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The Effects of Financial Development on Trade Performance and the Role of Institutions

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Abstract

This paper aims to address the empirical question of whether a country's level of manufacturing trade is affected by its financial sector development and to investigate the role of institutions in this relationship. Countries endowed with better-developed financial systems tend to specialize in industries that rely on external finance in production. This effect is likely to be stronger in countries with high-quality institutions. Using pure cross-sectional and panel specifications on a sample of 75 countries over the period 1971-2010, we find that financial development strongly and robustly exerts a positive effect on manufacturing exports, even after controlling for the effect of banking crises. Furthermore, institutional quality is found to have a favorable effect on the extent to which finance influences manufacturing trade, suggesting a multiplicity of experiences of the largest exporters of manufactured goods.

Mots clés /Key words : Financial Development, Manufacturing Exports, Comparative Advantages, Institutional Quality

Codes JEL / JEL codes : D21, F10, L60

1.   Introduction

Trade openness in the world's "most open" and "least open" countries differs by a factor of 16. Argentina, one of the "least open" economies, experienced a trade volume (% of GDP) of 20% whereas Singapore, had 440% over the period 1971-2010. How can these large differences in levels of trade openness across countries be explained? At the same time, the average level of financial sector development, measured by the domestic credit to private sector (% of GDP), is more than 22 times higher in the most financially-developed country (Japan) than in the least one (Ghana).[1] Are differences in financial sector development importantly linked with differences in trade openness? Figure 1 in appendix shows that over the period 1971-2010, there was a positive association between the financial sector development and the indicators of trade performance, which is stronger between the ratio of domestic private credit and manufacturing exports. Does this *prima facie* evidence of possible linkages between finance and trade suggest that countries with better-developed financial sectors tend to have a comparative advantage in manufacturing industries? Does institutional quality matter in this relationship?

The causes of the wide variation in trade openness between countries have been debated by theorists of international trade. Traditional theory shows that these disparities are due to cross-country differences in labor productivity and technology, as well as endowments of land and capital. More recently, the Hecksher-Ohlin-Vanek multi-factor content theorem predicts the net factor content of trade, which is the difference in goods' factor content. Countries endowed with relatively high-quality institutions tend to specialize in industries that relatively rely more on the services provided by these institutions. Consistent with this theorem, we consider financial system as an endowment and argue that the cross-country disparities in trade performances might be influenced by differences in levels of financial development. Even with identical technology and factor endowments between countries, comparative costs may differ when countries differ in their domestic institutions of credit enforcement. Since financial services provided by the domestic financial systems can be immobile across countries, the pattern of industrial specialization should be influenced by the level of financial intermediation.

The theoretical arguments that support this relationship can be traced back to the

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1.   Here, the world's "most open" and "least open" countries are the top 1% and the bottom 99% of the distribution of trade openness, respectively. The source of these data is the World Development Indicators of the World Bank. These comparisons are based on data from a sample of 75 countries over the period 1971-2010. GDP stands for Gross Domestic Product.

seminal work of Kletzer & Bardhan (1987) and Baldwin & Krugman (1989). They show that capital market imperfections importantly determine the countries' comparative advantage in trade. Recent theoretical developments have left no doubt on the relevance of such a relationship between finance and international trade patterns (see for instance Beck, 2002; Matsuyama, 2005; Wynne, 2005; Antras & Caballero, 2009; Manova, 2006). [2] Countries endowed with well developed financial systems tend to specialize in industries that rely more on external finance in production. On the other hand, countries with less developed financial systems tend to export goods not requiring external finance.

However, despite numerous attempts to empirically address this issue, there is little persuasive evidence concerning the relationship between financial development and international trade. While a number of studies find that international trade is driven by financial development (see, for instance, Beck, 2002, 2003; Svaleryd & Vlachos, 2005; Manova, 2006; Becker & Greenberg, 2007; Manova, 2008), a recent and expanding body of work, however, finds evidence that the demand of a well developed financial sector is higher in countries with industrial structures that heavily rely on external finance (see for instance Huang & Temple, 2005; Klein & Olivei, 2008; Baltagi *et al.*, 2009; Do & Levchenko, 2007). In contrast, the demand for external finance will be lower in countries that specialize in goods not requiring external finance. Furthermore, in this empirical literature, with exception of Ju & Wei (2011), no emphasis has been placed on the importance of institutions in the relationship between finance and trade. Ju & Wei (2011) build upon a general equilibrium framework and argue that finance is passive in countries with high-quality institutions and appears to be a source of comparative advantage in countries with low-quality institutions. [3] In line with the recent and growing literature on the relationship between finance, institutions, and growth (see for instance Claessens & Laeven, 2003; Klein, 2005; Bose *et al.*, 2012), we argue that in countries with high-quality institutions, transactions in financial and goods markets are better cleared and settled owing to better information and increased competition. In addition, when property rights and shareholders are more secure, firms might have better governance and greater efficiency in production due to better resource allocation. Thus, the institutional quality might reinforce the expected positive impact of financial development on international

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2. While all of these studies consider financial development as exogenous, Do & Levchenko (2007) suggest that financial development is an outcome of the demand for external finance and, therefore, is endogenous.

3. Ju & Wei (2011) define the institutional quality by referring to the competitiveness of the financial sector, the quality of corporate governance, and the level of property right protection.

trade flows.

This paper, to the best of our knowledge, is the first study which empirically tackles the issue of the effects of financial development on manufacturing trade by highlighting the role of institutional quality in this relationship. We also overcome one of the major shortcomings of the previous empirical work. We use an indicator of financial development that helps capture differences in domestic financial system level and quality across countries, namely the ratio of domestic private credit to GDP. Existing studies usually use the credit to the private sector to GDP to proxy for financial sector development. However, the underlying rationale for the hypothesis that financial development is a source of comparative advantage is that countries differ in their domestic institutions of credit enforcement. It is therefore more appropriate to consider domestic private credit rather than total private credit. The remainder of the paper is organized as follows. We first present an overview of the empirical findings on the finance-trade nexus. In Section 3, we then present the empirical strategy and the data used. Section 4 provides and discusses our main results and robustness tests, while Section 5 concludes and draws some policy implications.

