

Export Dependency and Security of Demand: The Impact of the 2025 US Tariffs on Italian Wine Exporters

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October 7, 2026

Preliminary draft prepared for IPES Yale. Please do not cite without permission.

Abstract

In April 2025, President Trump announced US tariff increases. While the literature has been preoccupied with security of supply, the tariffs brought attention to export dependency. In the EU, one of the sectors with a high export dependency on the US is the wine sector. Leveraging high frequency export data on the universe of Italian wine exporters, this paper sheds new light on firm and product heterogeneity. Overall, we find that Italian wine exporters suffered both in export volume and prices, especially those who were dependent on the US market. At the product level, differentiated wines with Geographical Indications such as Chianti and Prosecco suffered less. In terms of the dynamics of the response, we find clear evidence of anticipatory stockpiling in the US, followed by a slump in imports. Overall, the data shows that export dependency is costly in times of rising protectionism, especially for less differentiated commodities.

Keywords: Tariffs, Export dependency, Wine

*We acknowledge comments from colleagues and research assistance from Lars Hissink. The authors would also like to thank participants at ETSG 2026 for feedback. Huysmans acknowledges funding from UU strategic theme "Pathways to Sustainability", grant "Follow the Food". Fiankor acknowledges funding by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – Project number 584389816.

1 Introduction

On April 2 of 2025, President Trump announced US tariff increases across the board. After a period of uncertainty and turmoil, a 15% tariff on EU imports to the US took effect in August of 2025. While the (geo-)economics literature has been preoccupied with strategic dependencies and security of supply, the tariffs brought renewed attention to export dependency. We introduce the concept of “security of demand” and study it empirically. We find that being dependent on an export destination presents economic vulnerabilities, leading to lower volumes and export prices and even firm exits.

In the EU, one of the sectors with a high export dependency on the US is the wine sector. In 2024, European winemakers exported close to 5B€ of wines to the US, of which roughly 2B€ from Italy. After the tariff announcement, the European industry federation Comité Européen des Entreprises Vins (CEEV) reported fearing losing up to 1B€ in exports. The potential economic losses due to tariffs provided political leverage for the Trump administration, as became apparent with the EU scrambling for a deal to soften the blow.

The issue of export dependencies has been understudied so far. The Trump tariffs provide a shock to analyze their disruptiveness. Leveraging high frequency export data on the universe of Italian wine exporters, this paper significantly advances the literature on export dependency. We contribute to the literature by studying the margins of adjustment: did exporters reduce their prices, did they reduce quantities, or did they direct their exports to other markets? Given Trump’s claims about tariffs being paid by foreign producers, the question of the passthrough of tariffs and the incidence on exporters versus US importers is politically salient in addition to its economic importance. Methodologically, we use a difference-in-differences framework, to identify the causal impact of the tariffs, using exports to non-US destinations as controls.

Our firm-level data also allows us to shed new light on firm heterogeneity. The data allow us to test hypotheses such as: firms with higher US export dependency (fewer existing export destinations) suffered more. In addition, the nature of tariff codes for wine also allows to test product-level heterogeneity. In particular, did more differentiated wines with Geographical Indications such as Chianti and Prosecco suffer less because it is harder for American consumers to substitute them? In other words, does market power in the form of differentiation provide a counterweight against tariffs and export dependency?

Finally, the high frequency of our data also allows us to shed light on the dynamics induced by Trump’s announcements and the unfolding of events over time. Did US importers stockpile EU wines in anticipation of tariff effects? And how did events between the announcement and the implementation

affect stockpiling?

Our findings matter, because they shed new light on an understudied aspect of globalization: security of demand. In a world where high tariffs are back, export dependency is an economic concern that firms and policymakers need to address, because it leads to economic costs and weaker geo-economic bargaining power.

1.1 Tariffs in the first Trump Presidency

A number of authors have studied tariffs in the first Trump Presidency. On the US side, [Fajgelbaum et al. \(2020\)](#) found that across all goods tariffs were passed through completely to US consumers, with an aggregate welfare loss of 7B\$. On wine specifically, [Flaaen et al. \(2025\)](#) found that pass-through at the border was less than complete, but final consumer prices did exhibit a passthrough of more than 1, i.e. wines got more expensive for US consumers due to the tariffs. While the wine tariffs of the first Trump Presidency were dependent on the alcohol percentage of wines, leading to product engineering, this is not the case for the tariffs of the second Trump Presidency, which we study.

1.2 Tariffs in the second Trump Presidency

President Trump was elected for a second term as US President in November 2024. On the day of his inauguration, January 20, 2025, he called tariffs "the most beautiful word in the dictionary". On February 13 he announced a plan for "reciprocal tariffs". On March 13 he threatened import duties of 200% on EU wine if the EU would implement its threatened tariffs on US Whiskey. On April 2 the "liberation day" speech announced the height of the "reciprocal" tariffs: a baseline of 10% and a tariff of 20% for the EU specifically, with the baseline 10% taking effect on April 5. On May 23 he threatened a tariff of 50% on the EU, but delayed its implementation only two days later. As of August 2025, a 15% tariff has applied.

2 Theory

When tariffs are announced, exporters and importers will adjust their behavior. Between the announcement and the implementation, some temporary stockpiling might take place to take advantage of the temporary absence of the tariff. Once the tariff is in place, trade will be diverted or destroyed.

On the importing side, *ceteris paribus*, importers face higher prices and will reduce the imported quantity. In the case of the US tariffs, all imports are affected, so wine imports are expected to go down

across the board.

