FEATURES

THE COSTS OF TRADE PROTECTIONISM: EVIDENCE FROM SPANISH FIRMS AND NON-TARIFF MEASURES

DMITRI KIRPICHEV AND ENRIQUE MORAL-BENITO

The rise in non-tariff protectionist measures has been associated to the weakness in global trade over the last few years. We investigate the effect of non-tariff barriers (NTBs) on export growth over the period 2009-2013 using administrative data at the firm-product-destination level in Spain. According to our findings, non-tariff protectionist measures significantly reduce export growth at the product-destination level. Moreover, NTBs also hinder export growth at the firm level and negatively affect other firm outcomes such as productivity growth. In contrast, the impact of liberalizing non-tariff measures is not statistically significant.

The emergence of trade protectionism

The recent rise in trade protectionism threats has coped the policy debates all around the world. Episodes like Brexit in Europe or the Trump's election in the United States are examples of how protectionist feelings are gaining momentum under the idea that trade protection will bring more prosperity. Despite the ongoing introduction of tariffs on goods traded between China and the United States, increases in tariff rates are now more difficult to implement than ever due to mechanisms like the Most Favored Nation clause of the World Trade Organization. With this mechanism, members of the WTO cannot discriminate between trading partners and must grant trade advantages equivalent to those of the "most favored nation". As a result, since the Global Financial Crisis countries have resorted to the so-called non-tariff measures in order to protect their national industries (WTO, 2009).

These trade policies are murkier in the sense that they are much more difficult to detect (Baldwin and Evenett, 2009). Protectionist actions based on non-tariff measures (henceforth, NTM) include those policies which hinder international competition and grant benefits to local producers that do not involve a rise in tariffs. Examples of those are sanitary and technical requirements, which oblige imported products to abide by national standards regarding health and environmental regulations. Other examples of such policies include subsidies for exporting firms, requirements to buy local inputs, tax-based incentives to export, or the implementation of import and export quotas.

According to the Global Trade Alert database (https://www.globaltradealert.org/), important trade partners of the Spanish economy, such as Germany, France, China, Brazil or Russia, are among the countries that have implemented the largest amount of protectionist NTMs since the Global Financial Crisis. In addition, the products that were targeted by these measures represent important shares of Spanish exports. For instance, vehicles, electrical machinery, pharmaceutical products or plastic products have been hit by NTMs. All in all, a total of 1,340 NTMs that affected Spanish exports were implemented over the period 2009-2013. Out of these, 1,118 were protectionist measures, while only 222 were liberalizing ones (where liberalizing measures include removals of protectionist measures and new policies that reduce trade barriers). These figures suggest that rising protectionism in the form of NTMs might be hindering Spanish exports, given the relevance of the trading partners implementing these policies as well as the products targeted.

The microeconomic effects of the so-called murkier protectionism

In Kirpichev and Moral-Benito (2018), we identify the presence of non-tariff protectionist measures and quantify their impact on exports of Spanish firms over the period 2009-2013. For that purpose, we combine the Global Trade Alert database at the product-country level with micro-level data on Spanish exporting firms by product-country from the Banco de España's Balance of Payments.

The contribution of our paper to the literature is threefold: (i) we analyze the effects of protectionist episodes consisting of increases in non-tariff measures,

TABLE 1

	(1) Over time	(2) Across countries	(3) Across products
Non-tariff protectionist dummy	-0.048***	-0.031***	-0.003
(s.e.)	0.017	0.007	0.046
R-sq	0.24	0.29	0.43
# observations	132,381	129,807	43,855
# firms	12,564	8,771	5,170
# countries	187	196	145
# products	118	117	118
Fixed effects (FE):			
Firm-country-product	Yes	No	No
Firm-product-year	No	Yes	No
Firm-country-year	No	No	Yes
Firm	Yes	No	No
Country	No	Yes	No
Product	No	No	Yes

NOTES: Dependent variable is export growth at the firm-country-product level. Standard errors in paretheses are clustered at the product-destination level. Sample covers 2009-2013.

while most of the existing literature analyzes liberalizing episodes consisting of tariff decreases (Lileeva and Trefler, 2010; Topalova and Khandelwal, 2011; Pavcnik, 2002; Amiti and Konings, 2007); (ii) we analyze the effects of those measures on a country affected by them (Spain in our case), while most of the existing papers analyze the effects on local firms from the country implementing the measures; (iii) our results suggest that trade protectionism in the form of non-tariff measures have indeed reduced the exports and productivity of Spanish exporters.