2. Related empirical results

A Growing body of empirical work demonstrates that financial development is positively and robustly linked to trade openness . The seminar work in this empirical literature is by Beck (2002). By focusing on the mobilization of savings and the allocation of these loanable funds, he uses the credit to the private sector by deposit money banks and other financial institutions (% of GDP) as a proxy for financial development. Using data on 65 countries from 1966 to 1995, and after controlling for unobserved heterogeneity and reverse causality, Beck (2002) finds that countries with a higher level of financial development experience higher shares of manufactured exports in GDP and in total merchandise exports and have a higher trade balance in manufactured goods. Beck (2003) uses industry-level data for 36 industries and 56 countries and focuses on the extent to which financial development translates into a comparative advantage in industries that rely more heavily on external finance. He follows the technique developed by Rajan & Zingales (1998) and uses data on the reliance on external finance across industries as well as different measures

of financial sector development.[4] His results show that countries with better-developed financial systems experience higher export shares and trade balances in industries that use more external finance. One of the major weaknesses of these previous work is the use of the ratio of private credit to GDP as the measure of financial sector development. This indicator accords well when focusing on the finance-growth nexus. It is, however, less appropriate when studying the relationship between financial development and international trade. Indeed, the fundamental reason why financial sector development might be a source of comparative advantage is that countries differ in their domestic institutions of credit enforcement.

More recently, Svaleryd & Vlachos (2005) study the effects of financial factors the pattern of industrial specialization and comparative advantage using data on financial endowment from OECD countries.[5] Again, their results indicate that countries with well-functioning financial systems tend to specialize in industries highly dependent on external financing. Interestingly, these results also show that differences in financial systems are more important determinants of the pattern of specialization between OECD countries than differences in human capital. Using data on bilateral exports from 107 countries and 27 sectors over the period 1985-1995, Manova (2006) provides evidence that credit constraints importantly determine international trade flows. Financially developed countries are more likely to export bilaterally and ship greater volumes when they become exporters. Industries that rely more on outside finance in production or that employ fewer collateralizable assets are more likely to enjoy greater this effect than other industries. Elsewhere, it is clear from these results that in financially vulnerable industries, countries with better-developed financial systems export a wider variety of products and experience less product turnover in their exports over time. Additionally, financially developed countries experience more trading partners and export to smaller import markets, especially in financially vulnerable sectors. Manova (2008) focus on the effects of equity market liberalizations on trade flows by exploiting shocks to the availability of external finance using data from 91 countries over the period 1980-1997. The results of this study mainly indicate that equity market liberalizations increase exports disproportionately more in financially vulnerable industries that require more external finance or use fewer collate-

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4. Rajan & Zingales (1998) show that industries relying more heavily on external finance grow faster in countries with a better-developed financial system, suggesting that financially developed countries should have a comparative advantage in industries relying more on external finance.

5. OECD stands for Organisation for Economic Co-operation and Development.

ralizable assets. These effects are more pronounced in countries with initially less active stock markets.

Furthermore, some recent work has extended this issue on the relationship between finance and trade by focusing symmetrically on the effects of financial crisis on international trade (see for instance Ronci, 2004; Iacovone & Zavacka, 2009; Chor & Manova, 2010). Their findings indicate that financial crises exert an important negative effect on international trade flows. This can be explain by three main alternative, but not mutually exclusive, reasons, namely the sunk costs of entering into foreign markets, the problem of access to trade credit, and the "demand-side" shocks owing to the negative effect of financial crisis on economic growth. In this empirical literature, no emphasis has been placed on the importance of institutions in the relationship between financial sector development and international.

3. Empirical approach

3.1. Econometric analysis : strategy and issues

Do differences in trade performance strongly associated with differences in financial sector development ? To understand the effects of finance on the pattern of trade we estimate the following regression :

$$Trade_{it} = \alpha + \beta_1 * Finance_{it} + \beta_2 * X_{it} + \mu_i + \gamma_t + \epsilon_{it} \tag{1}$$

where $Trade_{it}$ is the measure of trade performance and $Finance_{it}$ is the proxy for financial sector development for the country i in period t. X represents a set of conditioning information to control for other factors associated with trade performance. α, β_1, and β_2 are unknown parameters to be estimated. μ, γ, and ϵ are country fixed effects, time fixed effects, and the idiosyncratic error term, respectively. Country fixed effects control for any fixed effects common across countries while time dummies allow us to account for business cycle effects.

In line with the empirical work on the finance-trade nexus, we control for the Initial real GDP per capita, the total Population, Foreign Direct Investment (FDI), the Growth rate of Terms of Trade (TOT), the Real Effective Exchange Rate (REER), and Inflation. Unlike previous studies, we also control for Banking Crisis which is a dummy variable

taking the value 1 for the banking crisis inception year and 0 otherwise.[6] Indeed, a recent empirical literature establishes that banking crises exert a negative effect on international trade flows through their effects on trade finance and economic growth (see for instance Ronci, 2004; Iacovone & Zavacka, 2009; Chor & Manova, 2010). In Equation (1), β_1 is our coefficient of interest. This equation is estimated using both pure cross-sectional and panel specifications.[7]

Does institutional quality matter in the relationship between finance and trade? In order to answer this question, we specify an augmented version of Equation (1) as follows:

$$Trade_{it} = \alpha^{'} + \beta_1^{'} * Finance_{it} + \beta_2^{'} * Finance_{it} * Z_{it} + \beta_3^{'} * Z_{it} + \beta_4^{'} * X_{it} + \mu_i^{'} + \gamma_t^{'} + \epsilon_{it}^{'} \quad (2)$$

where Z_{it} represents the institutional variable that measures the strength of the domestic institutions for the country i in period t. Here, we empirically test that, $\beta_2^{'} = 0$, the coefficient on the interaction term between financial development and the institutional variable is positive and statistically significant. The underlying assumption is that countries with strong institutions are likely to enjoy greater the positive effect of finance on trade than countries with weak institutions. In other words, financial development, in the presence of high-quality institutions, might lead to higher performances in international trade. In this specification, $\delta = \beta_1^{'} + \beta_2^{'} * Z_{it}$ is the responsiveness of trade performance to financial development that varies, in a linear fashion, with the institutional variable (Z_{it}). This specification nests the first one, Equation (1), in which the effect of finance on trade does not depend upon institutional strength (suggesting that $\beta_2^{'} = 0$ and $\beta_3^{'} = 0$). Since institutional quality tend to be strongly associated with the real income per capita, we isolate the impact of institutions by following Francois & Manchin (2007) and use the residuals from the regression of each measure of institutional quality on the logs of Initial GDP per capita and total Population.

Assessing the influence of finance on trade raises a number of issues. The endogeneity bias is the first and potentially most important problem to be dealt with. This problem may originate from a number of sources. First, reverse causality, running from international trade to financial development, is a serious problem because it could lead to a statistical bias in the estimated coefficient on financial development, with Ordinary Least Squares (OLS) estimates exaggerating its impact on international trade. Second, our

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6. The banking crisis dummy comes from Reinhart & Rogoff (2011) and Laeven & Valencia (2012) datasets.

