Financial Development and International Trade: Regional and Sectoral Analysis

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Abstract

Financial development has been argued as a potential source of comparative advantage and its relationships with trade has been theoretically developed. This theory posits that countries that are well financially developed should experience greater volumes of international trade. We empirically investigate the effects of financial development on trade of both agricultural and manufactured products. The results show a positive impact of financial development on bilateral trade flows for the manufacturing sector, which enjoys a greater impact than the agricultural sector. The impacts differ across regions. In most cases, developing countries (Asia, Latin America, MENA and SSA) experience greater impacts of financial development on exports in both agriculture and manufacturing sectors than do advanced countries.

Key Words: agricultural sector, comparative advantage, financial development, international trade, manufacturing sector

Introduction

International trade theory suggests that differences across countries in factor endowments, technology, and economies of scale are the sources of comparative advantage and thus trade patterns. Besides those traditional factors affecting comparative advantage, financial development has recently been argued as a potential source of a country's comparative advantage. This notion builds on the analysis of Kletzer and Bardhan (1987) and Baldwin (1989). According to these studies, countries with a relatively well-developed financial sector have a comparative advantage in industries and sectors that rely more on external financing. Therefore, countries that are well developed financially should experience greater volumes of

international trade. This has empirically been probed in studies such as Beck (2002, 2003), Svaleryd and Vlachos (2005), Hur et al (2006), and Manova (2008).

There are a variety of channels through which financial development can translate into a comparative advantage. One of them is based on the liquidity constraints that most firms face. According to this argument, when a domestic financial institution is weak and inefficient, firms in export-oriented sectors are burdened by significant liquidity constraints that prevent a subset of productive firms to enter the foreign market (Chaney, 2005). On the other hand, if firms face less restrictive credit constraints as, for example, a result of financial sector reforms, then investment can increase more in response to a lowering of variable export costs and all firms with productivity above a certain level become exporters (Melitz, 2003). Therefore, the main prediction of theoretical papers suggests that financial development should promote production and trade.

The relationships of financial development and trade may vary with the initial level of financial development as a higher level of financial development makes the firm closer to the cut-off level and thus makes entry more probable especially if the conditions on the local financial market are favorable (Berthou, 2007). Beck (2002) also suggests that financial development and trade relationships may also be subject to economies of scale. A sector with scale economies profits more from a higher level of financial development than a sector without economies of scale. Countries with better developed financial sectors have a comparative advantage in sectors with high scale economies and are therefore net exporters. Finally financial development and trade hypothesis is also highly conditional on a country's pre-existing circumstance such as economic, historic, cultural or geographic specificities (Apoteker and Crozet, 2003).

Until the 1980s the financial sector was one of the sectors where state intervention was most visible both in developing and developed countries where banks were owned or controlled by the government, where interest rates were subject to ceilings, allocation of credits was constrained, entry restrictions and barriers to foreign capital flows were imposed, among others (Abiad et al., 2010), thereby creating liquidity constraints to firms. Providing firms with better access to finance should have therefore promoted entries as a result of the better capacity to pay the fixed entry cost, as well as to an increase in the value of exports by incumbent firms. At the aggregated level, this should have led to a large increase in the number of bilateral trade relationships.

Given recent development in trade theory, studying the link between finance and trade flows is worth undertaking. This study is aimed to empirically investigate the possible link between financial development and trade flows. Specifically, it attempts to assess the extent to which financial developments have contributed to bilateral trade flows. To account for possible differential effects of the initial level of financial development and regions, we include interaction terms between financial development variables and dummy variables representing regions. We also analyze two sectors that have different levels of economies of scale (manufacturing and agriculture) which enabling us to analyze how two different sectors with different scale economies respond to financial development as hypothesized by Beck (2002).

