## The Importance of Facilitating Imports for International Trade Flows: Evidence from the Auto Industry

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mores are becoming more important than ever in world trade in the face of rapid globalization and the spread of global supply chains. One way to boost imports is through efficient regulations and practices. While the impact of regulatory restrictions is well established for exports, their effect on imports has been studied to a lesser extent across countries. This Brief aims to help fill that gap. Focusing on the auto industry, it analyzes the relationship between efficient import procedures and international trade flows in 190 economies. An analysis of the data at the global level suggests that economies where importing auto parts is relatively fast and inexpensive tend to have not only higher imports of auto parts (in terms of volume and value) and a higher ratio of imports of auto parts to total GDP, but also a higher ratio of imports of overall manufactured products to total GDP. Similarly, economies with efficient procedures when importing auto parts tend to have a greater share of automobile exports of total GDP. The Brief does not provide a causal interpretation and more analysis will be needed to understand the direction of the relationships. But given the strong positive association between the efficiency of import procedures and international trade, streamlining import regulations appears to be an important aspect for policy makers to focus on in formulating trade policy.

Efficient import regulations and practices can boost trade. Full implementation of the World Trade Organization (WTO) Trade Facilitation Agreement, which aims at cutting red tape and simplifying export and import processes, could increase world trade by 0.6 percent, the Organisation for Economic Co-operation and Development (OECD) estimates (OECD 2018). While exports have typically been highlighted in the literature on international trade regulations, and are often considered to be a crucial driver of a country's economic development (see, for example, Crivelli and Groeschl 2016; Fontagné et al. 2015; Crozet, Milet, and Mirza 2016), imports are no less important. As David Ricardo noted centuries ago in his theory of competitive advantage, imports have played a key role in allowing countries to fully exploit their comparative advantage and focus their efforts on the sectors where production is the most efficient and competitive.

While the impact of regulatory restrictions is well established for exports (see, for example, Crivelli and Groeschl 2016), their effect on imports has been studied to a lesser extent. Several studies analyze the relationship between import regulations and the value of imports for specific countries (Pierola et al. 2018; Fernandes, Hillberry, and Mendoza Alcantara 2015; Soloaga, Wilson, and Mejia 2006). However, there is less cross-country evidence on such relationships. Burdensome trade procedures are associated with increased time and cost to import, as measured by the World Bank's annual reports on *Doing Business*. The objective of this Global Indicators Brief is to analyze the relationship between efficient

import procedures and international trade flows. The Brief, however, does not provide a causal interpretation. More analysis will be needed to understand the direction of the relationship.

The Brief focuses on evidence from the auto industry, which is often highlighted as an example of a global manufacturing industry (Sturgeon, Biesebroeck, and Gereffi 2007). While export products vary across economies, countries tend to import similar products as a result of intra-industry trade and well-developed supply chains (World Bank 2015).

# Why Are Efficient Import Regulations and Practices Important?

Imports are becoming ever more important in world trade in the face of rapid globalization and the spread of global supply chains. Readily available imported products allow domestic enterprises to have access to a wide range of goods of better quality at a competitive price. Moreover, larger volumes, more variety, and higher quality of imported products are associated with higher volumes and quality of exports, increased economic growth rates, and more diversification of export markets (Pierola et al. 2018).

Imports can also be an important channel for technology transfer to the importing country (Almeida and Fernandes 2008). In addition, technology transfers can lead to the diffusion of new technologies across different industries in the importing country (technological spillovers) (Keller 2002). Overall, imports of technology and associated gains in

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productivity are considered to be an important channel by which international trade leads to economic growth (Wacziarg and Welch 2008).

Efficient import regulations are crucial to ensure the smooth functioning of the international trade system, as documented by a number of studies around the world. The implementation of advanced customs clearance procedures is associated with a greater total value and diversification of imports in Peru (Pierola et al. 2018). Evidence from Albania suggests that a reduction in customs processing time, linked to the introduction of a risk-management inspection system, leads to increased import values (Fernandes, Hillberry, and Mendoza Alcantara 2015). Another study on the import of trade facilitation measures in Mexico shows that import reforms could generate an increase of about 11 percent in the value of imports, with the largest gains coming from improved efficiency of ports (Soloaga, Wilson, and Mejia 2006).

