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MARITIME CONNECTIVITY AND TRADE

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MARITIME CONNECTIVITY AND TRADE

by

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Abstract

Connectivity is a crucial determinant of bilateral exports. This paper presents an empirical assessment of the relationship between maritime connectivity and exports in containerizable goods during the period 2006-2012. Based on a unique dataset empirical investigations unequivocally show that lacking a direct maritime connection with a trade partner is associated with lower values of exports. Estimates point to a range varying from minus 42 per cent to minus 55 per cent. When assessing the effect of the number transhipments necessary to connect country pairs, any additional transhipment is associated with a 20 to 25 per cent lower value of exports. Results further suggest that in the absence of a bilateral connectivity indicator the impact of bilateral distance on bilateral exports is likely to be over-estimated.

Keywords: Maritime Transport, Sea Distance, Containerizable Trade, Trade Costs

JEL Classification: C61, F1, L91

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Any mistakes or errors remain the authors' own.

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Executive Summary

Access to foreign markets is a critical determinant of export performance. In technical literature foreign market access is seen as representing the foreign market potential of a country and relates inter alia inversely to bilateral transport costs.

The existence of a direct maritime connection has also been recognized to play an important role in determining trade costs. However, little theoretical and empirical attention has been devoted to its impact on bilateral exports. The lack of comprehensive evidence on the relationship between maritime connections and bilateral exports is due to the lack of data to a large extent.

The objective of this paper is to fill this gap by using novel information on maritime connections for a sample of 178 countries collected over the 2006-2012 period. Some basic statistical analysis reveals that over the whole period on average about 14 per cent of country pairs are connected directly, about 11 per cent need a single transhipment, about 36 per cent two transhipments and about 28 per cent three transhipments. This is to say that about 61 per cent of country pairs are connected with no more than two transhipments and around 90 per cent with no more than three transhipments.

This paper is a first assessment of the impact of the nature of maritime connections on bilateral exports of containerizable goods using a comprehensive set of country pairs observed over several years. Although a causal relationship remains difficult to identify, our estimates suggest that the absence of a direct connection is associated with a drop in exports value varying between 42 and 55 per cent depending on the underlying empirical specification. Results also indicate that any additional transhipment is associated with a drop in exports value varying between 20 and 25 per cent. We also find evidence that the relationship between bilateral exports and the number of transhipments necessary to transport containerizable goods between two countries is likely to be non-linear. These results suggest that the quality of maritime connectivity is likely to be a preponderant determinant of foreign market access.

By definition landlocked could not enjoy any direct connection with any trade partner but contiguous countries. The above results provide an estimate of the handicap in terms of export value landlocked countries have to face on top of the impact of the quality of transit transports.

High transport costs continue to constitute the greatest impediment to LDCs' trade competitiveness, equitable access to global markets. The improvement of the quality of maritime connectivity should be at the core of any strategy aiming at stimulating exports and promoting the participation of the domestic economy in global chains of production. Such improvement could only contribute to the reduction of transport costs.

Intervening efficiently on maritime connectivity is certainly not an easy task. Several options exist and their respective desirability could only reflect country specific characteristics. However, investing in infrastructures would be vital in all options. This would require a financial effort most countries are not able to bear alone. International cooperation and partnerships is thus crucial. International cooperation and partnerships could take the form of establishing strategies aiming at creating incentives for shipping companies to serve destinations which are not necessarily profitable in first place. For instance, it could consist in granting companies serving "remote" countries some preferential access to major maritime hubs around the world.

1. INTRODUCTION

Maritime transport is at the core of international trade in merchandises. Around 80 per cent of volume of goods exchanged in the world are transported via sea (UNCTAD, 2008). The predominance of maritime transport is explained to a large extent by an exponential intensification of containerized transport services. Thanks to containerization and the global liner shipping network, small and large exporters and importers of finished and intermediate containerizable goods from far away countries can trade with each-other, even if their individual trade transaction would not economically justify chartering a ship to transport a few containers from A to B. Thanks to regular container shipping services and transhipment operations in so-called hub ports, basically all countries are today connected to each other. A recent empirical study confirmed the "... effects of the Container Revolution on World Trade" (Bernhofen et al., 2013). As far as North-North trade is concerned the authors found a cumulative (concurrent plus lag effects) average treatment effect of containerization over a 20 year time period amount to 790 per cent. The cumulative effect of bilateral GATT membership is found to raise trade by an average of 285 per cent, which is less than half the cumulative effect of full containerization.

Despite a growing participation of developing countries in seaborne trade,¹ evidence on maritime connections suggests that, except for few of them such as China, they may have not reached their full potential. Fugazza and al. (2013) using a novel dataset find that the average number of direct maritime connections, meaning without involving any transhipment of the transported goods between the country of origin and their destination, is half for developing countries that it is for developed ones.

Recent literature has emphasized the importance of transport costs and infrastructure in explaining trade and access to international markets. Different empirical strategies have been used to produce estimates of the overall level of transport costs and eventually of their impact on the exchange of goods. Several studies used the ratio between imports CIF and imports FOB to proxy transportation costs, the so-called cif/fob ratio (e.g. Baier and Bergstrand 2001, Hummels and Lugovskyy 2006). Estimates vary essentially with the level of product aggregation. A reasonable average estimate of such ratio computed based on total imports CIF and FOB at the country level ranges between 6 per cent and 12 per cent. At more disaggregated product levels their dispersion increases. Approximations of CIF/FOB ratios are higher for developing than for developed regions. UNCTAD estimates that in the last decade, freight costs amounted 6.4 per cent for developed countries' imports as compared to 10.6 per cent for Africa (UNCTAD, 2011).

Based on the estimation of a gravity model using US data, Anderson and Van Wincoop (2003) found that transport costs correspond to an average ad valorem tax equivalent of 21 per cent. These 21 per cent include both directly measured freight costs and a 9 per cent tax equivalent of the time value of goods in transit. Using a similar empirical approach, Clark and al. (2004) estimates reveal that for most Latin American countries, transport costs are a greater barrier to U.S. markets than import tariffs. They also find that ports efficiency is an important determinant of shipping costs.

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