In order to identify the effect of non-tariff measures on export performance at the product-destination level, we consider the following specification:

$$\Delta lnX_{ipd,t} = \beta NTM_{pd,t-1} + FE + \varepsilon_{ipd,t} \qquad (1)$$

where X refers to export volume of product p to country d from firm i in year t. $NTM_{pd,t-1}$ is a dummy variable that takes the value 1 if there is at least one non-tariff measure affecting product p and country d and implemented in year $t-1$. The measure can be either protectionist or liberalizing. First, we inlcude protectionist policies separately and then we repeat the exercise for liberalizing measures (results do not vary when we regress them jointly). Finally, different sets of fixed effects (FE) are included in the specifications in order to consider alternative strategies to enhance identification.

To be more concrete, we consider three types of specifications. First, we exploit within time variation by including firm-product-country fixed effects. Identification is thus based on a diff-in-diff strategy that compares the change in exports in the same firm-product-country triplet before and after the non-tariff protectionist measure. Second, we include firm-product-year fixed effects and use a diff-in-diff strategy comparing the change in exports for the same firm-product-year triplet across destinations (countries) with and without NTMs implemented against Spain in the same year. Third, we include firm-country-year fixed effects so that identification is based on between-product variation for the same firm-country-year triplet. We also add some relevant covariates to these configurations such as tariff barriers in order to control for possible confounding factors.

Table 1 shows the results for these three different configurations of fixed effects. In column (1) we report the estimates for variation over time. The result is that the introduction of a protectionist NTM reduces average export growth by 4.8 pp. Column (2) uses variation across destinations. Firm export growth is 3.1 pp. lower on average in countries that have implemented protectionist NTMs than in countries that have not adopted such measures. All these effects are statistically significant and have the expected sign. Finally, we find non-significant effects in column (3), where we exploit variation across products for the same firm-country-year triplet. This lack of effect might reflect product complementarities in exports at the firm level that are not present across countries. In other words, the supply chain is harder to adjust across products than across

	(1) Exports growth	(2) Output growth	(3) Employment growth	(4) TFP growth
Non-tariff protectionist dummy	-0.045***	-0.016***	-0.003	-0.027***
(s.e.)	0.003	0.006	0.005	0.01
Non-tariff liberalizing dummy	0.050	0.005	0.014	0.000
(s.e.)	0.051	0.008	0.009	0.015
R-sq	0.21	0.47	0.55	0.61
# observations	59,477	58,485	58,886	55,791
# firms	17,963	17,963	17,791	16,919
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes

NOTES: Dependent variable is export growth in column (1), output growth in column (2), employment growth in column (3) and TFP growth in column (4) at the firm level. Sample covers 2009-2013. Standard errors in parenthesis are clustered at the firm level.

countries. For instance, imagine a firm exports a basket of goods and one of them is subject to a protectionist NTM. Then, it will be more costly for the firm to increase exports of the other goods and reduce those of the protected one than exporting the protected good to some other country. Indeed, there are much less firms exporting several products to the same country in our data, only 5,170 firms against 8,771 exporting the same product to several countries.

In the paper we perform additional exercises. We repeat the estimation for liberalizing measures. The effect of a removal of a protectionist NTM is smaller and not statistically significant. This finding is consistent with the presence of non-linearities in the impact of NTMs depending on their nature, protectionist versus liberalizing. Also, if non-tariff measures are implemented in a broader package containing tariff measures, omitting the latter would bias our estimates. However, the inclusion of changes in tariff rates in the regression does not alter significantly our estimates. Turning to the different types of NTMs, we find particularly strong negative effects of protectionist policies such as financial measures and government procurement regulations. In addition, we analyze the persistence of NTMs by substituting our dependent variable based on annual growth in Table 1 by cumulative growth over 1, 2 and 3 years. We find that protectionist measures have a stronger effect over 2 years, while in the third year the effect vanishes. This evidence suggests that NTMs are costly in the short run but, overall, the firms that survive learn how to adapt to the new scenario.