#### The Increased Importance of Non-Tariff Measures as Barriers to Imports

Despite their importance, import flows continue to face hurdles. As import tariff levels have been falling, the role of non-tariff measures (NTMs) has been growing (EDB 2015). NTMs today have a bigger influence on trade than tariffs, and their variety makes them much harder to measure (UNCTAD and World Bank 2018). Governments impose NTMs to meet an array of public policy goals such as addressing public health externalities, improving consumer protection, or enhancing national security (Ronen 2017). While an NTM may be the best solution to achieve a legitimate public policy goal, the same measure may also be used for protectionist purposes or may lead to unnecessary trade costs (WTO 2012). For instance, this can be the case when governments introduce NTMs to address amarket failure but do not remove them after the problem is resolved.

NTMs are a major obstacle for small and medium enterprises when trading across borders (WTO 2016), restricting imports and reducing the probability of exporting (Crivelli and Groeschl 2016; Devadason, Chandran, and Kalirajan 2018; El-Enaby, Hendy, and Zaki 2016). NTMs may generate additional costs for producers and traders, which can increase prices (UNESCAP 2019). For instance, the introduction of NTMs in the apparel sector increased prices by 66 percent in the European Union, and the introduction of NTMs on vegetable oils and fats in South Africa increased prices by 90 percent (Andriamananjara et al. 2004). In turn, NTMs can increase the cost of living. A study on 65 countries found that the introduction of NTMs raised trade unit values, with prices rising an average of about 8 percent in half the products assessed (Cadot and Gourdon 2016). Further, an analysis of Malaysia's NTMs on food imports from neighboring countries in the Association of Southest Asian Nations confirms that technical standards restrict imports (Devadason, Chandran, and Kalirajan 2018).

Non-tariff barriers (NTBs) are a subset of NTMs that have a protectionist or discriminatory intent that restrict trade (International Trade Center). NTBs involve additional compliance measures that may discourage exporters from entering the market of the country imposing such standards, therefore curtailing imports. NTBs include technical barriers to trade; preshipment and conformity inspections; nonautomatic licensing; quotas and other quantitative controls; and price control.

### Figure 1The Relationship between the Efficiency of Import Procedures and Trade Flows



#### Economies with more efficient import procedures have greater values and volume of imports.

#### Source: Doing Business 2020; ITC Trade Maps 2018.

*Note:* The sample includes 180 observations for panel a and 135 observations for panel b. The figures use country codes from *Doing Business*. Further regressions for panel a and panel b highlight that the relationships are significant at the 1 percent level and remain significant after controlling for income level, population, and tariff rates for HS8708 (auto parts and other vehicle parts). A further check on robustness added controls on natural resource endowment and share of value added of manufacturing sector of total GDP; the results remain significant at the 1 percent level. After adding the respective controls, the sample reduces to 106 observations for both panels. Data for the following are from the World Development Indicators database (2018): (1) gross national income (GNI) per capita, a proxy for income level; (2) exports of fuel as a share of merchandize exports (2018), a proxy of natural resources endowment; (3) value added of manufacturing sector as a share of GDP (2018); and (4) on population size (2018). As a proxy for tariff levels, data on the tariff level from the HS of Tariffs for HS 8708 (auto parts and other vehicle parts) are taken from ITC Trade Maps from 2018.