Related Literature Review on Trade and Financial Development

A number of theoretical papers related to finance-trade link have been proposed with the earliest versions are those by Kletzer and Bardhan (1987) and Baldwin (1989). Using the Heckscher-Ohlin framework, Kletzer and Bardhan compared two international trade models with the same factor endowments but one sector in one of the models depends also on external finance

for working capital. They show that the country with less credit market restrictions specializes in the sector that uses external finance and the country with the higher level of credit market restrictions specialize in the sector that does not require working capital or external finance. Their analysis concluded that a well developed financial sector can theoretically lead to a comparative advantage in industries that rely more on external financing and can explain the variance of the trade structure across countries. On the other hand, the work of Baldwin is based on the risk-diversification function of a financial market consisting of two countries, two sectors, and one factor where the demand for one of the sectors is subject to demand shocks and the other is not. He posits that economies with better developed financial markets are better able to diversify risk because they have better diversification possibilities. Consequently, they specialize in producing the risky good with relatively lower risk premiums.

Based on the conclusions of Kletzer and Bardhan (1987) and Baldwin (1989), Beck (2002) investigated and explored the possible relation between financial development and international trade by building both a theoretical model and an empirical model to test his hypothesis.

The theoretical model with two sectors shows that the sector with high scale economies profits more from a higher level of financial development. Therefore, countries endowed with a well developed financial system tend to specialize in sectors with high scale economies because of comparative advantage. The empirical model that uses both cross-country and panel estimations in a sample of 65 countries gives support to the prediction of the theoretical model. In his second study, Beck (2003) verifies successfully the possible link between financial development and trade structure. That is, his empirical results provide robust evidence that countries with a higher level of financial development have higher export shares and trade

balances in industries that rely more on external finance. These two studies firmly show that an increase in the level of financial development has a positive impact on the value of exports, especially if industries report a higher level of external financial dependence.

Further empirical studies on the finance-trade link have emerged in both firm-level and country or sectoral level. Muuls (2008) and Berman and Hericourt (2008) are among those who focus on firm-level data. Using a dataset on export transactions at the firm level for the Belgian manufacturing sector, Muul analyzes the interaction between credit constraints and exporting behavior. He found that firms are more likely to be exporting if they enjoy higher productivity levels and lower credit constraints. He concludes that credit constraints really do matter for export patterns. Berman and Hericourt show that the financial factor affects both the firms' export decisions and the amount exported by firms. Using a large cross-country firm level database in developing and emerging economies, they found that financial constraints create a disconnection between a firms productivity and its export status. According to their results, an increase in a country's financial development increases the number of exporters and affects the exporters' selection process through dampening such a disconnection. These two studies agree that financial development does really matter for export patterns and economies with a higher level of financial development should have greater comparative advantage.

Examples of empirical work that study the sectoral level are given by Hur et al. (2006) and Manova (2008). Hur et al. investigate the impact of a country's financial development and a firm's asset structure on the trade flow of different industries. Using data for 27 industries in 42 countries they found that economies with higher levels of financial development have higher export shares and trade balance in industries with more intangible assets. Manova (2008) developed a model with credit-constrained heterogeneous firms, countries at different levels of

financial development, and sectors of varying financial vulnerability. She shows that financially developed countries are more likely to export bilaterally and ship greater volumes when they become exporters. She empirically found robust, systematic variations in export participation, volumes, product variety, product turnover, and trade partners across countries at different levels of financial development and across sectors at different levels of financial vulnerability.

Empirical Specification

A gravity equation framework was utilized. It introduces a variable representing financial development in order to investigate the impacts of financial development on bilateral trade flows. We use an index of financial reform (*FinReform*) that measures financial development or liberalization developed by Abiad *et al.* (2010). The values of *FinReform* range from 0 to 1 with higher values indicating higher liberalization in the financial sector. We would expect that countries with less developed financial development would experience less trade volume and vice versa. Therefore the variable *FinReform* is expected to have a positive sign. The model is written as

$$\ln T_{ijt} = \alpha_i + \gamma_j + \nu_t + \mathbf{x}_{ijt}^{'}\boldsymbol{\beta} + \delta FinReform + u_{ijt}, \quad (1)$$

Where $\ln T_{ijt}$ is the logarithmic value of bilateral exports and $\mathbf{x}_{ijt}^{'}$ is a $k\,x1$ row vector of explanatory variables normally included in the gravity model. All variables in $\mathbf{x}_{ijt}^{'}$ are stated in logarithm form except for the dummy variables. α_i, γ_j and ν_t are, respectively, exporter, importer, and time effects. *FinReform* is not log-linearized with trade variable because its values range from 0 to 1. Therefore, the estimated parameters are semi-elasticities. To account for possible differential effects of the initial level of financial development and region, we divide the data into five regions: Advanced Countries, Emerging Asia, Latin America, Middle East and North Africa (MENA), and Sub-Saharan Africa (SSA). Dummy variables representing each

region are created and the results are multiplied by the financial development index. This interaction term shows the impacts of financial development that occurred in particular region on trade.