Finally, if firms are able to undo the NTM shocks by increasing their exports to other product-destination pairs, the negative impact on export growth at the firm-product-destination level reported in Table 1

would vanish at the firm level. In order to investigate this possibility, we consider overall firm export growth as our dependent variable and exposure to non-tariff measures at the firm level as the regressor of interest. In particular, we compute firm-level exposure to NTMs as an export-weighted average of the product-destination non-tariff dummy. The resulting regressor ranges between zero and one and can be interpreted as the share of firm's exports exposed to the implementation of non-tariff measures.[1] A set of firm controls as well as firm and year fixed effects are also included. In addition to export growth at the firm level, we also consider three alternative firm-level outcomes as our dependent variable of interest, namely, employment, output growth, and productivity growth.

Table 2 shows the results. In column (1) we find a negative and statistically significant effect on export growth at the firm level for protectionist measures and not significant effects for liberalizing measures. In column (2) we repeat the same exercise for output growth, finding a sizeable negative and statistically significant effect of protectionist NTMs. On average, the introduction of a protectionist NTM reduces output growth by 1.6 pp. Column (3) reports the same specification for employment growth, where we do not find statistically significant effects. Finally, column (4) shows a negative effect on TFP growth coming from protectionist NTMs. Overall, this evidence reinforces the apparent negative effect of protectionist NTMs on exporters' performance and the non-linear effect of non-tariff measures.

[1]   The average share in our sample is 7.2% while the median is 0 and the 90th percentile is 22.2%.

Conclusion

By combining non-tariff measures affecting Spain at the product-country level with firm-product-country information on exports for Spanish firms over the years 2009-2013, we provide evidence in favor of the hypothesis that non-tariff protectionist measures significantly reduce export growth. The estimated reduction in exports due to non-tariff barriers ranges between 37 and 74% of the average export growth by firm-product-destination in our sample. In contrast, the impact of liberalizing measures is not statistically significant. Moreover, firm exposure to non-tariff barriers is associated to lower productivity growth (which is traditionally used in the literature as a proxy for consumer welfare).

Two main conclusions emerge from our analysis. On the one hand, the rise of anti-globalization episodes like Trump's threats to free trade or Brexit is a legitimate source of concern given the sizable costs that protectionist non-tariff policies may imply. On the other hand, the conventional "symmetry" assumption made when estimating the effects of protectionism measures using liberalization-based elasticities may not be appropriate since the cost of protectionist measures might be larger in magnitude than the gains from trade liberalization.

REFERENCES

AMITI, M., and J. KONINGS (2007)."Trade Liberalization, Intermediate Inputs, and Productivity: Evidence from Indonesia." *American Economic Review,* 97 (5): 1611-1638.

BALDWIN, R., and S. EVENETT eds. (2009). "The Collapse of Global Trade, Murky Protectionism, and the Crisis: Recommendations for the G20", London: CEPR, https://voxeu.org/epubs/cepr-reports/collapse-global-trade-murky-protectionism-and-crisis-recommendations-g20.

KHANDELWAL, A., and P. TOPALOVA (2011). "Trade Liberalization and Firm Productivity: the Case of India," *The Review of Economics and Statistics,* 93(3): 995-1009.

KIRPICHEV, D., and E. MORAL-BENITO (2018). "The costs of trade protectionism: evidence from Spanish firms and non-tariff measures", Banco de España Working Papers No. 1814.

LILEEVA, A., and D. TREFLER (2010). "Improved Access to Foreign Markets Raises Plant-level Productivity for Some Plants", *Quarterly Journal of Economics,* 125(3): 1051-1099.

PAVCNIK, N. (2002). "Trade liberalization, Exit and Productivity Improvements: Evidence from Chilean Plants", *Review of Economic Studies,* 69(1): 245-276.

WTO (2009). "Overview of Developments in the International Trading Environment".