On the exporting side, which is covered in our empirics, exporters have several margins of adjustment. First, they can try to divert trade away to different destinations. This can have both fixed costs (in case of unlocking entirely new destinations) and marginal costs (in terms of transport costs or lower prices). To the extent that exports are diverted to countries in the control group, this may overestimate the effect of the tariffs on exports to the US - since exports to the control group are going up while exports to the US are going down.

If the diversion would be complete, the estimated effect on quantity could be a maximum of twice the real effect. To reduce this upward bias, the empirics will also restrict the control group to other EU member states. Since most of Italian wine is already sold there, any diversion towards them will be smaller in relative terms than it is towards countries with a relatively modest baseline of imports of EU wine.

With prices as the dependent variable, diversion works the other way around: in order to divert exports elsewhere, Italian exporters have to lower their prices there as well. So estimates of price effects of the US tariffs on exports to the US will be underestimates.

When continuing to export to the US, exporters face the choice of whether to try and maintain volume by lowering prices. In President Trump's praise of tariffs, he consistently asserted that tariffs would be paid by exporters, who would simply lower their prices. In economics, this is known as the terms-of-trade effect for large markets. To the extent that the US is a large market relative to the rest of the world, US tariffs can indeed be expected to lower pre-tariff import prices somewhat. In any case, tariffs will lower export value to the US. To the extent that exporters lower prices to maintain volume, the price effect will dominate the volume effect.

Other options for exporters include trying to sell more wine domestically, selling it later (especially for higher quality wines that can age), or distilling it for alcohol (especially for lower quality wines).

Given that the US is a large market for Italian wines, some exporters may even go bankrupt. While we cannot observe firm bankruptcy in our customs data, we can observe exit from the export data. Since firms may continue to be active domestically, exit from exporting is an overestimate of firm bankruptcies.

3 Data

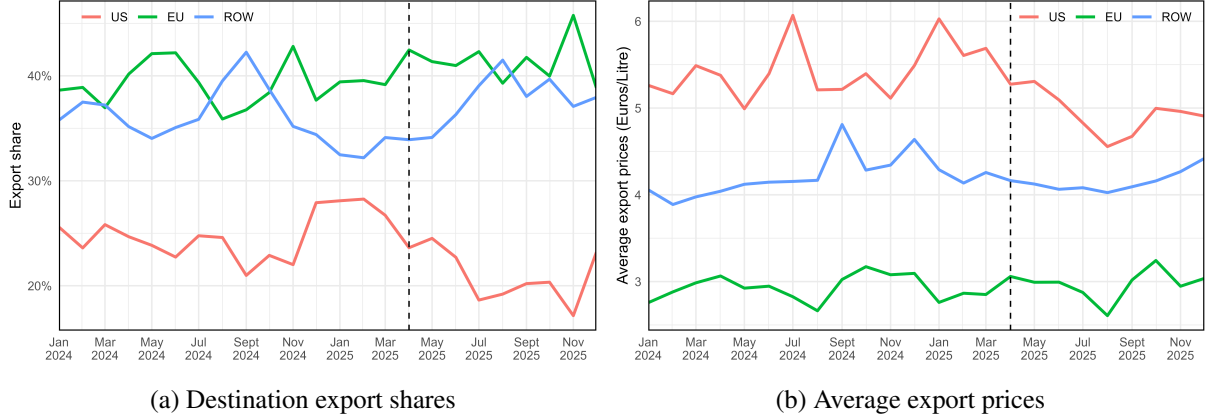
Our analysis draws on monthly customs microdata on Italian wine exports (HS4 code 2204) covering the period from January 2021 to December 2025. Table 1 summarizes the sample by year. Within the

HS4 code for wine, our data gives the CN8 level code for specific types of wines. This is an EU-specific detailing of the HS6 level, which is the finest internationally standardized classification of trade. For instance, code 22041015 is the CN8 code for Prosecco, and 22042162 is the CN8 code for red wine from Piemonte with a Protected Designation of Origin, such as Barolo. The panel comprises between 7,237 and 8,498 exporting firms annually, about 120 distinct CN8 products to 180 destination countries. Total export value ranges from EUR 7.17 billion in 2021 to a peak of EUR 8.07 billion in 2024, then declines to EUR 7.78 billion in 2025. Roughly half of all exporting firms export to the US in any given year, underscoring the importance of the US market to the Italian wine sector. Outside the EU, the US is consistently Italy’s largest single wine export market by value, exceeding the next-largest destination (i.e., the United Kingdom) by more than a factor of two (Appendix Figure A2).

Table 1: Sample overview by year

Statistic	2021	2022	2023	2024	2025
Observations	331,205	348,464	345,662	355,370	341,455
Firms	7,993	8,347	8,498	8,323	7,237
Products (CN8)	122	123	122	121	121
Destinations	178	188	189	185	179
Total export value (million EUR)	7,169.43	7,833.41	7,708.98	8,071.36	7,776.75
Total export quantity (million litres)	2,205.82	2,159.85	2,110.35	2,135.67	2,101.44
Export price (unit values, EUR/litre)	3.25	3.63	3.65	3.78	3.70
Number of firms exporting to the US	4,226	4,527	4,505	4,477	3,659
Share of firms exporting to the US (%)	52.87	54.24	53.01	53.79	50.56

Figure 1 plots destination-level trends in the months leading up to and following Liberation Day. Panel (a) shows that the US share of total Italian wine export value, which had hovered between 21% and 28% throughout 2024, falls sharply after April 2025, declining to as low as 16% by late 2025, while the EU and rest-of-world shares rise correspondingly. Panel (b) shows a parallel decline in average US export prices relative to the EU and rest-of-world series, which remain comparatively stable over the same window.