In empirical work, a number of explanatory variables are included in the row vector $\mathbf{x}_{ijt}^{'}$ including gross domestic product (GDP), population, geographic distance, and time invariant variables such as language commonality, border measures, and trade blocs. Following Helpman (1987) and Baltagi *et al*. (2003), our empirical model includes three explanatory variables related to both gross domestic product and population: the sum of bilateral trading partner GDP as a measure of bilateral overall country size ($LGDP_{ijt}$), an index that measures relative country size ($LGDPI_{ijt}$), and the absolute difference in relative factor endowments between the two trading partners ($LGDPP_{ijt}$). As in the standard gravity model, the geographical distance between trading partners ($LDIS_{ij}$) is included in the model to represent a proxy of trade costs. We also include the commonality of language to represent cultural familiarity and regional trade agreements (RTA) variables. To measure distance proximity, we include a variable to reflect common borders between trading partners.

Including all variables, our empirical gravity equation can be expressed as follows:

$$\begin{aligned}\ln T_{ijt} = {} & \alpha_i + \gamma_j + \nu_t + \beta_1 LGDP_{ijt} + \beta_2 LGDPI_{ijt} + \beta_3 LGDPP_{ijt} + \beta_4 LDIS_{ij} \\ & + \beta_5 FinReform_{it} + \beta_6 Language + \beta_7 Border + \beta_8 RTA + u_{ijt}\end{aligned} \tag{2}$$

Where

$$LGDP_{ijt} = Ln(GDP_{it} + GDP_{jt}),$$

$$LGDPI_{ijt} = Ln\left[1 - \left(\frac{GDP_{it}}{GDP_{it} + GDP_{jt}}\right)^2 - \left(\frac{GDP_{jt}}{GDP_{it} + GDP_{jt}}\right)^2\right],$$

$$LGDPP_{ijt} = \left| Ln\left(\frac{GDP_{it}}{N_{it}}\right) - Ln\left(\frac{GDP_{jt}}{N_{jt}}\right) \right|.$$

Language is language commonality that takes a value of one if two trading partners share common language and zero otherwise. *Border* takes a value of one if two trading partners share common border and zero otherwise. *RTA* takes a value of one if a pair of countries takes part in the same RTA. All other variables are as defined previously.

Estimation Procedures

Different estimators have been proposed to estimate the log transformation of the gravity model. A widely used approach is the fixed effects model (FEM). This approach has been successful in dealing with heterogeneity issues such as the correlation between some of the exogenous variables with the model's error term. However, it does not work for time invariant variables such as distance, common language, and common borders. A second best alternative is to use a random effects estimator, which has an advantage over the fixed effects estimator in that it allows the recovery of the parameter estimates of any time invariant explanatory variables which would otherwise be removed in the fixed effects transformation. A possible drawback is that the random effects model requires that unobserved heterogeneity obey some probability constraints (Green, 2003; Wooldridge, 2002). For example, random effects impose strict exogeneity of and orthogonality between explanatory variables and the disturbance terms (Mundalk, 1978). When there is endogeneity among the right hand side of regressors, the random effects estimators are substantially biased and may yield misleading inferences (Baltagi et al. 2003).

A proposed solution to the all or nothing choice of correlation between the individual effects and the regressors is the Hausman-Taylor (HT) estimator (Hausman and Taylor, 1981).

The HT estimator allows for a proper handling of data setting when some of the regressors are correlated with the individual effects. The estimation strategy of the HT estimator is based on an instrumental variable estimator which uses both between and within variation of the strictly exogenous variables as instruments (Hausman and Taylor, 1981; Baltagi et al, 2003). The drawback is that HT can only work well if the instruments are uncorrelated with the errors and the unit effects and highly correlated with the endogenous regressors. Although the choice of the strictly exogenous variables is a testable hypothesis, it is often not a trivial task.

