

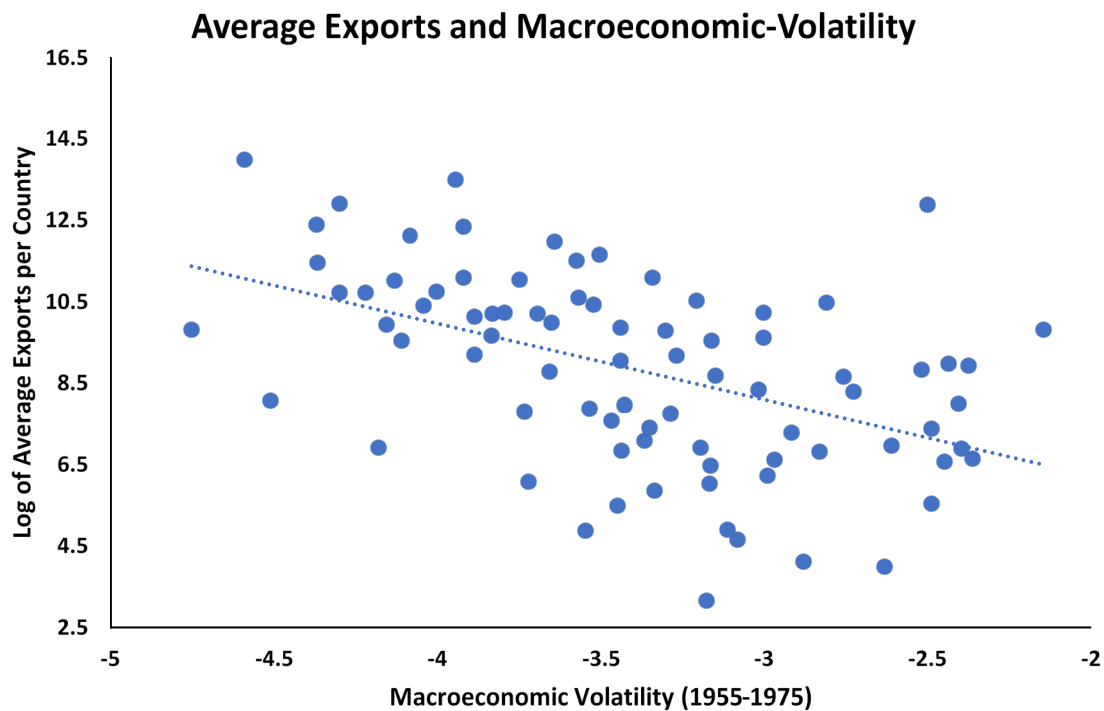
Why Does Volatility Matter for International Trade?

By Roman Merga

Exports vary significantly across countries. Understanding the main reasons behind these cross-country differences is relevant for improving our knowledge about the determinants of trade flows across nations. This knowledge can provide useful insights for the design of policies and mechanisms that will allow societies to reach higher living standards through the gains of international trade.

When we focus on the average exports per country, there is a relationship between how volatile a country is and how much it exports to the rest of the world. Figure 1 shows that countries that are characterized by higher macroeconomic volatility export less on average to each destination.^{1,2}

Figure 1



Standard theories predict that international trade depends on a set of different variables such as GDP, various trade barriers, among others. However, after controlling for them, the relationship between aggregate exports and volatility still holds. This suggests that standard theories of international trade

¹ Macroeconomic volatility refers to the standard deviation of the time-series cyclical component of the estimated total factor productivity of a country. The standard deviation of this variable corresponds to the period 1950-1980.

² The data on average exports per country come from the CEPPi foundation, TradeProd database. See de Sousa, Mayer, and Zignago (2012) for a further discussion and application of it. The data for total factor productivity come from Penn World Tables, for details about the data see Feenstra, Inklaar, and Timmer (2015).

are not able to capture this relationship in the data, inviting us to think about the relevance and origins of this relationship.

Understanding the genesis of this relationship is important for several reasons. First, it may provide new explanations for unknown factors limiting international trade across nations. Second, it can also provide guidance for implementation of different policies that aim to boost countries' engagement with international markets. And third, it may also help us to understand other open questions in international trade, such as why developing economies face more difficulties exporting.

In my current working paper, "[International Trade, Volatility and Income Differences](#)," I find that the negative relationship between macroeconomic volatility and exports is a key factor for understanding why developing economies export less. I then show that the root of this negative relationship between total exports and macroeconomic volatility lies in how macroeconomic volatility affects firms' decisions to grow in foreign markets.

For a firm, serving foreign markets is costly, and so firms grow slowly into them. As firms face higher domestic risk, this discourages them from growing in foreign markets over their life cycle. Using firm-level data from Colombia, I find that the evolution of firms' export share over their life cycle is related to the domestic risk that firms face. As firms are more exposed to domestic risk, the growth rate of their export share becomes smaller, suggesting that domestic risk and firms' reaction to it may be important for explaining the relationship between total exports and macroeconomic volatility.

These firm-level results are consistent with a growing body of research that has estimated that firms' expansion in foreign markets is potentially harder than in domestic markets.³ Naturally this implies that, as firms are more exposed to domestic risk, they are less willing to undertake the necessary investments to grow in foreign markets. As firms invest less in growing in foreign markets, their opportunity cost of leaving them becomes smaller. Volatility then not only reduces firm exports, but also makes firms less willing to hold on to the export markets.

But can this reaction of firms' growth be enough to explain the aggregate relationship? The answer lies in understanding that the aggregate level of exports of a country is given by the combination of two main components: how many firms export and the average sales of each exporter. The level of macroeconomic volatility in a country affects both margins. It reduces firms' incentives to grow in foreign markets and the number of firms willing to sell to foreign markets. This translates to changes in both the average exports per exporter and the number of exporters in the economy, explaining a big part of the negative relationship between total exports and volatility.

In conclusion, these results provide new insights on the genesis of the unexplained components that shape the patterns of international trade: insights that will hopefully help us to think about optimal

³ For a summary of the relevance and determinants of firms' dynamics, see Alessandria, Arkolakis and Ruhl (2021).

economic policies that will allow countries to take full advantage of the gains that international trade can provide.

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