Notes: The figure plots monthly destination-level trends in Italian wine exports from January 2024 to December 2025. Panel (a) shows each destination group's share of total Italian wine export value; Panel (b) shows average export prices (€/litre) by destination group. The dashed vertical line marks Liberation Day (April 2025). EU denotes European Union destinations; ROW denotes all other non-US, non-EU destinations.

Figure 1: Destination trends in Italian wine exports around Liberation Day

4 Methods

We examine how Italian wine exporters responded to the Liberation Day tariff using monthly firm-product-destination export flows from January 2024 to December 2025.¹ We estimate a difference-in-differences specification that compares US-bound shipments with exports of the same CN8-digit products to other destinations, before and after the tariff's implementation in April 2025. The baseline estimating equation is

$$y_{f p d t} = \beta_1 (Post_t \times USA_d) + \delta_{f p d} + \gamma_t + \varepsilon_{f p d t} \quad (1)$$

where $y_{f p d t}$ denotes export value, quantity, or the log unit value (price in € per liter) for product p exported by Italian firm f to destination d in month-year t ; $Post_t$ equals one for months from April 2025 onward and zero otherwise; and USA_d is a binary indicator equal to one if d is the US. $\delta_{f p d}$ denotes firm-product-destination fixed effects, which absorb any time-invariant heterogeneity at the level of a given trade relationship, and γ_t denotes month-year fixed effects, which absorb common shocks affecting all destinations in a given month (this includes but is not limited to seasonality). Because USA_d and $Post_t$ are each collinear with $\delta_{f p d}$ and γ_t respectively, only the interaction term is separately identified; β_1 is therefore estimated from within-relationship variation in US-bound trade relative to the same firm-product's trade with other destinations, net of common time shocks.

We estimate Equation (1) for export value and quantity using Poisson pseudo-maximum likelihood

¹We cover the entire period from 2020 to 2025 in the Appendix.

(PPML), which accommodates zero-valued observations that arise naturally once the panel is balanced across all firm-product-destination-month cells, following Santos Silva and Tenreyro (2006). For the log unit value, which is defined only for cells with positive trade, we estimate Equation (1) by OLS. We cluster standard errors at the firm level throughout, allowing arbitrary correlation in the error term across a firm’s different products, destinations, and time periods. To mitigate the influence of extreme or misreported unit values, our baseline export price specification trims observations outside the 5th and 95th percentiles of the unit value distribution.²

Table 2: Summary statistics for regression variables

Variable	Mean	SD	Min	Max	Observations
Export value (EUR)	2,670.03	49,903.46	0	24,617,046	5,935,560
Export volume (Litre)	713.85	15,223.12	0	5,606,680	5,935,560
Export price (EUR/Litre)	8.34	7.17	1.80	42.61	627,378

5 Results

5.1 Static DID

Table 3 reports estimates of Equation (1) for the 2024–2025 sample window. US-bound exports fell in value by an estimated 18.6% ($1 - e^{-0.206}$) relative to other destinations following Liberation Day, driven by both an 11% decline in quantity and a 3.8% decline in price, all significant at the 1% level. We do not compare the magnitude of the quantity and price coefficients as evidence of which margin dominates because the two are estimated using different methods on non-nested samples. In addition, note that the OLS price coefficient is not weighted by volume.³

²Because this restriction is not applied to the value and quantity outcomes, those two columns are estimated on a larger sample than the price column in our baseline table. As a robustness check, Appendix Table A1 re-estimates all three outcomes on the common, trimmed estimation sample, confirming that our results are not sensitive to differences in sample composition across outcomes. Nevertheless, the choice of threshold does not affect our findings. Table A2 shows our baseline price estimates remain largely unchanged if we exclude instead extreme values above the 99th percentile and below the 1st percentile.

³Appendix Table A1 addresses this by re-estimating log value, log quantity, and log price via OLS on a common sample; there, the quantity and price coefficients are directly comparable and of similar magnitude (-0.036 and -0.039 , respectively), showing a marginal dominance of the price effect.

Table 3: Effect of Liberation Day on export margins (2024–2025)

	Value _{<i>f</i>pdt}	Quantity _{<i>f</i>pdt}	Log Price _{<i>f</i>pdt}
	(1)	(2)	(3)
Post _{<i>t</i>} × USA _{<i>d</i>}	−0.206*** (0.029)	−0.117*** (0.040)	−0.039*** (0.007)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	3,693,864	3,693,864	568,335
Pseudo R ²	0.817	0.862	0.872
Estimator	PPML	PPML	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

5.2 Event study

To examine the dynamic effects of the tariff and assess the identifying assumptions of our DID design by assessing pre-treatment trends, we complement the static specification in Equation (1) with an event-study design:

