{it}$ represents the value of the *polity* indicator, or the value of each of the five democratic dimensions from V-Dem dataset, $\widehat{trade_openness}_{it}$ is our predicted, “natural” level of trade openness, and ϵ_{it} represents the error term. Our explanatory variable is, again, included in natural logarithms and estimations are performed in Stata.

Table 1 presents the descriptive statistics of all the variables used in both equations. We observe that the average level of actual trade openness is 98.4 per cent of GDP, while the average level of “natural” predicted trade openness is 93.4 per cent of GDP. Judging by the skewness parameter, while data on the actual trade openness is positively (and moderately) skewed, the predicted values for trade openness are negatively skewed. Moreover, the actual level of trade openness varies more than the predicted one (higher standard deviation). The smallest actual level of trade openness was 13.4 in Serbia in 1995, while the highest level was 204.1 in Slovakia in 2022. At the same time, the smallest predicted level of trade openness was 56.7 in Russia in 1995-1998, while the highest level was 118.1 in Montenegro in 2000. Regarding the geography indicators, values seem to vary considerably and be distributed relatively asymmetrical (higher standard deviation and skewness parameter). The smallest country in terms of both surface and population is Montenegro, while the largest, also in terms of both surface and population, is Russia.

Table 1. Descriptive statistics

Variable	no. obs.	mean	std. dev.	min	max	skewness
democracy levels (<i>polity</i> index)	642	4.3	6.6	-9	10	-1.0
trade openness (% of GDP)	771	98.4	33.6	13.4	204.1	0.5
predicted trade openness (% of GDP)	771	93.5	12.7	56.7	118.1	-1.3
area (sq. km)	771	849,764	3,196,552	13,810	17,098,250	4.8
population (no. people)	771	14,579,707	27,590,973	604,950	148,375,787	3.9

Source: Polity V, World Bank, authors' own research.

Results and discussions

Tables 2, 3, 4 and 5 present the results of our model. Table 2 presents the results of our gravity equation, which decomposes trade openness based strictly on its natural determinants. Estimates are in accordance with literature (see for instance the results of López-Córdova and Meissner, 2008), suggesting that these geographical factors explain about 20 per cent of its variation (the R^2 of the regression is approximately 0.2). All three determinants have a significant impact on trade openness, similar in magnitude. First of all, we observe that being landlocked (dummy equals 1) implies a higher trade openness level: it is known that landlocked countries trade less due to geographical constraints (hence their import and export flows are lower), yet they also experience slower economic growth (MacKellar et al., 2000, Carmignani, 2015), so their GDP may also be lower, hence, when expressed as percentage of GDP, trade flows may occupy a higher share. In other words, landlocked countries are economically underdeveloped and may lack certain resources, or industries, which makes them more dependent on foreign good and markets. Secondly, the surface (area) of a country has a negative effect on trade openness, probably because a higher distance from ports or other important trade terminals can increase shipping costs and transit times, making trade less competitive. Last, population also has a negative effect on trade openness, which may happen because in countries with large populations policymakers may be concerned about meeting domestic demand; in turn, this can lead to protectionist policies aimed at conserving resources for domestic consumption.

Table 2. Gravity equation results

dependent variable: (% of GDP, in log)	
area (sq. km, in log)	-0.0500** (0.0154)
population (in log)	-0.0686*** (0.0201)
landlocked dummy	0.0528* (0.0239)
R^2	0.17
no. of observations	771

Note: Robust standard errors in parenthesis. *= $p < 0.05$; **= $p < 0.01$; ***= $p < 0.001$.

Source: Authors' own research.

Figure 3 plots the predicted value of trade openness against its actual value from the data. The scatterplot suggests that geographic variables account for a relevant part of the variation in overall trade openness. Indeed, a regression of the actual trade openness on the predicted trade openness yields a coefficient of 1, significant at a level of p-value lower than 0.001, and a high enough value of the F-statistic to be able to consider that the predicted value of trade openness is a valid instrument (see Table 3).

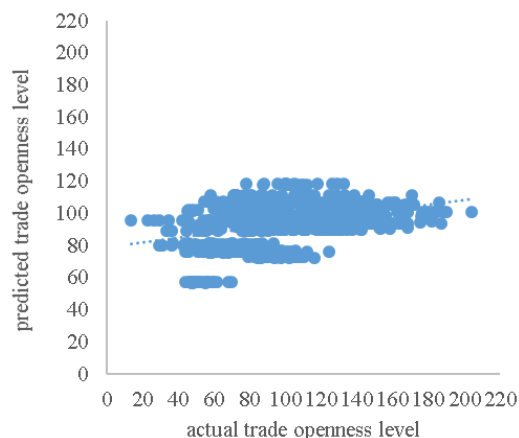


Figure 3. Actual vs. predicted trade openness levels

Source: World Bank, author's own research.

Table 3. Actual and predicted trade openness regression results

dependent variable: trade openness (% of GDP, in log)	
predicted value of trade openness (% of GDP, in log)	0.9999*** (0.0803)
F-statistic	154.99
no. of observations	771

Note: Robust standard errors in parenthesis. *=p<0.05; **=p<0.01; ***=p<0.001.