Recently, an alternative to no-instrumental variable estimator has been proposed by Plümper and Troeger (2007) which allows estimating the full parameter space that includes both time-varying and time-fixed regressors. The procedure is conducted through decomposing the unit fixed effects (FE) into an unexplained part and a part explained by the time invariant or the rarely changing variables and therefore is called fixed effects vector decomposition (FEVD). One major advantage of the FEVD compared to HT model is that the estimator does not require prior knowledge of correlation between the explanatory variables and the individual effects. Because of the nature of the data where time-invariant variables and rarely changing variables are involved and considering its advantages, this study adopts the FEVD approach.

The FEVD procedure consists of three steps. Let the data generating process (DGP) be

$$(3) \qquad y_{it} = \alpha + \sum_{k=1}^{K} \beta_k x_{kit} + \sum_{m=1}^{M} \gamma_m z_{mi} + u_i + \varepsilon_{it},$$

where the x and z represent vectors of time varying and time-invariant variables, respectively, u_i denotes the unit specific effects, ε_{it} is the error term, α is the intercept, and γ and β are parameters to be estimated. The first step of the FEVD approach is to estimate the standard fixed effects model. Averaging (3), we obtain:

(4) $$\bar{y}_i = \alpha + \sum_{k=1}^{K} \beta_k \bar{x}_{ki} + \sum_{m=1}^{M} \gamma_m z_{mi} + \bar{e}_i + u_i ,$$

where

$$\bar{y}_i = \frac{1}{T}\sum_{t=1}^{T} y_{it} , \ \bar{x}_i = \frac{1}{T}\sum_{t=1}^{T} x_{it} , \ \bar{e}_i = \frac{1}{T}\sum_{t=1}^{T} e_{it} .$$

Here, e represents the residual of the estimated model. Subtracting (4) from (3) removes the individual effects u_i and the time-invariant variables z, shown as follows:

(5) $$\ddot{y}_{it} = \beta_k \sum_{k=1}^{K} \ddot{x}_{k\,it} + \ddot{e}_{it} ,$$

where $\ddot{y}_{it} = y_{it} - \bar{y}_i$, $\ddot{x}_{kit} = x_{kit} - \bar{x}_{ki}$, and $\ddot{e}_{it} = e_{it} - \bar{e}_i$.

Model (5) is used to obtain the unit effects $\hat{u}_i$ where $\hat{u}_i$ includes all time-invariant variables, the constant term, and the mean effects of the time varying variables. Therefore,

(6) $$\hat{u}_i = \bar{y}_i - \sum_{k=1}^{K} \beta_k^{FE} \bar{x}_{ki} - \bar{e}_i ,$$

where β_k^{FE} is the pooled OLS estimate of (5).

Step 2 of the FEVD is to regress $\hat{u}_i$ on z to obtain the unexplained part, we call it h_i. That is

(7) $$\hat{u}_i = \sum_{m=1}^{M} \gamma_m z_{mi} + h_i .$$

The last step is to estimate (3) without the unit effects but including the unexplained part h_i using pooled OLS. This model is written as

(8) $$y_{it} = \alpha + \sum_{k=1}^{K} \beta_k x_{kit} + \sum_{m=1}^{M} \gamma_m z_{mi} + \delta h_i + \varepsilon_{it} ,$$

where $h_i = \hat{u}_i - \sum_{m=1}^{M} \gamma_m z_{mi}$.

Data

To conduct the analysis, we use annual bilateral export data on agricultural and manufacturing products for a set of 49 countries in the period 1980 and 2008. The bilateral trade data are obtained from UN COMTRADE database with SITC rev.1. The data are expressed in US dollars. We use the SITC definition to construct agricultural products. SITC6 is used to represent manufacturing products.

GDP and population were used to construct the variables LGDP, LGDPPI, and LGDPP are from World Development Indicator (WDI) of the World Bank. GDP is in billion US dollars (real value) and population is in millions. The geographical distance is in miles and is calculated between the capital cities of trading partners using the World Atlas. We use OECD data on major regional trade agreements (RTAs) to determine whether pairs of countries take part in a particular RTA. We use CIA World Factbook to assess whether two countries have at least the same official language in order to create the dummy variable Language.