7. Except of institutional variables and banking crisis dummy, all variables are included in logs, so that the results can be interpreted as elasticities.

measure of financial development could be correlated with omitted relevant determinants of international trade. In this case, OLS estimator could attribute the effects of these omitted variables to financial development, suggesting a statistical bias similar to reverse causality. Finally, endogeneity bias can arise from measurement errors in the regressor variables. We therefore use the System GMM estimator developed by Blundell & Bond (1998) to address these issues.[8] For this estimator, the sample period was divided into 8 nonoverlapping sub-periods as follows : 1971-1975, 1976-1980, 1981-1985, 1986-1990, 1991-1995, 1996-2000, 2001-2005, 2006-2010.[9] The instrumentation procedure was performed so as to limit the problem of too many instruments (Roodman *et al.*, 2009).[10] For the lagged dependent variable, we use the first difference lagged one period as instrument in the equations in levels, suggesting that this variable is predetermined. In the equations in differences, we also use its first lagged value as instrument. In the same way, we use second lagged values in levels of the other regressors as instruments in the equations in differences and their second lagged values in differences as instruments in the equations in levels, assuming that these variables are endogenous.[11] We use the Windmeijer (2005) finite-sample correction to the standard errors in two-step estimation. As another issue, it is likely that there are country unobserved characteristics that influence the pattern of trade. The System GMM estimator also allows us to take into account this unobserved heterogeneity.

3.2. Data and summary statistics

Our sample consists of 75 developed and developing countries over the period 1971-2010. This subsection describes the variables and provides the summary statistics (see Table 1).

Measure of financial development

In this study, it is assumed that there are large differences in the quality of domestic financial systems across countries, suggesting that financial system can be viewed as an endowment. Countries with well-functioning financial systems should tend to specialize

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8. GMM stands for Generalized Method of Moments.

9. For cross-sectional specifications, for which data were collapsed into 40-year averages, we present results from the standard OLS.

10. Too many instruments may overfit endogenous variables leading to a failure in expunging their endogenous components.

11. The assumptions underlying this system is that there is one-order serial correlation in the differenced residual and that the instruments are exogenous. However, there should be no second-order serial correlation in the first difference residuals. We use a number of diagnostic statistics to test for the validity of these assumptions.

in financially intensive goods. We would like measure of how countries' financial sector improves the firms' ability to fulfill their need for external finance. Therefore, our measure of financial development is the ratio of domestic credit to private sector to GDP (Domestic credit). This measure excludes credits to central, development, and private banks, as well as credits to the private sector by non-money banks. It is assumed to better channel the domestic financial savings to domestic private sector. As shown in Table 1, there is wide cross-country variation in the ratio of domestic credit to private sector to GDP.

Measure of trade performance

Our measure of trade performance is the ratio of manufacturing exports to merchandise exports (Manufacturing exports). The assumption underlying the use of this measure is that manufactured goods are considered as goods with increasing returns to scale, in line with the standard theory of international trade (see for instance chapter 6 in Krugman & Obstfeld, 2009). Indeed, industries with increasing returns to scale benefit more from a higher level of external finance than other industries, because this allows them to exploit scale economies (Beck, 2002). Consistent with this hypothesis, results from Figure 1 in Appendix, shows that manufacturing exports (% of merchandise exports) is more correlated with financial sector development than total exports (% of GDP).

TABLE 1 – Summary statistics

Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
Domestic credit, 1971-2010	75	51.54	35.17	7.54	170.90
M2, 1971-2010	74	60.43	42.13	17.74	177.71
Manufacturing exports, 1971-2010	75	42.51	28.08	1.33	94.15
Total Exports, 1971-2010	75	36.93	29.68	9.30	232.53
FDI, 1971-2010	75	2.16	1.82	0.07	10.70
Inflation, 1971-2010	74	22.55	60.54	1.88	353.60
Terms of trade, 1971-2010	74	106.26	17.43	81.87	166.73
Population, 1971-2010	75	5.05e+07	1.63e+08	71936	1.12e+09
ICRG, 1984-2010	70	0.61	0.21	0.29	0.99
Civil Liberties Index, 1972-2010	75	3.14	1.58	1	6.78
Polity, 1972-2010	70	3.34	6.23	-10	10
REER, 1976-2010	50	2855.53	19345.25	74.64	136910.80
Creditor Rights, 1978-2003	67	1.85	1.08	0	4

Institutional variables

As previously indicated, the relationship between financial development and international trade can be conditional on a number of institutional parameters. In this study, we first

use the International Country Risk Guide (ICRG) indicator of quality of government as an indicator of institutional quality. This composite index is the mean value of the ICRG variables "Corruption", "Law and Order" and "Bureaucracy Quality', scaled 0-1, with higher values indicating better quality of government. We also use the Civil Liberties index (CLI) from Freedom House, and the Revised Combined Polity Score (Polity) from the Center for Systemic Peace (CSP). Countries are graded between 1 (most free) and 7 (least free) for the CLI and between -10 (strongly autocratic regime) and 10 (strongly democratic regime) for Polity.

4. Results

4.1. The basic results

4.1.1. Does financial development affect manufacturing trade ?

Consistent with the findings of earlier empirical studies, the regression results in Table 2 show that countries with higher levels of financial development experienced higher levels of manufacturing exports over the period 1971-2010.[12] We first control for the Initial GDP per capita and total Population (columns 1 and 4). The Initial Domestic Credit enters positively and significantly at conventional levels, for both OLS and System GMM estimators.[13] The coefficient on Initial Domestic Credit ranged from 0.793 to 0.837 and from 0.387 to 0.591 for OLS and System GMM estimators, respectively. These results are quite similar to those of Beck (2002) who found a coefficient on private credit of 0.572 and 0.488 for OLS and System GMM estimators, respectively. These differences can be explained by the choice of the proxies for financial development and by the sample period used.[14] The Initial GDP per capita does not enter significantly, with exception of results from System GMM in column 5. Population enters positively and significantly with coefficients of 0.152 and 0.143. This suggests that, on average, the most populous countries tend to experience higher levels of manufacturing exports than the least populous countries. However, co-

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12. The diagnostic statistics are favorable. The Hansen test of overidentification, which is robust to heteroskedasticity, does not reject the validity of instrumental variables used and the Arellano and Bond test rejects the second order serial correlation.

13. In unreported regressions, we consider two alternative measures of financial development, namely, the ratio of bank deposit liabilities to GDP and the ratio of the broad money stock (M2) to GDP. This does not alter our main findings.

14. While Beck (2002) uses total private credit as a proxy for financial development, we use domestic private credit. Furthermore, our sample period (1971-2010) is longer than that of Beck (2002) (1966-1995).