## How Are Efficient Import Regulations and Practices Related to Trade?

The Trading across Borders import data serve as a proxy for the efficiency of import regulations and practices in an economy. Thus, this measure is used as the main independent variable for the analysis.<sup>1</sup> Data from the International Trade Center (ITC) are used to identify the main dependent variables. Specifically, the Brief relies on the value and volume of imports of auto parts as reported by the relevant category in the Harmonized Schedule (HS) of Tariffs, (HS8708). Further, the value of imports of auto parts and the value of exported vehicles (HS87) are used to construct variables on the share of imports of auto parts and the share of exports of vehicles of total GDP. Not surprisingly, an analysis of the data at the global level suggests that economies with more efficient import procedures have higher levels of imports, in terms of both volume (figure 1, panel a) and value (figure 1, panel b).

Furthermore, economies with better performance on the import component of the Trading across Borders indicator tend to have a higher ratio of imports of auto parts to total GDP. In particular, economies in which it is relatively fast and inexpensive to import auto parts tend to import more auto parts (figure 2 and table 1). The relationship is notably significant when it comes to time and cost to import (time at a 1 percent level and cost at a 5 percent level). More efficient import procedures are also associated with higher ratio of imports of manufactured products to total GDP in general, even after taking several relevant controls into account. While this illustrates an association between efficient import procedures and imports, further research is needed to understand the direction of such a relationship. In the Slovak Republic, which ranks first on the ease of trading across borders in 2018/19, imports of auto parts represent 10 percent of total GDP. The Slovak Republic imports auto parts mostly from Germany, and no border control nor customs requirements are applicable because both countries belong to the European Union. On the other hand, economies with cumbersome import regulations, such as Cameroon and Tanzania, have smaller ratios of imports of auto parts to total GDP. Cameroon and Tanzania require conformity inspections at origin when importing auto parts, which adds to the time and cost to trade.

The recent fragmentation of production processes has been accompanied by a rise in the trade of intermediate goods. While world exports increased almost six-fold from 1990 to 2018 (from US\$4.3 trillion to US\$25.129), GDP has grown more slowly, by nearly four-fold, from US\$22.656 trillion to US\$85.91 trillion (World Bank World Development Indicators database). The higher growth of exports can be explained by the increasing trade in intermediate goods that are exported several times before being turned into a final product (Nordås 2003).

Countries' exports increasingly embody value added that is previously imported through global value chains. Thus, import policies have become an important determinant for further exports, as noted in the 2020 *World Development Report* (World Bank 2020). Factors such as import tariffs on intermediate goods and raw materials, are important for exports (Fernandes, Kee, and Winkler 2020; Ali and Dadush 2011). With the decline in tariff barriers, the significance of non-tariff measures on imports, such as border and documentary requirements, is even more pronounced for the export of final products.

#### Figure 2





Source: Doing Business 2020; World Development Indicators database; ITC Trade Maps 2018.

Note: The sample includes 176 observations. The figure uses country codes from Doing Business.

A futher regression highlights that the relationship is significant at the 1 percent level and remains significant after controlling for income level, population, and tariff rates for HS8708 (auto parts and other vehicle parts). A further check on robustness added controls on natural resource endowment and share of value added of manufacturing sector of total GDP; the results remain significant at the 1 percent level. After adding the respective controls, the sample reduces to 106 observations.

	Ratio HS8708 imports total GDP	Ratio HS8708 imports total GDP	Ratio HS8708 imports total GDP
Trading Across Borders Import Score (2019)	0.2935*** (0.005)	0.2639*** (0.009)	0.1814** (0.014)
Log GNIpc (2018)		0.0161 (0.645)	0.0303 (0.427)
Tariff rates for HS8708 (2018)		-0.0060 (0.240)	-0.0060 (0.241)
Share manufacturing total GDP (2018)			0.0367** (0.028)
Share Fuel merchandise exports (2018)			-0.0042* (0.068)
Constant	-3.94e-09 (1.0)	-0.1086 (0.753)	-0.6367 (0.109)
Number of observations	106	106	106
Adjusted R-sq.	0.077	0.062	0.109
p-values in parenthesis * p<0.1. ** p<0.05. *** p<0.01	·	·	

#### Table 1 The Relationship between the Efficiency of Import Procedures and Imports of Auto Parts

Source: Doing Business 2020; World Development Indicators database; ITC Trade Maps 2018.

