



Comparative advantage, demand for external finance, and financial development ☆

Quy-Toan Do^a, Andrei A. Levchenko^b  

Show more 

 Share  Cite

<https://doi.org/10.1016/j.jfineco.2006.11.004> 

[Get rights and content](#) 

Abstract

This paper analyzes the effect of comparative advantage in international trade on a country's level of financial development. Countries with comparative advantage in financially intensive goods experience a higher demand for external finance, and therefore financial development. By contrast, financial development is lower in countries that primarily export goods which do not rely on external finance. We use disaggregated trade data to develop a measure of a country's external finance need of exports, and demonstrate this effect empirically. In order to overcome the simultaneity problem, we develop a novel instrumentation strategy based on the exogenous geographic determinants of trade patterns.

Introduction

A quick glance at the levels of financial development across countries reveals large differences. Fig. 1 plots the ratios of private credit to GDP and trade openness to GDP starting in 1970 for developing and advanced countries. The average share of private credit to GDP is more or less three times higher in advanced countries than in developing countries throughout the period. On the other hand, trade volume as a share of GDP grew faster in developing countries, which have now surpassed the advanced ones. What explains persistent financial underdevelopment? In particular, can we say something about the relation between financial development and trade openness?

The literature has often emphasized the idea that the financial system is an endowment. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) provide empirical evidence that a country's legal origin is a strong and arguably exogenous determinant of a country's financial development. When it comes to institutions more broadly, Acemoglu, Johnson, and Robinson (2001) document that the quality of institutions is largely determined by settler mortality rates during the colonial period. Applying these insights to international trade immediately suggests a pattern of comparative advantage: countries endowed with better financial

systems will specialize in goods that rely on external finance in production. Indeed, this idea has been formalized theoretically by Kletzer and Bardhan (1987), Baldwin (1989), and Ju and Wei (2005), and has found empirical support in a number of studies (e.g., Beck, 2002, Beck, 2003; Becker and Greenberg, 2005, Svaleryd and Vlachos, 2005, Manova, 2005).

The purpose of this paper is to show the reverse link: financial development itself depends on trade patterns. We argue that financial development is endogenous, and that it is determined in part by demand for external finance in each country. Comparative advantage in trade will affect a country's production pattern, and in turn its demand for external finance. Countries specializing in financially dependent goods will have a high demand for external finance and thus a high level of financial intermediation. In contrast, the financial system will be less developed in countries that specialize in goods not requiring external finance. This paper first illustrates this point using a very simple model in which goods differ in their reliance on external finance. Comparative advantage implies that after trade opening, the financially intensive sector expands in one country and disappears in the other. This change in production patterns in turn has implications for equilibrium financial development in the trading countries.

Next, we demonstrate this effect empirically. For a sample of 96 countries over the period 1970 to 1999, we use industry-level export data and information on each industry's reliance on external finance from Rajan and Zingales (1998) to build a measure of the *external finance need of exports*. This measure, constructed following the methodology of Almeida and Wolfenzon (2005), summarizes the demand for external finance that comes from a country's export pattern. We then use a comprehensive data set on financial development first introduced by Beck, Demirgüç-Kunt, and Levine (2000) to show that a country's financial development is strongly and robustly affected by the external finance need of its exports.

Our preferred coefficient estimates imply that moving from the 25th to the 75th percentile in the distribution of external finance need of exports is associated with an increase in financial development of about one standard deviation, or a 33 percentage point rise in private credit to GDP. This effect is economically significant. For example, Greece is roughly in the 25th percentile of the distribution of external finance need of exports: its main export categories are Wearing Apparel and Food Products, which do not rely much on external finance according to our data. Its average private credit as a share of GDP over the period 1970–1999 is 0.35. Moving up to the 75th percentile in the distribution of external finance need of exports would put it roughly at the level of Spain, whose main export categories are Transport Equipment and Machinery. Our estimates imply that this change in external finance need of exports would almost double Greece's private credit as a share of GDP, to 0.68. Indeed, this is only slightly below the corresponding figure for Spain, which is 0.74 over the same period.

This effect is sizeable when compared to the other determinants of financial development identified in the literature. Beck, Demirgüç-Kunt, and Levine (2003) examine the impact of legal institutions and natural endowments on the financial system. They find that in the French legal origin countries, private credit as a share of GDP is 17–27 percentage points lower than in British legal origin countries. These authors also find that a one-standard deviation decrease in the log of settler mortality (see Acemoglu, Johnson, and Robinson, 2001) raises private credit as a share of GDP by 14 to 17 percentage points. These are similar in magnitude to the effect of moving from the 25th to the 75th percentile in the distribution of external finance need of exports. Thus, the role of trade identified in this paper is arguably as prominent in shaping financial development as the traditional explanatory variables such as legal systems and endowments.