TABLE 2 – The impact of financial development on manufacturing exports

Dependent variable : Manufacturing exports	OLS : 40-year averages, cross-section			System GMM : 5-year averages		
	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing Exports (t-1)	0.793***			0.976***	0.721***	0.671***
	(0.123)			(0.181)	(0.123)	(0.143)
Initial Domestic Credit	-0.023	0.799***	0.837***	0.463***	0.591***	0.387***
	(0.089)	(0.103)	(0.122)	(0.150)	(0.144)	(0.140)
Initial GDP per capita	0.152**	-0.047	0.132	0.524	0.106*	0.140
	(0.068)	(0.105)	(0.215)	(0.799)	(0.060)	(0.180)
Population		0.067	0.072	0.143*	0.047	0.054
		(0.145)	(0.147)	(0.081)	(0.154)	(0.156)
FDI		0.013**	0.088***		0.105**	0.091***
		(0.005)	(0.022)		(0.043)	(0.032)
Growth rate of TOT		0.001	0.001		0.001**	2.32e-04**
		(0.001)	(0.003)		(4.78e-04)	(9.72e-05)
Inflation		-2.25e-03***	-2.06e-03***		-3.55e-04***	-3.53e-04***
		(6.69e-04)	(6.14e-04)		(9.20e-05)	(8.98e-05)
REER		-6.15e-07	-9.29e-07*		-2.69e-04*	-2.4e-04*
		(2.33e-06)	(5.16e-07)		(1.46e-04)	(1.26e-04)
Banking Crisis dummy			-0.621*			-0.617***
			(0.345)			(0.222)
Constant	-3.075**	2.989**	3.024***	1.284***	3.337***	2.410**
	(1.221)	(1.448)	(0.737)	(0.354)	(1.166)	(1.128)
Observations	75	48	47	490	277	269
Number of countries	-	-	-	71	45	44
R-squared	0.456	0.654	0.657	-	-	-
m1 (p-value)	-	-	-	0.018	0.032	0.019
m2 (p-value)	-	-	-	0.358	0.133	0.191
Hansen Overidentification test (p-value)	-	-	-	0.106	0.250	0.301

Note : ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Robust standard errors are reported in parentheses. *m1* and *m2* denote the Arellano and Bond statistics tests for lack of one-order and second-order serial correlation, respectively.

efficients on Population become statistically insignificant when controlling for additional factors. It is clear that controlling for FDI, the Growth rate of TOT, Inflation, and the REER does not alter the results on the positive effect of financial development on manufacturing exports (columns 2 and 5). As expected, FDI exerts a positive and statistically significant effect on manufacturing exports, irrespective of the estimation method used. The Growth rate of TOT enters positively but its coefficient is statistically significant only for the System GMM estimator (column 5). Inflation and the REER significantly exert detrimental effects on exports of manufactured goods. The positive effect of financial development on manufacturing exports holds even after controlling for Banking Crisis. As expected, Banking Crisis exerts a negative and statistically significant effect on exports of manufactured goods (columns 3 and 6).

The size of the coefficients on the Initial Domestic Credit implies an economically important effect. Let's consider the examples of the two (advanced and developing) countries, Japan and Nepal, respectively. In 1971, Nepal has a ratio of domestic private credit to GDP of 4%, while Japan has a ratio of 124%. The results from our cross-sectional regression (column 3), that provides estimates of long-run effects, suggest that, other things equal, Nepal's ratio of manufacturing exports would have been at least 78% over the period 1971-2010, rather than its actual 60%, if it had experienced the same initial level of domestic private credit as Japan. Similar results were found in results from System GMM estimator, that indicate the short-term impact. However, as in Beck (2002), the long-run impact of financial development on manufacturing exports appears to be stronger than its short-term impact.

4.1.2. Do Institutional factors matter much ?

In this section we discuss the hypothesis that the responsiveness of export performance to finance depends, in a linear fashion, upon institutional quality. The regression results from the estimation of Equation (2) are reported in Table 3. Each institutional variable is included along with its interaction with financial development. We start with the cross-sectional OLS regressions on the averages of all the variables over the entire time period (columns 1-3). As before, we then present panel specifications on a sample of nonoverlapping five-year averages using the System GMM estimator (columns 4-6). The instrumentation was made in a way consistent with the procedure indicated in Subsection 2.1. Similarly, the interaction terms are instrumented with their second lagged values

TABLE 3 – Finance and trade, and the interaction with the quality of institutions

Dependent variable : Manufacturing exports	OLS : 40-year averages, cross-section			System GMM : 5-year averages		
	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing Exports (t-1)				0.750*** (0.211)	0.630*** (0.097)	0.728*** (0.141)
Initial Domestic Credit (DC)	0.384** (0.228)	0.644*** (0.195)	0.774** (0.309)	0.258** (0.100)	0.684** (0.280)	0.233* (0.134)
ICRG	1.139** (0.455)			2.992** (1.336)		
Civil Liberty Index (CLI)		-0.105 (0.164)			-7.59e-03 (0.591)	
Policy			0.155*** (0.038)			0.026** (0.010)
DC×ICRG	0.544*** (0.139)			0.670* (0.388)		
DC×CLI		-0.017 (0.024)			-4.11e-03** (1.61e-03)	
DC×Policy			0.032** (0.012)			7.76e-03* (4.43e-03)
Initial GDP per capita	0.020 (0.166)	0.109 (0.173)	5.77e-03 (0.174)	0.014 (0.188)	0.084 (0.203)	0.037 (0.267)
Population	0.107 (0.102)	0.116 (0.098)	0.063 (0.114)	0.056 (0.121)	-0.051 (0.111)	0.214 (0.224)
FDI	1.623** (0.625)	1.035* (0.613)	1.226* (0.728)	0.780*** (0.114)	0.602*** (0.160)	0.550*** (0.155)
Growth rate of TOT	1.23e-04 (1.53e-03)	5.88e-04 (1.59e-03)	1.03e-03 (1.55e-03)	3.2e-04*** (5.13e-05)	3.51e-04*** (8.08e-05)	3.63e-04*** (8.42e-05)
Inflation	-0.032* (0.018)	-0.133 (0.104)	-0.102* (0.058)	-1.66e-03 (0.015)	-5.44e-03 (0.019)	-0.012 (0.037)
REER	-2.30e-06 (2.08e-06)	-2.64e-07* (1.38e-07)	-2.65e-08** (1.21e-08)	-2.48e-05* (1.45e-5)	-3.95e-04** (1.62e-04)	-2.43e-04* (1.4e-04)
Banking Crisis	-0.163 (0.456)	-0.128 (0.073)	-0.230** (0.089)	-0.364** (0.144)	-0.476*** (0.099)	-0.402*** (0.118)
Constant	2.210 (4.337)	6.023* (3.200)	4.770*** (1.036)	2.500 (1.793)	4.917** (2.442)	5.695*** (1.099)
Observations	44	45	43	277	238	267
Number of countries	-	-	-	44	45	43
R-squared	0.545	0.528	0.530	-	-	-
m1 (p-value)	-	-	-	0.094	0.022	0.061
m2 (p-value)	-	-	-	0.459	0.437	0.414
Hansen Overidentification test (p-value)	-	-	-	0.275	0.218	0.532