*Note:* The sample includes 106 observations. Using standardized variables for the "ratio of imports of HS8708 to GDP" and "Trading Across Borders Import Score" variables in the model, the regression analysis shows that the relationship is significant at the 1 percent level and remains significant after controlling for income level and tariff rates for HS8708 (auto parts and other vehicle parts). A further check on robustness added controls on natural resource endowment and share of value added of manufacturing sector of total GDP; the results remain significant at the 5 percent level.

A cross-country analysis suggests that economies with better regulations and practices when importing auto parts tend to have higher shares of exports of vehicles (HS87) of total GDP (table 2). While this relationship is significant across income groups, the association is more pronounced for high-income and upper-middle income economies (figure 3). This analysis demonstrates an association between efficient import processes and exports, although further research is needed to establish causality.

Among the group of upper-middle and high-income economies, the Czech Republic is one of the best performers on the ease of trading across borders and one of the countries with the highest share of exports of vehicles of total GDP (0.016 percent). Likewise, Canada has efficient import regulations, and is also one of the largest exporters of vehicles globally. Canada imports auto parts mostly from the United States. The United States and Canada are part of a free trade area and physical or scanning inspections are rare. Customs procedures are followed only on the Canadian side of the border, where the Canada Border Services Agency accepts either a commercial invoice or a Canada Customs Invoice for clearance purposes.

Among upper-middle-income economies, Thailand's efficient practices in importing auto parts go hand in hand with a significant share of exports of vehicles of total GDP (0.006 percent). Thailand's traders prepare and submit import documentation electronically and free of charge. On the other hand, Algeria provides a relatively more difficult environment

for imports of auto parts and has a smaller share of exports of vehicles of GDP. Incoming auto parts are inspected by several control agencies, including the Algerian Competition and Price Department, the Ministry of Commerce, and Customs. Over the past few years, Algeria has been trying to streamline import control. In 2017, the government introduced "mixed brigades" with officers from the different agencies to conduct inspections in a coordinated manner.

Within the group of low-income and lower-middle-income economies, Morocco's efficient practices when importing auto parts are associated with a large share of exports of vehicles of total GDP. For instance, according to the Trading across Borders data, port handling is relatively fast and inexpensive at Morocco's gate to (and from) the European Union, Tanger-Med port. While technical inspection by the Ministry of Commerce and Industry is required when importing auto parts into Morocco, physical inspections by Customs are rare. On the other hand, Ethiopia has a small share of exports of vehicles of total GDP. While many factors affect a country's ability to export vehicles, there is room for improvement in Ethiopia when it comes to the ease of importing auto parts. In addition to regular commercial and transport documents, Ethiopian importers must obtain a permit from a commercial bank, an import license from the Ministry of Trade, and an insurance certificate. Imported auto parts are physically inspected by Customs in more than 20 percent of cases and it takes an average of 72 hours to complete clearance.

### Figure 3 The Relationship between Efficiency of Import Procedures for Auto Parts and Exports of Vehicles

Economies with more efficient procedures when importing auto parts tend to have a greater share of exports of vehicles of total GDP.



Source: Doing Business 2020; World Development Indicators database; ITC Trade Maps 2018.

Note: The initial sample of observations includes 72 low-income and lower-middle income economies, and 106 upper-middle and high-income economies. The figures use country codes from *Doing Business*.

Results of further regression analysis using a standardized variable for the "share of HS87 exports of total GDP" and "Trading Across Borders Import Score," that the positive relationship is significant at the 10 percent level for panel a and at the 1 percent level for panel b. After controlling for income level, import tariff rates for HS8708 (auto parts and other vehicle parts), and the value added of manufacturing sector of total GDP, the results remain significant at the 10 percent and 1 percent level, respectively. After adding the controls, the sample reduces to 51 observations for panel a and 95 observations for panel b. HS87 = Harmonized Schedule of Tariffs for motor vehicles.