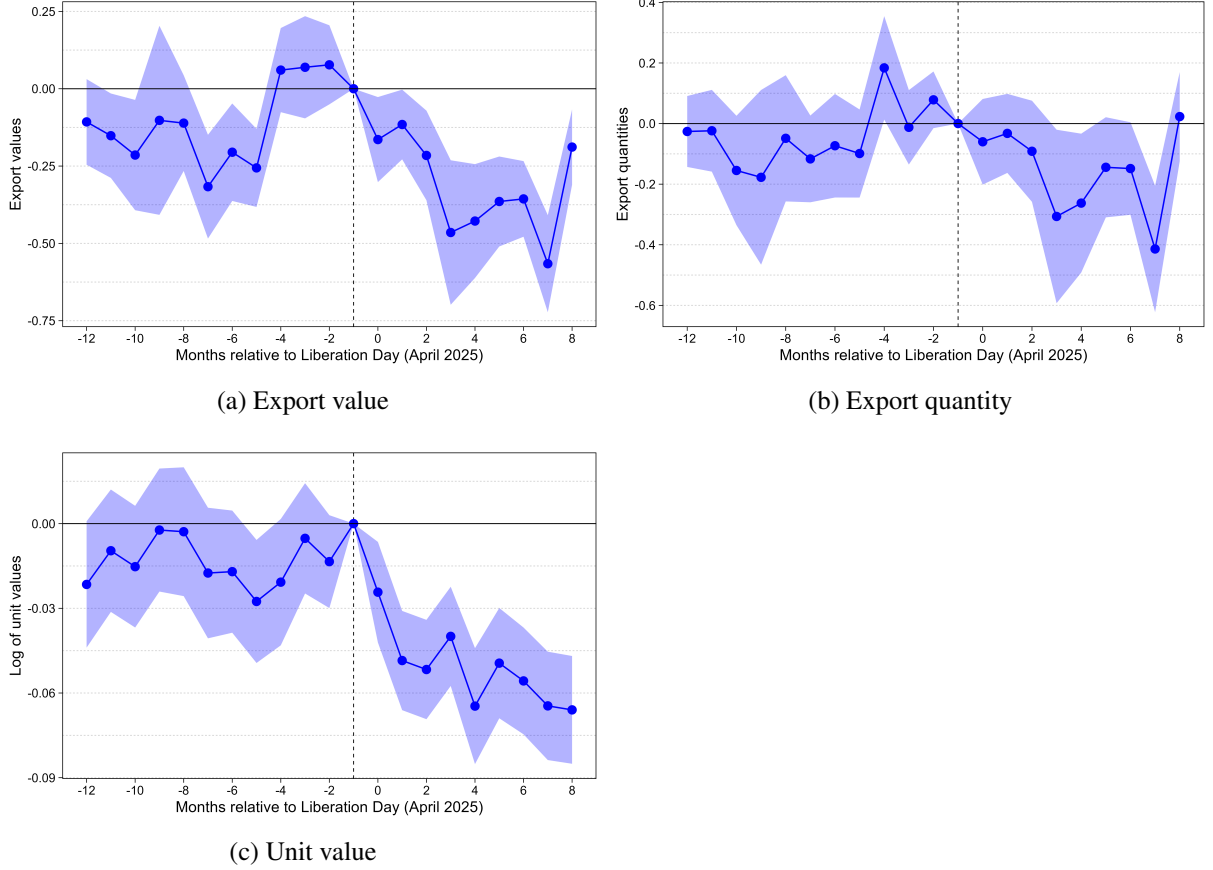
$$y_{f\text{pdt}} = \sum_{m=-12}^8 \beta_m D_{mt} \times USA_d + \delta_{f\text{pd}} + \gamma_t + \varepsilon_{f\text{pdt}}, \quad (2)$$

where D_{mt} is an indicator equal to 1 if month t is m months after the implementation of the US tariff in April 2025 (t_0). Thus, $m = 0$ denotes the first month under the tariff, while March 2025 ($m = -1$) is omitted as the reference period. The coefficients for $m < -1$ test for differential pre-treatment trends between US-bound and non-US exports, whereas the coefficients for $m \geq 0$ trace the evolution of the treatment effect following tariff implementation.

Figure 2 presents the estimated event-study coefficients for export value, export quantity, and unit value. For most of the pre-treatment period, the estimated coefficients are small and statistically indistinguishable from zero, providing little evidence of systematic differential trends between treatment and control destinations. However, the coefficients become positive during the three months immediately preceding the tariff ($m = -3$ to $m = -1$), suggesting a temporary increase in US-bound exports immediately before implementation. One plausible explanation is that exporters accelerated shipments in anticipation of the tariff, thereby temporarily elevating exports prior to its introduction.⁴ Consequently, the post-treatment estimates are measured relative to a pre-treatment baseline that was temporarily elevated, suggesting that our baseline difference-in-differences estimates likely provide somewhat enlarged estimates of the tariff’s true impact. Following implementation, export values and prices decline sharply and remain below their pre-tariff levels throughout the post-treatment period. The corresponding confi-

⁴We test this formally in Table A3 of Section 5.5.

dence intervals exclude zero for all post-treatment months, indicating persistent and statistically significant effects. In contrast, the quantity response is more volatile, with several monthly estimates close to zero and confidence intervals frequently overlapping zero. Overall, the event-study results indicate that the tariff primarily reduced export values and prices, while evidence for an effect on export quantities is comparatively weaker.



Notes: The figure plots event-study coefficients from Equation (2), estimating the effect of Liberation Day (April 2025) on wine exports to the United States relative to other destinations, month-by-month around the event. Panel (a) shows the effect on export value, Panel (b) on export quantity, and Panel (c) on the log export prices. All specifications include firm-product-destination and month-year fixed effects, with standard errors clustered at the firm level. The shaded areas illustrate 95% confidence intervals. The baseline (omitted) base period is one month prior to Liberation Day, indicated by the dashed vertical line.

Figure 2: Event-study effects of Liberation Day on wine exports to the USA

5.3 Product level estimates

While Table 3 estimates the effect of Liberation Day at the firm-product-destination-month level, we complement this with a regression-based margin decomposition identified via a regression with destination, HS6-sector, and month-year fixed effects. We aggregate the panel to the destination-sector-month level and decompose total export value from Italy (X_{dkt}) as the product of the number of active firms (F_{dkt}), the number of active CN8 digit products within the HS6 product sector (N_{dkt}), and the aver-

age export value per firm-product cell ($V_{dkt} = X_{dkt} / [F_{dkt} \times N_{dkt}]$), which we further split into its price ($Price_{dkt}$) and quantity (Q_{dkt}) components. Each margin is regressed separately on $Post_t \times USA_d$.