Source: Authors' own research.

Table 4 reports the results of the OLS regression of democracy levels on the predicted value of trade openness. Estimates reveal a strongly significant, positive influence of trade openness on the overall democracy (*polity*) index. In terms of magnitude, we can interpret that an increase of 1 per cent in trade openness will result in an increase of 0.1 points in the *polity* score of a country (a higher score corresponding to a more democratic regime). To put this in perspective, consider that the average trade openness across our sample has increased from 84 per cent of GDP in 1995 to 109 per cent of GDP in 2018, which represents an increase of approximately 30 per cent. According to our estimates, this implies an increase of 3 points in the *polity* score (which is, indeed, the increase in the average *polity* score across 1995-2018) – such an increase was registered, for instance, by Russia from 1999 to 2000, brought by the end of the Boris Yeltsin era, or by Romania from 1995 to 1996, when the first president from a right-wing, liberal party, Emil Constantinescu, came to power.

Table 4. Democracy and trade openness regression results

dependent variable: democracy level (polity index)	
predicted value of trade openness (% of GDP, in log)	10.94*** (1.469)
R ²	0.1
no. of observations	642

Note: Robust standard errors in parenthesis. *=p<0.05; **=p<0.01; ***=p<0.001.

Source: Authors' own research.

Last, Table 5 reports the results of the OLS regressions of each democratic dimension (electoral, liberal, participatory, deliberative and egalitarian) of democracy levels on the predicted

value of trade openness. This was done in order to find some answers about the mechanisms behind the relationship between trade and democracy, namely through which channels does the former strengthen the latter. Estimates reveal a strongly significant, positive influence of trade openness on each dimension. In terms of magnitude, the influence on the liberal dimension seems marginally stronger (an increase of 1 per cent in trade openness will result in an increase of 0.005 points in the liberal democracy dimension, which ranges between 0 and 1, a higher score corresponding to a more democratic regime). This dimension incorporates measures of rule of law, checks and balances, and civil liberties. Trade openness is strongly correlated with trade freedom, which in turn probably encourages liberal policies also in other social areas. For the other four dimensions, coefficients range around a value of 0.4, meaning that an increase of 1 per cent in trade openness will result in an increase of 0.004 points in the corresponding democracy index.

Table 5. Democratic dimensions and trade openness regression results

dependent variable:	electoral democracy	liberal democracy	participatory democracy	deliberative democracy	egalitarian democracy
predicted value of trade openness (% of GDP, in log)	0.419*** (0.0467)	0.505*** (0.0506)	0.356*** (0.0404)	0.398*** (0.0478)	0.367*** (0.0431)
no. of observations	642	642	642	642	642

Note: Robust standard errors in parenthesis. *= $p < 0.05$; **= $p < 0.01$; ***= $p < 0.001$.

Source: Authors' own research.

Conclusion

The purpose of this paper was to investigate the relationship between trade and democracy. More specifically, it aimed to assess whether trade openness influences the level of democracy in a country (in the sense that countries which are more open to trade also become more democratic because of it) and, if so, which democratic dimension is influenced more. It starts by reviewing the scientific literature, concluding that the literature on this topic is scarce, prone to endogeneity problems because of weak research designs, and has not reached any consensus, as the results presented are mixed: while some papers find a positive effect of trade on democracy, others find a negative effect, or no effect at all.

Then we go one step further and assess this link empirically, employing an instrumental variable approach, this way avoiding any omitted variable bias and reverse causality problems. More precisely, we instrument trade openness with its natural, geography-determined rate, based on the gravity equation of trade; we then use the predicted rate of trade openness to capture its effect on democracy, employing an OLS regression on a panel sample of 27 post-communist countries across a period of 24 years. Democracy is measured using the *polity* index (from Polity V dataset), and also five other variables that capture different facets of democracy – electoral, liberal, participatory, deliberative and egalitarian dimension (from V-Dem dataset).

Empirical results suggest that trade openness has a significant, positive effect on democracy. In terms of magnitude, we can interpret that an increase of 1 per cent in trade openness will result in an increase of 0.1 points in the *polity* score of a country (which ranges from -10 to +10, a higher score corresponding to a more democratic regime). Moreover, we conclude that this effect is only marginally higher for the liberal dimension of democracy, and rather similar in magnitude for the rest of four dimensions: an increase of 1 per cent in trade openness will result in an increase of 0.005 points in the liberal democracy dimension score, and in an increase of 0.004 points in the other four democracy dimensions scores (all five scores range from 0 to 1, a higher score corresponding to a more democratic regime). We interpret the

slightly stronger influence on the liberal dimension as being related to trade freedom, which is stronger in a country that is open to trade; trade freedom, in turn, probably encourages liberal policies also in other social areas.

In terms of policy implications, our results suggest that trade openness is desirable, not only through its positive direct effects on the economy, but also through its indirect effects on the political framework. Trade openness can exert significant influences on democratic processes and institutions, shaping political dynamics in diverse ways. Therefore, it can be one of the instruments to use in order to make a society more democratic. It is important that trade openness goes hand in hand with trade freedom, which in turn we believe it encourages a liberal approach also for other social aspects.

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