## Table 2Relationship between Share of Exports of Vehicles in GDP and Efficiency of Trade Procedures when<br/>Importing Auto Parts

	Share HS87 exports total GDP	Share HS87 exports total GDP	Share HS87 exports total GDP
Trading Across Borders Import Score (2019)	0.3745*** (0.000)	0.3090*** (0.002)	0.2078*** (0.007)
Log GNIpc (2018)		0.0509 (0.252)	0.0655 (0.167)
Tariff rates for HS8708 (2018)		-0.0114 (0.111)	-0.0135** (0.040)
Share manufacturing total GDP (2018)			0.0431 (0.017)
Share Fuel merchandise exports (2018)			-0.0056 (0.042)
Constant	-0.001(0.991)	-0.3956 (0.352)	-0.9771** (0.041)
Number of observations	105	105	105
Adjusted R-sq.	0.132	0.127	0.204

p-values in parenthesis

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01

Source: Doing Business 2020; World Development Indicators database; ITC Trade Maps 2018.

*Note:* Using a standardized variable for the "share of export of HS87 of total GDP" and "Trading across Borders Import Score" variables in the model, the results show a positive relationship significant at the 1 percent level, and remains so after controlling for income, share of fuel in merchandize exports, import tariffs on HS8708, and value added of manufacturing sector of total GDP. HS87 = Harmonized Schedule of Tariffs for auto parts and other vehicle parts.

The Trading across Borders data can be used as a proxy not only of the auto industry, but also of the overall efficiency of import processes in an economy. Countries with burdensome practices on imports of auto parts tend to apply same onerous procedures to imports in other industries. For example, The Bahamas requires a license for importing from the United Kingdom. This measure is applied to a wide range of products, including but not limited to auto parts (UNCTAD, TRAINS database). Given the importance of global value chains, countries with streamlined import regulations can secure efficient access to inputs that can be later used for domestic production and exporting. Although more analysis is needed to establish causality, there is also a significantly positive relationship between the efficiency of regulations and practices when importing auto parts, and the overall share of exports in GDP across all sectors, even after adjusting for relevant controls.

#### References

- Ali, S., and U. Dadush. 2011. "Trade in Intermediates and Economic Policy." VOX EU, February 9, Center for Economic and Policy Research.
- Almeida, R., and A. M. Fernandes. 2008. "Openness and Technological Innovations in Developing Countries: Evidence from Firm-level Surveys." *Journal of Development Studies* 44 (5): 701–27.
- Andriamananjara, S., J. Dean, R. Feinberg, M. Ferrantino, R. Ludema and M. Tsigas. 2004. "The Effects of Non-Tariff Measures on Prices, Trade, and Welfare: CGE Implementation of Policy-based Price Comparisons." Office of Economics Working Paper, U.S. International Trade Commission, Washington, DC.
- Cadot, O., and J. Gourdon. 2016. "Non-tariff Measures, Preferential Trade Agreements, and Prices: New Evidence." *Review of World Economics* 152 (2): 227–49.
- Crivelli, P., and J. Groeschl. 2016. "The Impact of Sanitary and Phytosanitary Measures on Market Entry and Trade Flows." *The World Economy* 39 (3): 444–73.
- Crozet, M., E. Milet, and D. Mirza. 2016. "The Impact of Domestic Regulations on International Trade in Services: Evidence from Firm-level Data." *Journal of Comparative Economics* 44: 585–607.
- Devadason, E., V. G. R. Chandran, and K. Kalirajan. 2018. "Harmonization of Food Trade Standards and Regulations in ASEAN: The Case of Malaysia's Food Imports." *Agricultural Economics* 49 (1):97–109.
- EDB (Eurasian Development Bank). 2015. "Estimating the Economic Effects of Reducing Non-Tariff Barriers in the EEU." Saint Petersburg: Eurasian Development Bank.
- El-Enbaby, H., R. Hendy, and C. Zaki. 2016 "Do SPS Measures Matter for Margins of Trade? Evidence from Firm-level Data." *Applied Economics* 48 (21): 1949–64.
- Fernandes, A. M., R. Hillberry, and A. Mendoza Alcantara. 2015. "Trade Effects of Customs Reform: Evidence from Albania." Policy Research Working Paper 7210, World Bank, Washington, DC.
- Fernandes, A., H. L. Kee, and D. Winkler. 2020. "Determinants of Global Value Chain Participation." Policy Research Working Paper 9197, World Bank, Washington, DC.
- Fontagne, L., G. Orefice, R. Piermartini, and N. Rocha. 2015. "Product Standards and Margins of Trade: Firm-level Evidence." *Journal of International Economics* 97 (1): 29–44.
- ITC (International Trade Center). "Understanding Non-Tariff Measures."