Table 4 reports the results; by construction, the coefficients in columns (2)–(4) sum to those in column (1), and columns (5)–(6) sum to column (4). Total export value falls by 27%, with the number of firms accounting for the large majority: the coefficient on firm count is negative and statistically significant, while the coefficient on product count is small and statistically indistinguishable from zero. This indicates that the decline in aggregate value is driven primarily by firms exiting the US market rather than by continuing firms narrowing the range of products they export. Within the intensive margin, the decline is driven mainly by prices rather than quantities. The estimated effect on prices is statistically significant at the 1% level and approximately twice the magnitude of the quantity effect, which is not statistically distinguishable from zero. Notably, the contribution of the extensive margin exceeds that of the intensive margin, indicating that firm participation accounts for more of the aggregate value decline than adjustment within continuing trade relationships at this level of aggregation.⁵

Table 4: Margin decomposition of the effect of Liberation Day on USA wine imports (destination-sector-month level)

	Total	Extensive margin		Intensive margin		
		Number of		Average per product per firm		
	Value _{dkt}	Firms _{dkt}	Products _{dkt}	Value _{dkt}	Price _{dkt}	Quantity _{dkt}
	(1)	(2)	(3)	(4)	(5)	(6)
$Post_t \times USA_d$	−0.274*** (0.028)	−0.187*** (0.014)	−0.010 (0.012)	−0.076*** (0.024)	−0.051*** (0.010)	−0.025 (0.026)
Destination FE	✓	✓	✓	✓	✓	✓
HS6 Sector FE	✓	✓	✓	✓	✓	✓
Month-Year FE	✓	✓	✓	✓	✓	✓
Observations	9,001	9,001	9,001	9,001	9,001	9,001
R ²	0.764	0.851	0.786	0.455	0.405	0.420
Estimator	OLS	OLS	OLS	OLS	OLS	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%. The unit of observation is destination $d \times$ HS6 sector $k \times$ month-year t . Value_{dkt} is total Italian wine export value, summed across all firms and products, for HS6 sector k shipped to destination d in month-year t . Firms_{dkt} and Products_{dkt} denote the number of active firms and CN8 products, respectively, within that cell. At the intensive margin, Value_{dkt} denotes average export value per firm-product pair, decomposed into its price and quantity components. All specifications are estimated by OLS with standard errors clustered at the destination level. The coefficients in columns (2) to (4) sum to those in column (1); the coefficients in columns (5) and (6) sum to those in column (4).

⁵This is consistent with the descriptive evidence from Table 1 that the number of firms exporting to the US dropped from an average of 54% in 2024 to 51% in 2025.

5.4 Heterogeneous effects

5.4.1 The role of geographic indication

Geographical Indication (GI) products, such as wines carrying a Protected Designation of Origin or Protected Geographical Indication, may respond differently to a cost shock than non-GI products if their demand is less price-elastic, i.e. if buyers are more willing to absorb higher prices for certified origin. To test whether GI status moderated firms' response to Liberation Day, we augment our baseline specification with a triple interaction between the treatment indicator, the US destination indicator, and an Italian GI product indicator; the coefficient on this interaction identifies the differential response of GI wines relative to non-GI wines. Table 5 reports the results. For export values and quantities, the interaction term is positive and statistically significant, indicating that GI wines experienced a significantly smaller contraction than non-GI wines following the tariff: the estimated decline in value is 25.8% for non-GI wines against 17.9% for GI wines, and the decline in quantity is 17.6% for non-GI wines against 7.7% for GI wines. For export prices, by contrast, we find no evidence that GI and non-GI wines differed in how much of the tariff was passed through into lower prices; both groups reduced prices by a similar amount.

Table 5: Heterogeneous effects by geographical indication status

	Value _{<i>f pdt</i>}	Quantity _{<i>f pdt</i>}	Log Price _{<i>f pdt</i>}
	(1)	(2)	(3)
Post _{<i>t</i>} × USA _{<i>d</i>}	−0.258*** (0.039)	−0.176*** (0.045)	−0.041*** (0.007)
Post _{<i>t</i>} × USA _{<i>d</i>} × Italian GI _{<i>p</i>}	0.079** (0.035)	0.099*** (0.036)	0.004 (0.006)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	3,693,864	3,693,864	568,335

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%. GI_{*p*} is an indicator variable that takes the value 1 if the CN8 digit product is a GI product and 0 otherwise.

5.4.2 Level of pre-shock exposure to US markets

Here, we examine whether the effect of Liberation Day scales with firms' pre-existing dependence on the US market. For each firm, we compute *Exposure_f*, the share of its total 2024 export value destined for the United States, and interact this continuous measure with the treatment indicator. Average pre-treatment exposure to the US market was 32.2% of firm exports (median: 6.9%), with firm-level exposure ranging from none to full exposure. Table 6 reports the results. The main effect is small and

statistically insignificant for value and quantity indicating that firms with no pre-period reliance on the US market were largely unaffected by the tariff. The triple interaction terms are negative and significant across all three outcomes, confirming a clear dose-response relationship: the estimated decline in value, quantity, and price all scale with firms' pre-existing US export exposure. This pattern indicates that the aggregate effects reported in Table 3 are concentrated among firms genuinely exposed to the US market prior to the tariff, rather than reflecting a destination-wide shock unrelated to firms' actual trade relationships. Figure 3 depicts the elasticities at different levels of exposure to the US market.