Note : ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Robust standard errors are reported in parentheses. *m1* and *m2* denote the Arellano and Bond statistics tests for lack of one-order and second-order serial correlation, respectively.

in each equation of the system. Once again, the diagnostic statistics are favorable. As shown in Table 3, the Hansen test of overidentification does not reject the validity of instrumental variables used and the Arellano and Bond test rejects the second order serial correlation. Our results support the prediction that the responsiveness of manufacturing trade to financial development depends on the level of institutional quality. Taking into account these interaction terms does not alter the results on the positive impact of finance on manufacturing exports. The coefficient on the Initial Domestic Credit is positive and statistically significant at conventional levels. As expected, the estimated coefficients are positive for ICRG and Polity, and negative for the CLI. For the OLS estimator, the interaction terms between ICRG and Policy and Initial Domestic Credit enter positively and significantly with coefficients equal to 0.544 and 0.032, respectively (columns 1 and 3). This suggests that the positive effect of financial sector development on manufacturing exports is more pronounced for countries with high-quality institutions. Similar results are found when considering the System GMM estimator (columns 4 and 6). The coefficients on CLI and DC×CLI are each statistically insignificant for OLS estimator but the Wald test for joint significance gives *p-value* equals to 0.039, suggesting that these variables are jointly significant at 5% level.

These results imply an important economically effect of institutions on the responsiveness of manufacturing trade to finance. Considering the results from pure cross-sectional specifications (columns 1-3), all other things being equal, moving from the 25th to the 75th percentile of ICRG results in 75 percentage points rise in the responsiveness of manufacturing trade to finance, equivalent to about 0.57 of the standard deviation of the ratio of manufacturing exports. As for Polity, this corresponds to an increase in the responsiveness of about 135%. Furthermore, an exogenous decrease of one point in the CLI is associated with an increase in the responsiveness of trade to finance of about 62 percentage points. Overall, these effects appear to be quite similar to those of the System GMM estimator (columns 4-6).

Regarding the control variables, it is clear that the magnitude and the signs of the coefficient estimates are consistent with those of our benchmark regressions in Table 2. Overall, Initial GDP per capita and Population enter positively but not statistically significant at any conventional level. On average, FDI and the Growth of TOT positively and significantly affect manufacturing exports, although the coefficient on the latter is only statistically significant for the System GMM estimator. In contrast, Inflation and the

REER exert a negative impact on the exports of manufactured goods. As before, Banking Crisis is found to be strongly associated with a collapse in manufacturing exports.

In sum, results in Tables 2 and 3 suggest that countries with well-functioning financial systems experience higher levels of manufacturing exports. Therefore, these countries tend to have a comparative advantage in manufacturing industries. Furthermore, the results on both institutional quality and its interaction with finance suggest that financial sector development is more favorable to manufacturing exports in countries with high-quality institutions. These results complement those of previous empirical work on the relationship between finance and trade (see for instance Beck, 2002, 2003; Svaleryd & Vlachos, 2005; Manova, 2008). By showing that the relationship between finance and trade depends on the quality of institutions, this study reconciles the two opposite views in the empirical literature on finance-trade nexus. [15]

4.2. Robustness checks

In this section, we carry out three consistency checks namely the use an alternative method dealing with the endogeneity bias, the use of an alternative measure of financial development, and the use of an alternative measure of international trade.

4.2.1. Alternative method dealing with endogeneity : using the IV estimator

The System GMM estimator used in Subsection 4.1 has been shown to have much better finite sample properties in terms of bias and root mean squared error (RMSE) compared with that of Difference GMM estimator in Monte Carlo studies, especially under certain stationarity conditions of the initial observation (see for instance Blundell & Bond, 1998; Blundell *et al.*, 2000). However, the use of such an estimator can be problematic with country level panel data that are characterized by highly persistent series (Bun & Windmeijer, 2009). Although the diagnostic statistics in Tables 2 and 3 are favorable, we need to insure that these results hold in other circumstances.

In this section, we deal with the endogeneity problem arising from reverse causality or simultaneity bias by using a pure cross-sectional instrumental variable (IV) estimator over

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15. As indicated in Section 1, there is a controversial recognition of the positive association between finance and trade. While a number of studies find that international trade is driven by financial development (see, for instance Beck, 2002, 2003; Svaleryd & Vlachos, 2005; Becker & Greenberg, 2007; Manova, 2008), an opposite viewpoint suggests that financial development is an outcome of the supply and demand for external finance (see for instance Huang & Temple, 2005; Klein & Olivei, 2008; Baltagi *et al.*, 2009; Do & Levchenko, 2007).

TABLE 4 – Finance and Trade : IV, pure cross-sectional regression results, 1971-2010

Dependent variable : Manufacturing exports	(1)	(2)	(3)	(4)
Initial Domestic Credit (DC)	0.746**	0.403**	0.219***	0.796**
	(0.314)	(0.175)	(0.066)	(0.318)
ICRG		2.241**		
		(0.996)		
Civil Liberty Index (CLI)			-0.691***	
			(0.168)	
Policy				0.323*
				(0.184)
DC×ICRG		0.394***		
		(0.087)		
DC×CLI			-0.103**	
			(0.042)	
DC×Policy				0.078*
				(0.044)
Initial GDP per capita	-0.084	-0.031	-0.141	-0.102
	(0.153)	(0.086)	(0.198)	(0.177)
Population	0.161	0.115	0.102	-0.073
	(0.362)	(0.176)	(0.132)	(0.162)
FDI	1.986***	1.305***	0.859***	0.924**
	(0.863)	(0.515)	(0.214)	(0.368)
Growth rate of TOT	4.14e-03**	2.04e-04*	1.31e-04	9.07e-04
	(1.69e-03)	(1.13e-04)	(1.09e-04)	(1.07e-03)
Inflation	-0.087***	-0.052*	-0.387	-0.015
	(0.032)	(0.029)	(0.262)	(0.008)
REER	-4.16e-04**	-3.65e-04*	-3.01e-04	-4.31e-04***
	(1.74e-04)	(2.08e-04)	(6.02e-04)	(1.10e-04)
Banking Crisis dummy	-0.191**	-0.145*	-0.034	-0.028**
	(0.081)	(0.078)	(0.042)	(0.011)
Constant	1.718**	10.502***	11.175**	12.229**
	(0.409)	(2.187)	(4.562)	(6.112)
Observations	47	44	45	43
R-squared	0.741	0.662	0.667	0.581
Hansen J-OID test p-value	0.462	0.119	0.317	0.410
Kleibergen-Paap F-test statistic (robust)	2.413	2.493	2.513	2.574