A key feature of this paper is the way it addresses the simultaneity problem arising in this exercise. We require an instrument for a country's export pattern. In order to construct such an instrument, this paper

expands the geography-based methodology of Frankel and Romer (1999). These authors use the gravity model to predict bilateral trade volumes between each pair of countries based on a set of geographical variables such as bilateral distance, common border, area, and population. Summing up across trading partners then yields, for each country, its “natural openness:” the overall trade to GDP as predicted by its geography. Because we need an instrument for trade patterns rather than total trade volumes, our point of departure is to estimate the Frankel and Romer gravity regressions for each industry. Following their methodology, we then obtain the predicted trade volume as a share of GDP not just in each country, but also in each sector within each country.¹ Doing so allows us to construct each country's predicted external finance need of exports based on its predicted trade shares in each sector. We then use it as an instrument for the actual external finance need of exports.

The model used to illustrate the main idea has two sectors, one of which relies on external finance. The size of the financial system, that is, the amount of borrowing and lending that occurs in the economy, is naturally a function of total output in the financially intensive sector. An additional feature of our theoretical setup is that the quality of the financial system is a function of its size. In the model, as well as conceptually, the quality of the financial system is defined by how successfully entrepreneurs with positive net present value projects can obtain external finance. A larger financial sector improves the entrepreneurs' ability to fulfill their need for external finance. This is because when entrepreneurs start financially intensive projects and engage the country's financial system, they add liquidity. They become potential providers of external finance for fellow entrepreneurs, reducing the likelihood of financial distress. Each entrepreneur who invests in the financially intensive sector hence generates a positive spillover by increasing financial depth.² Opening to trade will affect demand for external finance in both trading countries. In particular, the financial system deepens in a country that increases production of the financially dependent good. In the other country the financially dependent sector shrinks, leading to a deterioration in the size and quality of the country's financial system.

The assumptions underlying our model find support in empirical studies that relate the size of financial systems to their quality. Levine and Schmukler (2006) find evidence of a causal link between market size and financial depth. When looking at domestic market liquidity in emerging economies, they find that when some firms decide to raise finance abroad, the remaining domestic firms' trading liquidity is adversely affected. Note also that in most empirical studies of financial development, the positive association between size and quality is implicit. The quality of a financial system—financial development—is often proxied by measures of market size such as ratios of private credit to GDP or stock market capitalization to GDP.

This paper is not the first to explore the effect of trade on financial development. Rajan and Zingales (2003) argue that trade opening, especially when combined with openness to capital flows, weakens the incentives of incumbent firms to block financial development in order to reduce entry and competition. Furthermore, the relative political power of incumbents may decrease with trade as well. Thus, these authors argue that trade has a beneficial impact on financial development. Braun and Raddatz (2005) explore the political channel further. They demonstrate that countries in which trade liberalization reduced the power of groups most interested in blocking financial development saw an improvement in the financial system. When, on the other hand, trade opening strengthened those groups, external finance suffered. This paper can be thought of as complementary to Rajan and Zingales (2003) and Braun and Raddatz (2005). While these two studies are about how trade affects the supply of external finance, this paper focuses instead on the demand side.

It is also important to note that trade may affect financial development through a variety of other channels. Newbery and Stiglitz (1984) argue that trade, by affecting price elasticity, can potentially increase

uncertainty and income volatility. Financial development could then be fostered by increased demand for insurance, though Broner and Ventura (2006) show that the outcome is sensitive to assumptions about the nature of asset market frictions.³ While a Newbery and Stiglitz-type of argument invokes the role of financial markets for insuring risk in consumption, in this paper the financial system plays a role on the production side. Thus, in contrast to the consumption insurance view, the focus of this paper is on the differential impact of trade across countries as a function of the pattern of comparative advantage.

The rest of the paper is organized as follows. Section 2 presents a stylized model of an economy in which the quality of a financial system and its size are jointly determined. We then open the economy to trade and look at the changes in the financial system size and quality as a function of comparative advantage. Section 3 describes our empirical methodology. We construct a measure of external finance need of exports, and present the estimating equation. We then discuss in detail the construction of the instrumental variable that will allow us to identify the causal impact of trade on financial development. Section 4 describes the data used in this paper. Section 5 presents the estimation results, and Section 6 concludes.

Section snippets

The environment

Consider an economy with one factor, L (labor) and two goods: a financially dependent good F and a simple good A . The time horizon consists of the interval $t \in [0, 1]$, and consumption takes place at $t = 1$. Utility is Cobb-Douglas in the two goods: $U(c_F, c_A) = c_F^\alpha c_A^{1-\alpha}$. Let good A be the numeraire, and p_F be the relative price of good F in terms of A . Utility maximization implies the following relation between consumption and the relative price: $p_F = \frac{\alpha}{1-\alpha} \frac{c_A}{c_F}$.

There is a potentially infinite number of...

Empirical methodology

The main point of the paper is that to the extent financial development is an outcome of supply and demand for external finance, a country's trade patterns will affect its financial development. Countries whose trade specialization implies that they produce and export financially dependent goods will experience a higher level of financial development than countries producing goods for which it is not important to rely on external finance, all else equal. This is especially true of conventional...