Table 6: Heterogeneous effects of Liberation Day by pre-period USA export exposure

	Value _{<i>f</i> <i>pdt</i>}	Quantity _{<i>f</i> <i>pdt</i>}	Log Price _{<i>f</i> <i>pdt</i>}
	(1)	(2)	(3)
Post _{<i>t</i>} × USA _{<i>d</i>}	−0.020 (0.052)	0.003 (0.051)	−0.026*** (0.009)
Post _{<i>t</i>} × USA × Exposure _{<i>f</i> <i>t</i>−1}	−0.382*** (0.087)	−0.264*** (0.083)	−0.028** (0.014)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	3,693,864	3,693,864	568,335
Pseudo R ²	0.818	0.862	0.762
Estimator	PPML	PPML	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%. Exposure_{*f*} measures the degree (0 - 1) of exposure of firm *f* to the US market in year *t* − 1. Because Exposure_{*f*} is a firm-level characteristic absorbed by δ_{*f* *pdt*}, only the interaction terms are separately identified. The coefficient β₁ captures the effect for firms with no 2024 US exposure, while β₂ captures how the effect scales with exposure intensity.

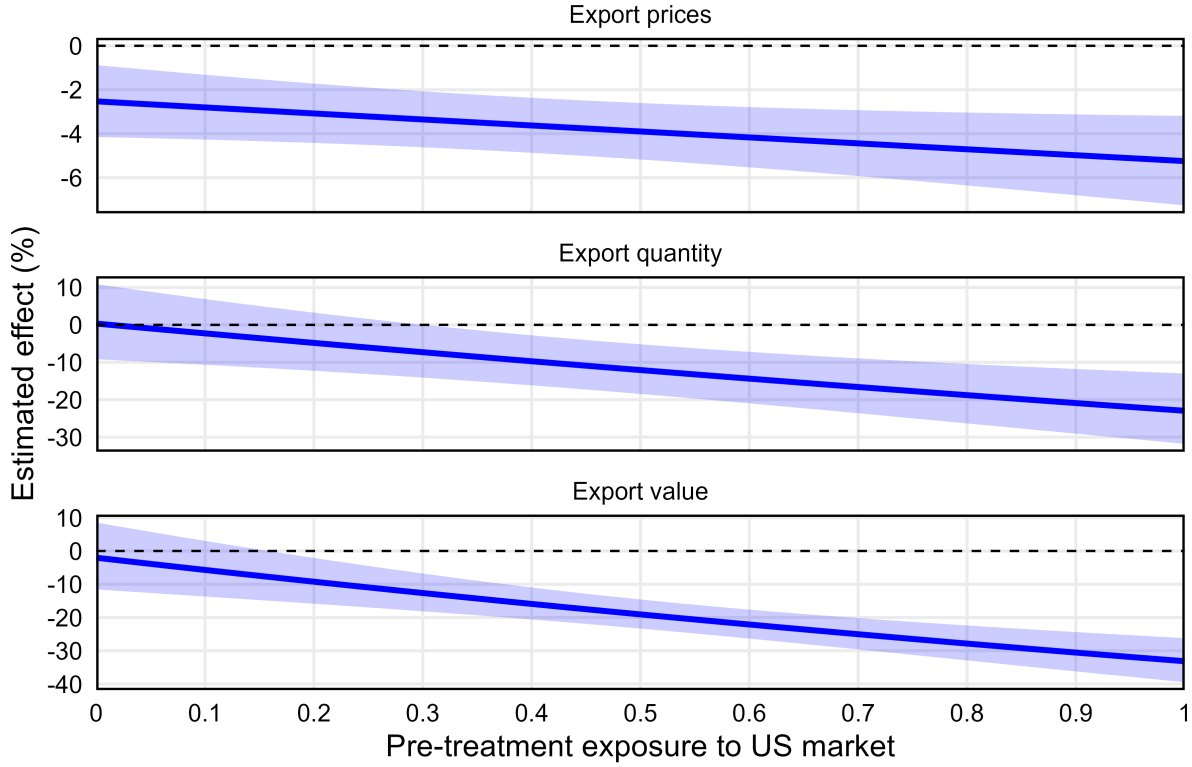


Figure 3: Marginal effects of exposure

5.4.3 Multi-destination firms

Next, we ask whether firms with a more diversified export destination portfolio were better able to withstand the Liberation Day tariff shock. Exporting to multiple destinations may enhance resilience by reducing dependence on a single market and providing firms with greater flexibility to absorb demand shocks. In contrast, firms that rely exclusively on the U.S. market face limited opportunities to offset losses when access to that market deteriorates. Table 7 highlights substantial heterogeneity in destination diversification among Italian wine exporters. Of the 4,477 firms exporting to the United States before the tariff increase, 24% exported exclusively to the U.S., while 76% also served at least one additional foreign market. Multi-destination firms exported to an average of 9.7 destinations, although the median of four destinations indicates considerable variation in the extent of international diversification.

Table 7: Number of export destinations by firm type

Firm type	N firms	Mean	Median	Min	Max
US-only	1094	1			
Multi-destination	3383	9.69	4	2	127

Table 8 examines whether this pre-treatment diversification status moderated the impact of the tariffs.

The coefficient on the interaction between the post-tariff period and the U.S. destination captures the effect for firms exporting only to the United States. These firms experienced a substantial decline in exports to the U.S., with export values falling by approximately 44%, quantities by 20%, and unit values by about 6%. The positive and statistically significant triple interaction for export values indicates that multi-destination firms experienced a significantly smaller contraction in export values than U.S.-only exporters. Combining the baseline and interaction coefficients implies that the decline in export values for diversified firms was approximately 20%, less than half the decline observed among firms solely dependent on the U.S. market. By contrast, the interaction effects for export quantities and unit values are small and statistically insignificant.

