Trade Openness, Export Diversification, and Political Regimes

Yousef Makhlouf [†*], Neil M. Kellard[**] and Dmitri Vinogradov[**]

[*]Essex Business School, University of Essex

[**]Essex Business School and Essex Finance Centre, University of Essex

July 2015

Abstract

Recent studies have challenged the view that trade openness leads to more specialization in countries' trade. Using a panel of 116 countries over 35 years, we show that openness can be positively associated with both specialization and diversification, depending on the measure used. Moreover, for developing countries in our sample, the effect of openness on trade structure depends on the type of political regime: in autocracies openness is linked with specialization, whilst in democracies it is related to diversification via export sophistication.

[†] Corresponding author: Essex Business School, Essex Finance Centre, University of Essex, Wivenhoe Park, Colchester, CO4 3SQ, United Kingdom. E-mail: ymakhl@essex.ac.uk..

1.   Introduction

Openness has often been associated with more specialization (see, e.g. Imbs, 2004, including a short review of literature), yet greater specialization is a channel for increased macroeconomic volatility (Giovanni and Levchenko, 2009). However, recent findings suggest that the effect of openness on specialization is not unambiguous. For example, Dennis and Shepherd (2011) show improved trade facilitation enhances export diversification in developing countries. Moreover, Jacks *et al.* (2011) suggest that the effects of globalization on specialization might be different within different time periods, and specifically that, "specialization is not given, but rather is endogenous to political regimes" (cit. op., p. 810). The latter is exactly the point we address in this paper.

Employing two different measures of export diversification, we find that openness can be shown to have positive effect on each of them. The first measure is the Cadot *et al.* (2011) export diversification index; where a higher value of the index indicates lower diversification thus it could also be referred to as a measure of export specialization. The second measure is export sophistication, developed by Hausmann *et al.* (2007). This index measures the benefits of diversifying the economy away from low productivity goods, primary products, to high productivity goods, manufacturing and services. A higher value of this index implies higher manufacturing and services production.

To explore the issue further, we divide developing countries into democracies and autocracies, demonstrating that increased openness pushes autocracies towards specialization, and democracies – towards sophistication of their exports. We conclude that the impact of openness on export diversification strongly depends on the type of the political regime.

2.   Data

We collect data for 116 countries, among which 88 are developing and 28 developed, over the period from 1970 to 2005. The export specialization index comes from the IMF[1]. The export

---

[1] https://www.imf.org/external/np/res/dfidimf/diversification.htm

sophistication index is from Cavalcanti *et al.* (2014). Both are continuous variables. Trade Openness is the ratio of exports and imports to GDP from the World Bank WDI dataset.[2] The democracy index comes from Cheibub *et al.* (2010). This index is a dummy coded 1 for a democratic political regime that matches all the following conditions: the effective executive and legislature are elected (either directly or indirectly), the existence of parties apart from the governing party, the existence of multiple parties within the legislature, the alternation rule is not violated, and the incumbents (person, party, military hierarchy) do not unconstitutionally close the lower house of the national legislature and rewrite the rules in their favor. The sources of other variables, used as controls (human capital, exchange rate regime and GDP per capita) are Cavalcanti *et al.* (2014), Shambaugh (2004), and the World Bank WDI dataset respectively.

3. Methodology

We transform the annual series into non-overlapping five-year averages with a maximum of seven observations per country. This captures the medium and long-term impact of openness (Cavalcanti *et al.*, 2014) and is important, given it takes time for national production and export structures to respond to changes in openness. Additionally, the five-year averages are typically considered reasonable to smooth out business cycle fluctuations.

Let EDI_{is} denote the (first-difference of the logarithm of an) export diversification index, either export specialization or export sophistication, depending on the model, in the *i*th country at time *s*, which designates one of the five-year averages. We estimate the following first-difference model:

$$EDI_{is} = \alpha + \beta_1 \, Openness_{is} + \beta_2 \, X_{is} + \delta_s + \varepsilon_{is} \qquad\qquad (1)$$

---

[2] By far the most popular measure of openness used in the literature is the ratio of exports and imports to GDP. As Dowrick and Golley (2004) mention, it has the advantage of being 'clearly defined and well measured.' Unlike some other measures, the constituent data is available over the long timespan used in our study. Useful surveys of other measures include Dowrick and Golley (2004), Spilimbergo *et al.* (1999) and Pritchett (1996).

where $Openness_{is}$ is the (first-difference of the logarithm of) trade openness; X_{is} is a set of control variables that includes the initial value of GDP per capita in the beginning of each five-year period, human capital growth, and the exchange rate regime dummy; δ_s is a time-specific effect; and ε_{is} is the error term.

We estimate (1) with panel least squares using cluster standard errors to control for autocorrelation and heteroscedasticity. The first-difference model eliminates the unobserved country-specific effects that differ across countries but are time-invariant (such as size and geographical conditions) and deals with the non-stationary behavior of export specialization, export sophistication and openness[3]. We first estimate (1) for the whole sample and then sub-samples of developed and developing economies. Subsequently, we subdivide the samples into autocracies and democracies to test whether political regime affects the nexus between export diversification and openness.[4]

4.   Results

Table 1 presents the results of estimating (1) for our whole sample and two subsamples: developing countries and developed countries. The results show that openness plays an essential role in determining the export pattern in developing countries, whilst the effect is insignificant in developed countries. The latter is due to the lack of medium and long-term variability in openness and export diversification in developed countries. However, the significant role of openness in the developing world looks puzzling at first glance, as openness appears to enhance both export specialization and sophistication in developing countries as shown in columns 2 and 5 respectively.