Note : ***, **, and * represent statistical significance at 1%, 5%, and 10% respectively. Robust standard errors are reported in parentheses.

the entire time period 1971-2010. We use creditor rights to extract the exogenous component of financial sector development. The level of creditors' rights is found to strongly determine the level of private credit (see for instance Djankov *et al.*, 2007; La Porta *et al.*, 2008).[16] Elsewhere, to account for the endogeneity of the interaction between financial development and institutions, each interaction term is instrumented with the interaction between creditor rights and the corresponding measure of institutional quality. Initial GDP per capita is that of initial year of the period. Furthermore, the other regressors are instrumented with their initial values. Results are presented in Table 4. In the column 1, we first present the results from the estimation of our baseline specification where the effect of institutions on the responsiveness of trade to finance is not taken into account (Equation 1). In Columns 2-4, we account for this effect using the three institutional variables as in Table 3. It is clear that the diagnostic statistics are favorable ; the Hansen J overidentification test (which is robust to heteroskedasticity) does not reject the validity of instrumental variables. For example, for our baseline specification in columns 1, the Kleibergen-Paap F-test statistic indicate that the IV estimates have a bias of about 30 percent towards the corresponding OLS estimates. Similar values of this statistic are found in columns 2-4. Once again, the initial Domestic Credit enters positively and significantly with a coefficients of 0.746 about two times higher than that in column 6 of Table 2. Again, The size of this coefficient implies an economically strong relationship between finance and trade, even after controlling for institutions. A 10 percent exogenous increase in the Initial Domestic Credit is associated with an increase of more than 7 percentage points in the ratio of manufacturing exports (column 1). As before, controlling for the role of institutions in the finance-trade nexus does not alter this result (columns 2-4). This yields very similar results though smaller effects of finance on trade compared with that in columns 4-6 in Table 3. The coefficients on all interactions between financial development and institutional quality are still significant at conventional levels of significance. It follows that countries with higher levels of financial development experience larger exports shares in manufactured goods and that this effect is more pronounced in countries with high-quality institutions. A two-standard deviation increase in ICRG (in Policy) is associated with an increase of 17 (of 97) percentage points in the responsiveness of trade to finance. Additionally, a decrease of one point in CLI is associated with an increase in

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16. La Porta *et al.* (2008) found that a two-standard deviation increase in the creditor rights is associated with an increase of 15 percentage points in the ratio of private credit to GDP.

the responsiveness of trade to finance of about 10 percentage points.

Turning to the control variables, the results are broadly in line with our findings in Tables 2 and 3. Initial GDP per capita and Population remain statistically insignificant at any conventional level although the coefficient on the former changes its sign. As previously, FDI and the Growth rate of TOT exert a positive and statistically significant effect on manufacturing trade, even though the coefficient on the latter is not significant when using CLI and Policy as proxies for institutional quality (columns 3 and 4). Similarly, the coefficients on Inflation, the REER, and Banking Crisis are still negative and mostly statistically significant.

4.2.2. Alternative measures of financial development

In this Sub-section, we consider an alternative measures of financial development, namely the ratio of broad money (M2). The use of ratio is consistent with the Mckinnon's outside money hypothesis, even though it does not allow us to perfectly capture the Shaw's debt-intermediation effect in developing countries. Indeed, in such countries the broad money stock is essentially held outside the banking system. This indicator of financial development has been widely used in the empirical literature on the relationship between finance and growth (see for instance King & Levine, 1993; Calderòn & Liu, 2003; Do & Levchenko, 2007). As for the Domestic Credit, there is wide variation in M2 ranging from less than 18 percent in Cameroon to more than 177 percent in Japan using data over the period 1971-2010.

Results in Table 5 show that our basic results are robust to the use of an alternative measure of financial development. M2 enters positively and significantly in all regressions with a coefficient of about 0.1, suggesting a substantial economic effects. Moving from the 25th to 75th percentile in the initial level of M2 raises the share in the merchandise exports of manufactured goods by 16 percentage points, or about 2 standard deviations of the ratio of manufacturing exports. Once again, this result holds when conditioning the finance-trade nexus on institutional quality. With the exception of the interaction between M2 and ICRG, all coefficients on the interaction terms are statistically significant. These interactions enter with the expected signs. While ICRG and Policy positively affect the responsiveness of trade to finance, the corresponding effect of CLI is negative.

Furthermore, using M2 as proxy for financial sector development does not alter the results on control variables. As before, the coefficients on the Initial GDP per capita and

TABLE 5 – Robustness : Alternative measure of financial development

Dependent variable : Manufacturing exports	OLS : 40-year averages, cross-section				System GMM : 5-year averages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manufacturing Exports (t-1)					0.751***	0.685***	0.655***	0.799***
					(0.122)	(0.139)	(0.138)	(0.167)
Initial M2 (M2)	0.105***	0.104***	0.104*	0.103**	0.101***	0.106***	0.102**	1.32e-04*
	(0.020)	(0.022)	(0.136)	(0.042)	(0.026)	(0.025)	(0.044)	(5.50e-05)
ICRG		2.468*				1.397**		
		(1.402)				(0.563)		
Civil Liberty Index (CLI)			-1.404**				-0.071*	
			(0.590)				(0.037)	
Policy				0.102***				0.064***
				(0.027)				(0.016)
M2×ICRG		0.173				0.158**		
		(0.137)				(0.066)		
M2×CLI			-0.307**				-0.027*	
			(0.126)				(0.015)	
M2×Policy				0.043**				0.020**
				(0.017)				(0.008)
Initial GDP per capita	-0.059	-0.133	-0.082	-0.047	-0.045	-0.159	-0.063	-0.101
	(0.041)	(0.170)	(0.116)	(0.081)	(0.094)	(0.153)	(0.200)	(0.313)
Population	0.154	0.193	0.086	0.135	0.066	-0.047	0.154	0.153
	(0.120)	(0.128)	(0.111)	(0.126)	(0.104)	(0.142)	(0.170)	(0.184)
FDI	1.702*	2.322*	1.255*	1.670	0.709***	0.518***	0.706***	0.498***
	(0.852)	(1.211)	(0.694)	(1.028)	(0.196)	(0.116)	(0.198)	(0.123)
Growth rate of TOT	0.001	0.016	4.39e-04	6.79e-04	7.86e-04	0.031	0.027	-0.017
	(0.014)	(0.021)	(0.014)	(0.016)	(0.020)	(0.025)	(0.023)	(0.028)
Inflation	-0.105*	-0.127*	-0.023	-0.169**	-0.022	-0.022	-0.054**	-0.063**
	(0.058)	(0.055)	(0.085)	(0.071)	(0.040)	(0.056)	(0.023)	(0.026)
REER	-3.25e-07*	-1.49e-07	-2.54e-06	-1.87e-06**	-6.42e-04***	-6.46e-04***	-3.51e-04	-9.80e-04***
	(-1.747e-07)	(2.20e-06)	(2.19e-06)	(-7.540e-07)	(1.54e-04)	(1.64e-04)	(3.26e-04)	(3.02e-04)
Banking Crisis	-0.295	-0.448*	-0.033**	-0.385*	-0.484*	-0.497**	-0.255	-0.540**
	(0.350)	(0.256)	(0.014)	(0.202)	(0.274)	(0.251)	(0.233)	(0.261)
Constant	4.948***	7.357**	10.800***	6.487***	2.394*	4.865**	6.195**	1.880***
	(1.030)	(3.065)	(3.826)	(1.158)	(1.308)	(2.063)	(2.504)	(0.348)
Observations	46	43	44	42	261	233	194	223
Number of countries	-	-	-	-	46	43	44	42
R-squared	0.567	0.607	0.670	0.594	-	-	-	-
m1 (p-value)	-	-	-	-	0.069	0.026	0.032	0.035
m2 (p-value)	-	-	-	-	0.293	0.486	0.759	0.440
Hansen Overidentification test (p-value)	-	-	-	-	0.203	0.618	0.143	0.549