Data description

International trade flows come from the World Trade Database described in Feenstra, Lipsey, Deng, Ma, and Mo (2005). This database contains bilateral trade flows between more than 150 countries, accounting for 98% of world trade, for the period 1962–2000. Trade flows are reported using the four-digit SITC Revision 2 classification. Since the variable of interest, $EFNX_{ct}$, is constructed using information on total exports from each country in each industry, we first aggregate bilateral flows...

Sector-level gravity estimation

In order to build the instrument, our procedure estimates Eq. (17) for each industry. The left-hand side variable is averaged over the period 1970–1999, allowing us to increase the sample size as trade observations are sometimes missing in individual years. The results are reported in Appendix Table A2, which has a column for each individual sector. In the set of the sector-level regressions, the smallest number of observations is 5,011, and the largest is 12,750, with a mean of 8,523. The R^2 's ...

Conclusion

It is often argued that institutional quality in general and financial development in particular are shaped largely by exogenous historical events. It is then natural to think of the financial system as an endowment, and therefore differences in financial development as sources of comparative advantage in trade. This paper takes a different view by asking instead whether trade patterns in turn affect countries' financial development. This is an important question. There is a great deal of...

References (52)

H. Almeida *et al.*

[The effect of external finance on the equilibrium allocation of capital](#)

Journal of Financial Economics (2005)

T. Beck

[Financial development and international trade. Is there a link?](#)

Journal of International Economics (2002)

T. Beck *et al.*

[Law, endowments, and finance](#)

Journal of Financial Economics (2003)

W. Easterly *et al.*

[Tropics, germs, and crops: how endowments influence economic development](#)

Journal of Monetary Economics (2003)

K. Kletzer *et al.*

[Credit markets and patterns of international trade](#)

Journal of Development Economics (1987)

R. Levine

[Finance and growth: theory and evidence](#)

R. Rajan *et al.*

[The great reversals: the politics of financial development in the 20th Century](#)

Journal of Financial Economics (2003)

J. Rauch

[Networks versus markets in international trade](#)

Journal of International Economics (1999)

H. Svaleryd *et al.*

Markets for risk and openness to trade: how are they related?

Journal of International Economics (2002)

H. Svaleryd *et al.*

Financial markets, the pattern of industrial specialization and comparative advantage: evidence from OECD countries

European Economic Review (2005)



View more references

Cited by (143)

Growth and risk: A view from international trade

2023, Journal of International Economics

Show abstract

Openness effects on the rule of law: Size and patterns of trade

2021, International Review of Law and Economics

Show abstract

Preferential trade agreements and MFN tariffs: Global evidence

2021, European Economic Review

Show abstract

Openness, economic uncertainty, government responses, and international financial market performance during the coronavirus pandemic

2021, Journal of Behavioral and Experimental Finance

Show abstract

Financial system architecture and the patterns of international trade

2021, European Economic Review

Citation Excerpt :

...We then look at the impact of countries' trade patterns on the development of their banking sectors relative to their financial markets. We follow the instrumental variable strategy of Do and Levchenko (2007), who show that the external finance requirements of a country's exports affect its financial development. Here, we show that the bank finance requirements of a country's exports affect the development of its banking sector relative to its financial market, providing support for our second explanation....

Show abstract

The Impact of the Openness of Trade and Finance on Financial Development: Evidence from Emerging Markets

2023, SSRN



[View all citing articles on Scopus](#)

Recommended articles (6)

Research article

[Revisiting the employment impact of offshoring](#)

European Economic Review, Volume 66, 2014, pp. 63-83

[Show abstract](#)

Research article

[Production network structure, service share, and aggregate volatility](#)

Review of Economic Dynamics, Volume 39, 2021, pp. 146-173

[Show abstract](#)

Research article

[The smile curve at the firm level: Where value is added along supply chains](#)

Economics Letters, Volume 164, 2018, pp. 38-42

[Show abstract](#)

Research article

[Financial development and the choice of trade partners](#)

Journal of Development Economics, Volume 116, 2015, pp. 122-145

[Show abstract](#)

Research article

[Financial development and innovation: Cross-country evidence](#)

Journal of Financial Economics, Volume 112, Issue 1, 2014, pp. 116-135

[Show abstract](#)

Research article

[Revisiting the external financial dependence index in light of the rise of corporate net lending: What do we really measure?](#)

Structural Change and Economic Dynamics, Volume 58, 2021, pp. 361-376

[Show abstract](#)

☆ We are grateful to Daron Acemoglu, Thorsten Beck, Simon Johnson, Aart Kraay, Alan Winters, an anonymous referee, and workshop participants at MIT, the World Bank, Brown, CEPR ERWIT (Vienna), the IXth workshop in International Economics and Finance (Santiago) and the IMF Institute for helpful comments. The views expressed in this paper are those of the authors and should not be attributed to the International Monetary Fund, the World Bank, their Executive Boards, or their respective managements.

[View full text](#)

Copyright © 2007 Elsevier B.V. All rights reserved.



Copyright © 2023 Elsevier B.V. or its licensors or contributors.
ScienceDirect® is a registered trademark of Elsevier B.V.

RELX™