We can clarify the openness/export diversification nexus in developing countries by considering the role of political regimes. Given the above analysis does not reveal any significant

---

[3] Fisher-type panel unit root tests show the log of export specialization, export sophistication and openness are I(1). However, cointegration tests provide evidence of no cointegration between openness, on the one hand, and export specialization or export sophistication, on the other.

[4] This approach is analogous to including the interaction terms between the openness variable and the political regime dummies in (1). However, we run separate sub-sample regressions to show explicitly the number of observations in each category.

relationship between openness and diversification in developed countries[5], we now focus on developing countries only. The results of the re-estimation of (1) for developing autocracies and democracies separately are in Table 2. Strikingly, openness enhances export specialization in autocracies but export sophistication in democracies. The political regime is clearly crucial in determining the type of relationship between openness and diversification.

Table 1: Trade Openness, Export Specialization and Export Sophistication

Dependent variable:	Export Specialization			Export Sophistication		
	(1)	(2)	(3)	(4)	(5)	(6)
	All countries	Developing countries	Developed countries	All countries	Developing countries	Developed countries
Openness	0.047*	0.050*	0.039	0.082***	0.083***	0.023
	(1.86)	(1.77)	(0.52)	(2.87)	(2.67)	(0.57)
Constant	-0.019***	-0.004	-0.077	0.024***	0.023*	0.042
	(-3.88)	(-0.62)	(-1.48)	(3.31)	(1.93)	(1.53)
Time Dummies	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Country/Obs.	113/689	85/513	28/176	116/666	88/490	28/176
Adjusted R^2	0.045	0.029	0.117	0.100	0.100	0.277

t statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01. Controls include ln(Initial GDP per capita), human capital growth, and the exchange rate regime dummy.

Table 2: Democracy, Trade Openness, Export Specialization and Export Sophistication in Developing countries

Dependent variable:	Export Specialization		Export Sophistication	
	(1)	(2)	(3)	(4)
	Developing Autocracies	Developing Democracies	Developing Autocracies	Developing Democracies
Openness	0.077**	-0.002	0.066	0.108***
	(2.39)	(-0.05)	(1.58)	(2.70)
Constant	-0.003	-0.003	0.027	0.026
	(-0.44)	(-0.26)	(1.57)	(1.45)
Time Dummies	Y	Y	Y	Y
Controls	Y	Y	Y	Y
Obs.	320	193	305	185
Adjusted R^2	0.058	0.003	0.080	0.154

t statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01. Controls include ln(Initial GDP per capita), human capital growth, and the exchange rate regime dummy.

---

[5] It should be noted that the vast majority of developed countries in our sample are democratic, with only 7 observations in the developed/autocracy subsample. This lack of observations provides another reason why developed countries are omitted in the subsequent analysis of the effects of political regime.

5. Conclusions

As discussed in the introduction, specialization induced by trade openness might be harmful for economies as it can lead to higher macroeconomic volatility. Our results suggest that over the medium to long-run, the effect of openness, as measured by the trade-to-GDP ratio, is negligible on specialization for developed countries. However, openness can be either curse or blessing for developing countries, leading either to more export specialization or more export sophistication. It is the type of political regime that, in the developing country context, determines the effect of openness on export diversification.

We find a positive effect of openness on specialization in developing autocracies which can be explained by ruling elites seeking the easiest gains from international trade by focusing solely on products that deliver the highest return. In contrast with autocracies, democracies care more about sustainable growth. This explains why we find that openness is positively associated with export sophistication in developing democracies, as they diversify away from low productivity primary products, to high productivity manufacturing and services goods. At the same time, autocracies are known to resist to modernization policies such as industrialization and confirming this, we find that more openness does not lead to a change in their export sophistication. Given export sophistication has been shown to be "a strong and robust predictor of subsequent economic growth" (Hausmann *et al*., 2007, p.3), these differential effects of openness, mediated via political regime, have important implications.

References

Cadot, O., Carrère, C., & Strauss-Kahn, V. (2011). Export diversification: What's behind the hump? *Review of Economics and Statistics*, 93(2), 590-605.

Cavalcanti, D. V., Tiago, V., Mohaddes, K., & Raissi, M. (2014). Commodity price volatility and the sources of growth. *Journal of Applied Econometrics*.

Cheibub, J. A., Gandhi, J., & Vreeland, J. R. (2010). Democracy and dictatorship revisited. *Public Choice*, 143(1-2), 67-101.

Dennis, A., & Shepherd, B. (2011). Trade facilitation and export diversification. *The World Economy*, *34*(1), 101-122.

Dowrick, S. & Golley, J. (2004). Trade openness and growth: Who benefits? *Oxford Review of Economic Policy*, 20(1), 38-56.

Giovanni, J. D., & Levchenko, A. A. (2009). Trade openness and volatility. *The Review of Economics and Statistics*, *91*(3), 558-585.

Hausmann, R., Hwang, J., & Rodrik, D. (2007). What you export matters. *Journal of Economic Growth*, *12*(1), 1-25.

Jacks, D. S., O'Rourke, K. H., & Williamson, J. G. (2011). Commodity price volatility and world market integration since 1700. *Review of Economics and Statistics*, *93*(3), 800-813.

Imbs, J. (2004). Trade, finance, specialization, and synchronization. *Review of Economics and Statistics*, *86*(3), 723-734.

Pritchett, L. (1996). Measuring outward orientation in LDCs: can it be done? *Journal of Development Economics*, 49(2), 307-355.

Shambaugh, J. C. (2004). The effect of fixed exchange rates on monetary policy. *The Quarterly Journal of Economics*, 301-352.

Spilimbergo, A., Londoño, J.L. & Székely, M. (1999). Income distribution, factor endowments, and trade openness. *Journal of Development Economics*, 59, 77-101.