Table 8: Effects of Liberation Day tariffs by pre-treatment destination diversification

	Value _{<i>f</i>pdt}	Quantity _{<i>f</i>pdt}	Log Price _{<i>f</i>pdt}
	(1)	(2)	(3)
Post _{<i>t</i>} × USA _{<i>d</i>}	−0.442*** (0.092)	−0.195* (0.104)	−0.061*** (0.019)
Post _{<i>t</i>} × USA _{<i>d</i>} × Multi-destination _{<i>f</i>}	0.240** (0.096)	0.075 (0.106)	0.019 (0.019)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	3,071,664	3,071,664	489,883

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%. Multi-destination_{*f*} is a dummy variable that takes the value 1 if the country exports to other countries outside the US and 0 if the firm exports only to the US.

To further examine the role of diversification, Table 9 replaces the binary indicator of multi-destination status with the pre-treatment number of export destinations. The estimated interaction terms are positive and statistically significant for both export values and export quantities, indicating that each additional destination marginally reduces the adverse effect of the tariff shock. Although the estimated effect of an individual destination is economically modest, the cumulative effect becomes substantial for firms with broad export networks. For example, a firm exporting to 20 foreign markets would experience a reduction in the tariff effect on export values of approximately four percentage points relative to an otherwise identical firm exporting to only a single destination. Figure 4 illustrates these marginal effects graphically. For export values and quantities, the estimated treatment effect becomes progressively less negative as the number of destinations increases, whereas the effect on unit values remains relatively constant across the diversification distribution. Together, these findings provide strong evidence that geographical diversification enhances firms' resilience to trade policy shocks by reducing dependence on a single export market.

Table 9: Effects of Liberation Day tariffs by pre-treatment destination diversification

	Value _{f_{pdt}}	Quantity _{f_{pdt}}	Log Price _{f_{pdt}}
	(1)	(2)	(3)
$\text{Post}_t \times \text{USA}_d$	-0.301*** (0.040)	-0.208*** (0.041)	-0.038*** (0.006)
$\text{Post}_t \times \text{USA}_d \times \text{Count of destination}_{ft-1}$	0.002** (0.001)	0.002** (0.001)	0.000 (0.000)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	3,071,664	3,071,664	489,883

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%. Count of destination _{f_{t-1}} is the count of destinations outside the US that firm f exports to in year $t - 1$.

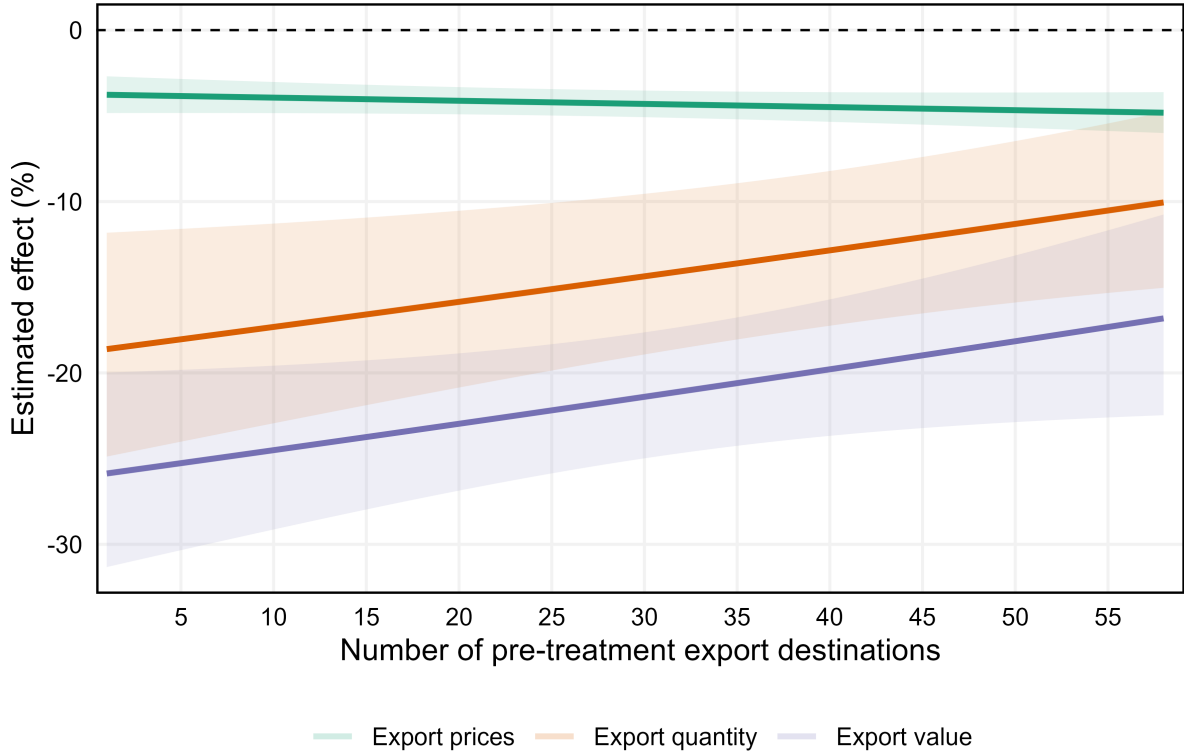


Figure 4: Effects of Liberation Day tariffs by pre-treatment destination diversification

5.5 Robustness

This section reports different checks on the robustness of our baseline estimates.

EU-only as control group: First, we restrict the control group to exports destined for the EU rather than using all non-U.S. destinations. In the baseline specification, the control group comprises all non-US markets, some of which may have experienced contemporaneous shocks unrelated to the US tar-

iff increase. Restricting the comparison to the EU provides a more targeted counterfactual by asking whether exports to the US changed after April 2025 relative to exports to an otherwise unaffected market. Because EU destinations are likely to share more similar demand and supply conditions with the US than the broader set of global markets, this specification reduces potential heterogeneity in the control group and provides a more stringent test of our baseline findings.