https://ntmsurvey.intracen.org/support-materials/understanding-ntms/.

### Conclusion

The importance of imports in terms of economic development has been somewhat overshadowed by the research about exports. While this Brief illustrates an association between efficient import procedures and trade flows, further research is needed to understand the direction of such arelationship. Given the strong positive association between the efficiency of import procedures and international trade, streamlining import regulations appears to be an important aspect for policy makers to focus on when formulating trade policy.

#### Notes

- 1 The scores on import components of the Trading across Borders indicator account for the correction of <u>the</u> <u>irregularities of the *Doing Business 2020* report.</u>
- Keller, W. 2002. "Trade and the Transmission of Technology." Journal of Economic Growth 7: 5-24.
- Nordås, K. V. 2003. "Fragmented Production: Regionalization of Trade?" WTO Staff Working Paper No. ERSD-2003-01, World Trade Organization, Geneva.
- OECD (Organisation for Economic Co-operation and Development). 2018. Trade Facilitation and the Global Economy. Geneva: OECD.
- Pierola, M., M. Denisse, A. M. Fernandes, and T. Farole. 2018. "The Role of Imports for Exporter Performance in Peru." *The World Economy* 41 (2): 550–72.
- Ronen, E. 2017. "Quantifying the Trade Effects of NTMs: A Review of the Empirical Literature." *Journal of Economics and Political Economy* 4 (3): 263–74.
- Soloaga, I., J. S. Wilson, and A. Mejía. 2006. "Moving Forward Faster: Trade Facilitation Reform and Mexican Competitiveness." World Bank Working Paper 3953, World Bank, Washington, DC.
- Sturgeon, T., J. Biesebroeck, and G. Gereffi. 2007. "Prospects for Canada in the NAFTA Automotive Industry: A Global Value Chain Analysis." https://gvcc.duke.edu/wp-content/uploads/Industry-Canadaauto-GVC\_final-draft\_03-14-07.pdf
- UNCTAD (United Nations Conference for Trade and Development) and Word Bank. 2018. *The Unseen Impact of Non-Tariff Measures: Insights from a New Database*. Geneva: UNCTAD.
- UNESCAP (United National Economic and Social Commission for *Asia and the Pacific). 2019. Asia-Pacific Trade and Investment Report 2019.* Bangkok: UNESCAP.
- Wacziarg, R., and K. H. Welch. 2008. "Trade Liberalization and Growth: New Evidence." *The World Bank Economic Review* 22 (2): 187–231.
- World Bank. 2015. Doing Business 2016. Washington, DC: World Bank
  - ——. 2018. World Development Indicators (WDI) Online database. Washington, DC: World Bank.
  - ——. 2019. Doing Business 2020. Washington, DC: World Bank.

——. 2020. World Development Report 2020: Trading for Development in the Age of Global Value Chains. Washington, DC: World Bank.

- WTO (World Trade Organization). 2012. World Trade Report 2012: Trade and Public Policy: A Closer Look at Non-Tariff Measures in the 21st Century. Geneva: WTO.
- ———. 2016. World Trade Report 2016: Levelling the Trading Field for SMEs. Geneva: WTO.