Note : ***, **, and * represent statistical significance at 1%, 5%, and 10% respectively. Robust standard errors are reported in parentheses.

Population are not statistically significant at any conventional level of significance. FDI enters positively and significantly but the coefficient on Growth rate of TOT is no longer statistically significant. The results on Inflation, the REER, and Banking Crisis are very similar to the previous ones.

4.2.3.   Alternative measure of international trade

In this subsection, we use Total Exports, defined as the ratio of total exports (the sum of exports of goods and services) to GDP as an alternative trade indicator. The results in Table 1 indicate that there is significant variation in Total Exports across countries in our sample. This ratio is ranged from 9.30 percent in United States to 232.53 percent in Singapore over the period 1971 to 2010.

The results in Table 6 indicate that our baseline results are robust to the use of the ratio of total exports to GDP as an alternative measure of international trade. Once again, the Initial Domestic Credit enters positively and significantly at the conventional levels for both OLS and System GMM estimators, even after controlling for the effect of institutional quality on the responsiveness of trade to finance. On average, the coefficient on the Initial Domestic Credit is smaller than that in Tables 2 and 3, suggesting that countries with well-developed financial systems tend to have a comparative advantage in manufacturing industries.[17] This is consistent with the results in Figure 1 in appendix. As previously, results on the interactions between financial development and institutional quality indicate that countries with high-quality institutions enjoy greater the positive impact of finance on trade than countries with low-quality institutions. In addition, with exception of Population, the results on the control variables hold when using Total Exports as an alternative measure of international trade. The coefficient on Population becomes negative and statistically significant even after controlling for institutional quality.

In sum, the regression results in Tables 4-6 shows that our baseline findings are robust to a number of sensitivity tests. It is also clear that our results hold when using an alternative estimation method to deal with the endogeneity, and when using alternative measures of financial development and international trade.

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17.   This comparison was made using standardized estimated coefficients.

TABLE 6 – Robustness : Alternative measure of international trade

Dependent variable : Total Exports	OLS : 40-year averages, cross-section				System GMM : 5-year averages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total Exports (t-1)					0.479**	0.555***	0.525***	0.652***
					(0.206)	(0.137)	(0.172)	(0.152)
Initial Domestic Credit (DC)	0.053***	0.098**	0.046**	0.069***	0.032**	0.056	0.047	0.084*
	(0.013)	(0.041)	(0.019)	(0.015)	(0.012)	(0.057)	(0.072)	(0.050)
ICRG		0.496**				0.442**		
		(0.206)				(0.184)		
Civil Liberty Index (CLI)			-0.050				-0.030*	
			(0.062)				(0.017)	
Policy				0.011***				0.019***
				(0.002)				(0.003)
DC×ICRG		0.038*				0.155**		
		(0.020)				(0.071)		
DC×CLI			-0.022**				-0.005*	
			(0.008)				(0.002)	
DC×Policy				0.004				0.007*
				(0.016)				(0.003)
Initial GDP per capita	-0.133*	-0.093	-0.108	-0.117	-0.093*	-0.094	-0.092	-0.096*
	(0.070)	(0.104)	(0.104)	(0.093)	(0.051)	(0.061)	(0.063)	(0.050)
Population	-0.206***	-0.208***	-0.202***	-0.202***	-0.076 *	-0.001	-0.016	-0.022*
	(0.054)	(0.056)	(0.052)	(0.056)	(0.042)	(0.085)	(0.085)	(0.011)
FDI	0.162***	0.151***	0.143***	0.158***	0.040**	0.030***	0.031**	0.021
	(0.034)	(0.046)	(0.043)	(0.038)	(0.017)	(0.011)	(0.012)	(0.015)
Growth rate of TOT	0.013***	0.012***	0.001**	0.007	0.018	0.020**	0.022**	0.021**
	(0.003)	(0.002)	(4.21e-04)	(0.062)	(0.015)	(0.009)	(0.010)	(0.008)
Inflation	-4.77e-03	-4.12e-03	-2.58e-03	-4.51e-03	-6.94e-04	-5.76e-03*	-6.06e-03*	-2.84e-03
	(7.09e-03)	(7.08e-03)	(6.46e-03)	(7.97e-03)	(2.24e-03)	(3.15e-03)	(3.13e-03)	(1.89e-03)
REER	-2.44e-06*	-2.22e-06	-2.30e-06*	-2.45e-06	-9.55e-04***	-8.71e-04***	-7.53e-04***	-1.03e-03***
	(1.31e-06)	(1.47e-06)	(1.24e-06)	(1.66e-06)	(2.34e-04)	(9.54e-05)	(1.29e-04)	(1.77e-04)
Banking Crisis	-0.293***	-0.202*	-0.180	-0.247*	-0.292**	-0.270	-0.179	-0.152*
	(0.082)	(0.115)	(0.161)	(0.107)	(0.119)	(0.519)	(0.449)	(0.083)
Constant	8.647***	8.279***	8.457***	8.448***	1.672**	2.270*	1.849	2.345
	(1.891)	(2.293)	(2.054)	(1.964)	(0.069)	(1.297)	(1.933)	(1.564)
Observations	47	44	45	43	269	241	202	231
Number of countries	-	-	-	-	47	44	45	43
R-squared	0.777	0.780	0.789	0.778	-	-	-	-
m1 (p-value)	-	-	-	-	0.049	0.044	0.056	0.003
m2 (p-value)	-	-	-	-	0.317	0.116	0.385	0.252
Hansen Overidentification test (p-value)	-	-	-	-	0.210	0.258	0.265	0.186

Note : ***, **, and * represent statistical significance at 1%, 5%, and 10% respectively. Robust standard errors are reported in parentheses.