Our financial development indicator is measured using a financial reform index developed by Abiad et al (2010). The index covers 91 countries representing different regions and levels of economic development. The index covers a period of 33 years from 1973 to 2005. For the period of 2006 and 2008, we assume that there was no significant reform in the financial system, therefore the index values of this period are the same as those in 2005. The index is constructed based on seven different dimensions of financial sector policy: (1) credit controls and excessively high reserve requirements, (2) interest rate controls, (3) entry barriers, (4) state ownership in the banking sector, (5) financial account restrictions, (6) prudential regulations and supervision of the banking sector, and (7) securities market policy. Each dimension is coded

from zero (fully repressed) to three (fully liberalized), giving a total value ranging from 0 to 21. The index is then normalized in the unit interval.

Estimation Results and Discussions

Table 1 gives summary statistics for the variables used in the estimations. As shown that the average value of financial reform index is 0.65 with advanced countries are far ahead than developing countries in terms of financial reforms (0.79 versus 0.52). Historical data (not reported) on structural reform indices show that the values of financial reform index is consistently lower than those of trade reform prior to 1993 and then coincide afterwards.

[Insert Table 1 Approximately Here]

Table 2 shows the regression results for the standard gravity equation and the extended gravity equation with the augmented financial development index variable. As shown, the inclusion of the financial index variable did not change the parameter estimates of the variables included in the standard gravity model. All estimated variables are statistically significant and have the expected signs. The overall bilateral country size (LGDP) and index of relative country size (LGDPI) have significant and positive effects on the amount of trade between trading partners. The magnitude estimates of LGDP and LGDPI in manufacturing sector are relatively higher than in agricultural sector. The estimated coefficients of the relative factor endowment (LGDPP) are negative, suggesting that the relative factor endowment has negative effects on trade flows. The negative sign of LGDPP suggest that the model adheres to the Linder Hypothesis which state that trade volumes are smaller the more dissimilar two countries are in terms of relative factor endowments.

[Insert Table 2 Approximately Here]

The coefficient of geographic distance (LDIST) which is usually referred to as the elasticity of trade volume with respect to distance has a negative effect and indicates strong explanatory power with a magnitude of -0.84 and -1.25 in agricultural and manufacturing sectors, respectively. Therefore, bilateral distance reduces trade less than proportionately in the agricultural sector and more than proportionately in the manufacturing sector. Numerically, these estimates suggest that a country will export agricultural products 84 percent more and manufacturing products 125 percent more if that the distance is half the distance of another otherwise-identical market. These estimates are relatively close to the average estimates of distance decay of -0.91 as reported by Disdier and Head (2008).

The common border variable is positive and significant suggesting that adjacent countries trade substantially more than non-contiguous countries. The variable of regional trade agreements (RTA) has a positive sign indicating that trade agreements raise bilateral trade among member countries. Cultural familiarity (Language) has a positive sign indicating that two countries with common language are likely to trade more. Because variables border, language, and RTA are binary and are not log-linearized with trade variable, the effects can be calculated by taking the anti logarithm. For example, the effect of the variable border is 34 percent in the agriculture sector and 28 percent in the manufacturing sector. These figures indicate that adjacent countries trade substantially more than non-contiguous countries with its effects confirming the importance of proximity for trade. Trade within RTA members is about 55 percent for agriculture and 21 percent for (manufacturing) above what could be expected from the gravity model and having the same language is expected to have higher trade by 93 percent (agriculture) and 166 percent (manufacturing).

Turning to our variables of interest, we found that the impacts of financial development variables (*FinReform*) on agricultural trade flows are positive and highly statistically significant. The effects of changes in structural reforms can be obtained by taking the anti-logarithm similar to the dummy variables. In this instance, however, we measure the effects on the basis of one standard deviation from the mean of reform variables (see de Groot et al, 2003). This will give a more substantive impact of the average impact of variation in structural reforms on agricultural exports.

The results given in Table 2 show that an increase in the financial reform index of one standard deviation from the mean leads to an increase of approximately 20 percent in agricultural exports and about 23 percent in manufacturing exports. The overall impacts seem to be marginally different between manufacturing exports and agricultural exports.

When we estimate the model by considering region, however, the results change substantially. As expected, the impacts of financial development on trade vary with the state of the economy, region, and scale economies as shown in Table 3. In the agricultural sector, financial development in Latin America has the greatest impact followed by Emerging Asia and advanced country. Our estimates indicate that an increase in the financial development index of one standard deviation from the mean leads to an increase in agricultural exports by 28 percent in Latin America. The increase is about 135 and 45 in emerging Asia and advanced countries, respectively. We found that financial development did not significantly affect agricultural exports in MENA countries and had negative impact in SSA region. The insignificant impact in MENA countries can partly be explained by the fact that MENA countries are not the main traders of world agricultural exports. On the other hand, the negative impact of financial development in SSA is surprising given the fact that the average financial development index in

SSA countries is relatively high with a value of 0.56 compared to 0.50 in Asia and 0.53 in Latin America. Although there has been some degree of financial reform within SSA countries, it is argued that such reforms have not been actually implemented or just marginally implemented because of inadequate attention to the institutional foundations of markets and poor financial infrastructure (FAO, 2003). In addition, poor access to markets of SSA producers together with agricultural support measures employed by developed countries has discouraged agricultural exports in the SSA region.

[Insert Table 3 Approximately Here]

In the manufacturing sector, we found that all estimated coefficients are statistically significant and have the expected signs with the exception of advanced countries. Our estimates suggest that Asian countries have the biggest experience in an increase in manufacturing exports due to an increase in financial development index with its magnitude of 67 percent. Unlike the agriculture sector, financial development in MENA countries has significant and substantial impacts on manufacturing exports. Our estimates indicate that an increase of one standard deviation from the mean will likely increase manufacturing exports in MENA countries by 59 percent. Similarly, SSA countries do also benefit from financial development with an estimated increase of 16 percent for an increase of financial development index of one standard deviation from the mean. Latin America enjoys a modest increase of approximately 9 percent. Financial development in advanced countries has negative impacts but is not significant. One possible reason for the insignificant impact of financial development on exports is the level of financial development in this country group where most countries have reached the level of full liberalization. Therefore, a change in the financial development index would have a marginal impact on exports.

From the above results we can conclude that financial development has a positive effect on agricultural and manufacturing exports. This positive impact can be linked to the financial development and export hypothesis. Liberalization in the financial sector can reduce credit constraints such that firms can increase their investment in response to a lowering of variable export costs; and all firms with productivity above a certain cut-off level can become exporters (Melitz, 2003). In their study on Latin American countries, Galindo and Schiantarelli (2002), for example, found that financial liberalization tends to relax financial constraints for firms that were previously constrained. Furthermore, liberalization is usually accompanied by capital account liberalization policies that allow firms to tighten their links with foreign funding sources. Consequently, firms that are more dependent on external finance are expected to grow faster when financial markets are liberalized or deregulated (Rajan and Zingales, 1998). Our findings clearly support the recent theory of the relationship between financial development and trade (e.g. Kletzer and Bardhan, 1987; Baldwin, 1989; Manova, 2008).

Conclusions

This paper empirically investigates the link between financial development and trade flows in agriculture and manufacturing and for several groups of countries. A gravity equation is adopted to estimate this linkage by augmenting a variable representing financial development. The model is estimated using fixed effects vector decomposition (FEVD) to accommodate time invariant variables.

Results indicate a positive impact of financial development on bilateral trade flows for the manufacturing sector with relatively large economies of scale and less impact for the agricultural sector. Furthermore, the impacts of financial development differ between the state of the economy and between regions. In most cases, developing countries (Asia, Latin America,

MENA and SSA) experience greater impacts of financial development on exports in both agriculture and manufacturing than in advanced countries. The level of financial development in advanced countries may have peaked due to full liberalization, so changes in financial development result only in marginal impacts.

The results have implications for policy reform in the financial sector as well. The linkages established by this study are of particular importance given the strong relationship between production and trade in most developing countries and provides a solid empirical foundation for pursuing financial reform in those economies in order to stimulate trade, economic growth and financial development.