5.   Concluding comments

This paper investigates the effects of financial sector development on manufacturing trade, using a sample of 75 countries over the period 1971-2010. Using both cross-sectional and panel specifications, as well as appropriate estimation methods, our results indicate that financial development exerts a strong and robust impact on manufacturing trade. On average, countries with better-developed financial sectors are found to have higher levels of exports of manufactured goods. Interestingly, financial development has a greater effect on manufacturing exports in the presence of high-quality institutions. By using System GMM estimator as an alternative method, it is apparent that these results are not driven by reverse causality or simultaneity bias.

Our results suggest that there is another favorable impact of financial sector development on economic development beyond its positive impact on economic growth, namely its positive effect on manufacturing exports. As policy implications, economic policies that promote financial sector development should rather be used to boost exports of manufactured goods and to reduce current account deficits than exchange rate manipulations. This is particularly the case in countries with high-quality institutions. In this study, we consider aggregate data of international trade. This does not allow us to take into account the geographical determinants of trade. However, a growing body of literature emphasizes the importance of these geographic factors in international trade (see for instance Frankel & Romer, 1999). Future work needs to deepen these findings by using bilateral data that will allow one to properly take into account these geographical determinants.
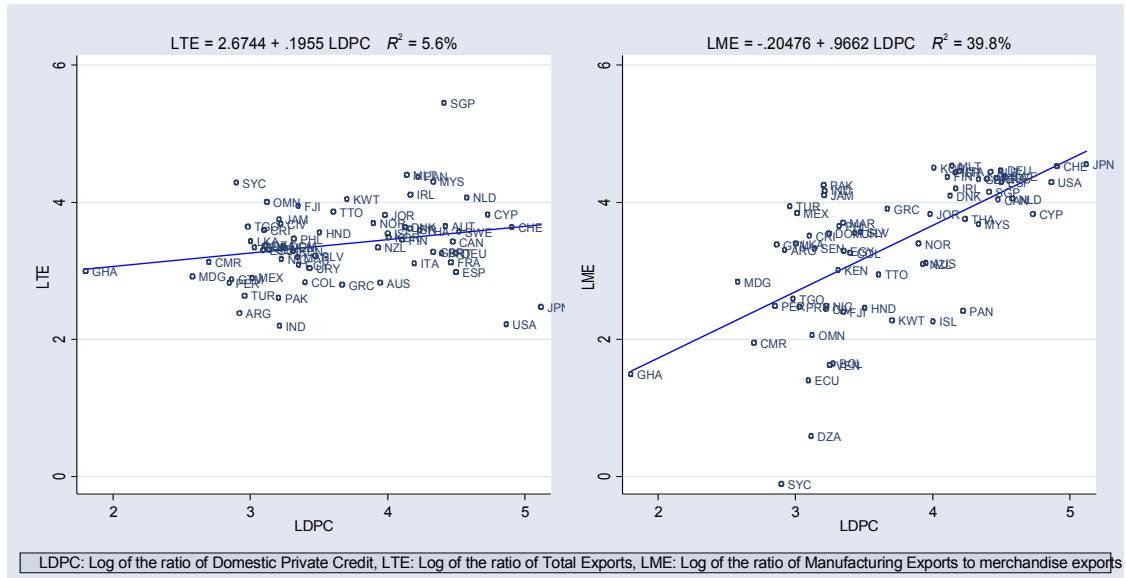
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Appendix

FIGURE 1 – Finance and Exports, simple cross-country correlations

LTE = 2.6744 + .1955 LDPC R^2 = 5.6%

LME = -.20476 + .9662 LDPC R^2 = 39.8%

LDPC: Log of the ratio of Domestic Private Credit, LTE: Log of the ratio of Total Exports, LME: Log of the ratio of Manufacturing Exports to merchandise exports

List of countries Algeria, Argentina, Australia, Austria, Barbados, Bolivia, Canada, Cameroon, Chile, China, Colombia, Costa Rica, Cote d'Ivoire, Cyprus, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Fiji, Finland, France, Germany, Ghana, Greece, Guatemala, Honduras, Iceland, India, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Korea. Rep., Kuwait, Madagascar, Malaysia, Malta, Mexico, Morocco, Netherlands, Nepal, New Zealand, Nicaragua, Nigeria, Norway, Oman, Pakistan, Panama, Paraguay, Peru, Philippines, Portugal, Saudi Arabia, Singapore, Senegal, Seychelles, Spain, Sri Lanka, Sweden, Switzerland, Syrian Arab Republic, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, United Kingdom, United States, Uruguay, Venezuela.

TABLE 7 – Source and definition of the variables

Variable	Variable Definition	Source
Private credit	Domestic credit to private sector (% of GDP)	World Development Indicators, World Bank
M2	Broad money stock (% of GDP)	World Development Indicators, World Bank
FDI	Foreign direct investment, net inflows (% of GDP)	World Development Indicators, World Bank
Inflation	Inflation, consumer prices (annual %)	World Development Indicators, World Bank
Terms of Trade	Net barter terms of trade index (2000 = 100)	World Development Indicators, World Bank
Manufacturing exports	Manufactures exports (% of merchandise exports)	World Development Indicators, World Bank
Total exports	Ratio of total exports to GDP	World Development Indicators, World Bank
Population	Total population	World Development Indicators, World Bank
Civil Liberties Index	Dummy taking 1 if country is free and 0 if country is partly free	Freedom House
ICRG	The mean value of the ICRG variables "Corruption", "Law and Order" and "Bureaucracy Quality", scaled 0-1. Higher values indicate higher quality of government.	International Country Risk Guide
Polity	Revised Combined Polity Score which ranks countries between -10 (strongly autocratic regime) and 10 (strongly democratic regime)	Center for Systemic Peace (CSP)
Creditor Rights	Measure of the legal rights of creditors against defaulting debtors, ranging from 0 (poor creditor rights) to 4 (strong creditor rights)	Djankov *et al.* (2007)
Banking Crisis	Dummy variable taking 1 for the banking crisis inception year and 0 otherwise	Laeven & Valencia (2012)