Table 1. Summary statistics of variables used in estimations

Variable	Mean	SD	Min.	Max	N
Agricultural exports (ln)	15.83	2.94	0.69	24.08	56,117
Manufacturing exports - SITC6 (ln)	15.75	3.26	0.69	24.64	55,201
Geographic distance (ln)	8.21	0.88	3.78	9.42	56,117
LGDP	6.12	1.27	2.11	9.72	56,117
LGDPI	-1.68	1.11	-7.24	-0.69	56,117
LGDPP	1.63	1.19	0.00	5.11	56,117
Common language dummy	0.17	0.37	0	1	56,117
Contiguity dummy	0.06	0.24	0	1	56,117
Regional trade agreement dummy	0.14	0.35	0	1	56,117
Financial reform index					
Total	0.65	0.37	0.00	1.00	56,117
Advanced country	0.79	0.22	0.10	1.00	27,392
Developing country	0.52	0.26	0.00	0.95	28,725
Emerging Asia	0.50	0.23	0.00	0.81	6,321
Latin America	0.53	0.28	0.04	0.95	13,249
MENA	0.48	0.28	0.00	0.92	6,570
SSA	0.56	0.22	0.14	0.87	5,568

Data are panel average for the year of 1980 to 2008 and 2352 individual of pair-countries. The numbers of observations (N) depends on the availability of the data for each variable.

Table 2. Regression Results: Impacts of Financial Development on Trade

Variable	Standard Gravity Model		Effects of Financial Development	
	Agriculture	Manufacturing	Agriculture	Manufacturing
Intercept	9.2333***	7.8265***	8.9170***	7.4938***
	(0.311)	(0.326)	(0.312)	(0.327)
LGDP	1.9776***	3.0963***	1.9617***	3.0771***
	(0.054)	(0.057)	(0.054)	(0.057)
LGDPI	0.4274***	0.6332***	0.4306***	0.6319***
	(0.028)	(0.029)	(0.028)	(0.029)
LGDPP	-0.5172***	-0.5015***	-0.5213***	-0.5055***
	(0.006)	(0.006)	(0.006)	(0.006)
LDIST	-0.8459***	-1.2566***	-0.8439***	-1.2549***
	(0.009)	(0.009)	(0.009)	(0.009)
Border	0.2965***	0.2518***	0.2934***	0.2493***
	(0.024)	(0.025)	(0.024)	(0.025)
Language	0.6557***	0.9831***	0.6559***	0.9831***
	(0.014)	(0.015)	(0.014)	(0.015)
RTA	0.4405***	0.2088***	0.4407***	0.2094***
	(0.016)	(0.017)	(0.017)	(0.017)
FinReform	-	-	0.5023***	0.5485***
			(0.047)	(0.049)
Adj-R2	0.869	0.885	0.869	0.885
MSE	1.082	1.171	1.079	1.168
No. of obs	56,117	55,201	56,117	55,201

*** indicates significant at the 1 percent level.

Table 3. Regression Results: Regional Impacts of Financial Development on Trade

Variable	Agriculture	Manufacturing
Intercept	8.8102 (0.334)***	11.7308 (0.349)***
LGDP	1.9614 (0.058)***	2.3621 (0.061)***
LGDPI	0.4624 (0.029)***	0.4954 (0.031)***
LGDPP	-0.4672 (0.005)***	-0.4155 (0.006)***
LDIST	-0.8579 (0.009)***	-1.2687 (0.009)***
Border	0.2980 (0.024)***	0.2177 (0.024)***
Language	0.6611 (0.014)***	0.9841 (0.015)***
RTA	0.4579 (0.017)***	0.2225 (0.0171)***
Financial Reform		
Advanced country	0.1746 (0.0577)***	-0.0121 (0.060)
Asia	0.5211 (0.086)***	2.2378 (0.090)***
Latin America	0.8774 (0.052)***	0.3163 (0.055)***
MENA	0.054 (0.069)	1.6530 (0.072)***
SSA	-0.777 (0.125)***	0.6682 (0.145)***
Adjusted R2	0.8700	0.887
MSE	1.073	1.146
No. of observation	56,117	55,201

*** indicates significant at the 1 percent level.

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