In addition, as discussed in the theory section and confirmed in the data section, more trade diversion in relative terms took place to the rest of the world than to the EU. So using only the EU as control groups reduces the overestimate of the effect of the tariff on exports to the US.

Table 10 reports the results. The estimated coefficients are closely comparable in sign, magnitude, and statistical significance to the baseline estimates in Table 3, indicating that our results are not driven by the inclusion of heterogeneous global comparison markets in the control group.

Table 10: Effect of Liberation Day on export margins, EU as control

	Value _{<i>f p d t</i>}	Quantity _{<i>f p d t</i>}	Log Price _{<i>f p d t</i>}
	(1)	(2)	(3)
$Post_t \times USA_d$	-0.215*** (0.038)	-0.112** (0.057)	-0.039*** (0.009)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	1,741,080	1,741,080	388,393
Estimator	PPML	PPML	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

Alternative sets of fixed effects: Our baseline specification absorbs all time-invariant heterogeneity at the firm-product-destination level via $\delta_{f p d}$. As a robustness check, we replace this fully interacted fixed effect with a less saturated, additive set of firm, product, country, year, and month fixed effects (Appendix Table A6). The coefficient on $Post_t \times USA_d$ remains negative and significant across all three outcomes, with magnitudes closely comparable to the baseline. The substantially lower R^2 under the relaxed specification reflects the loss of within-relationship explanatory power when the fully interacted fixed effect is replaced by its additive components. However, the stability of the treatment coefficient itself indicates that our baseline results are not an artefact of the chosen fixed-effects structure.

HS6-sector-specific effects: Italian wine exports are highly concentrated in two HS6 sector categories (Figure A1). Still wine in containers $\leq 2L$ (HS 220421) and sparkling wine (HS 220410) together account for more than 95% of total export value. The remaining categories—still wine in containers

exceeding 10 litres (HS 220429), still wine in containers between 2 and 10 litres (HS 220422), and grape must (HS 220430)—represent a much smaller share. Table A8 re-estimates the baseline specification separately for each HS6 category. The estimated effects are negative and statistically significant for the two largest product categories (HS 220410, HS 220421), with magnitudes broadly consistent with the pooled baseline estimates. By contrast, the estimates for the other categories are estimated with less precision, most likely reflecting the relatively small number of exporters and trade flows in these sectors rather than meaningful differences in their response to the tariff.

6 Policy discussion

Our results show that firms with high export dependency suffer more in case of rising protectionism. In particular, Italian firms who only exported wine to the US suffered large losses due to tariffs in the second Trump Presidency. Wines with GIs suffered less, probably because they are more differentiated and harder to replace for US consumers.

In terms of policy implications, individual firms with export dependencies should seek to diversify their destinations. At the national or EU-level, just like import dependencies are monitored, monitoring export dependencies could be informative in developing policies, such as the selection of partners and effort put into negotiating free trade agreements or completing accession negotiations for new EU member states. Relatedly, maintaining a strong EU economy with sufficient local demand can cushion the blow of potential tariffs. Ignoring export dependencies is risky, because it exposes the EU to geopolitical blackmail by the likes of President Trump.

7 Conclusion

Using high-frequency and granular Italian customs data on the exports of Italian wine, we study the heterogeneous impact of tariffs on exports. The tariffs imposed by President Trump in his second term provide the empirical shock. Unsurprisingly, tariffs lead to lower export values, driven both by volume and unit price reductions. Firms strongly focused on the US market suffered more, while products with a Geographical Indication suffered less.

We contribute to the literature by confirming that firms with stronger export dependencies on a limited number of destinations are more at risk, and by finding that product-level differentiation such as through Geographical Indications for wines can soften the blow.

References

- Fajgelbaum, Pablo D, Pinelopi K Goldberg, Patrick J Kennedy, and Amit K Khandelwal.** 2020. “The Return to Protectionism.” *The Quarterly Journal of Economics*, 135(1): 1–55.
- Flaaen, Aaron B., Ali Hortaçsu, Felix Tintelnot, Nicolás Urdaneta, and Daniel Xu.** 2025. “Who Pays for Tariffs Along the Supply Chain? Evidence from European Wine Tariffs.”
- Santos Silva, J. M. C., and Silvana Tenreyro.** 2006. “The Log of Gravity.” *The Review of Economics and Statistics*, 88(4): 641–658.

Appendix

A1 Descriptives

A2 Common estimation sample

Table A1 re-estimates our baseline specification for value, quantity, and price on the common estimation sample used for the price regression (i.e., restricted to firm-product-destination-month cells with a valid, trimmed unit value), addressing the concern that our baseline results in Table 3 are estimated on samples of differing sizes and compositions across outcomes. Coefficients on the quantity and value estimates are smaller in magnitude than the baseline but remain negative and highly significant across all three outcomes, confirming that our main results are not driven by the differing estimation samples and estimators used for the value/quantity and price columns.

Table A1: OLS estimates of the effect of Liberation Day tariffs on wine exports

	Value _{f pdt}	Quantity _{f pdt}	Log Price _{f pdt}
	(1)	(2)	(3)
Post _t × USA _d	−0.075*** (0.009)	−0.036*** (0.009)	−0.039*** (0.003)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE fixed	✓	✓	✓
Observations	568,335	568,335	568,335
Pseudo R ²	0.806	0.826	0.890
Estimator	OLS	OLS	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

Table A2: OLS estimates of the effect of Liberation Day tariffs on wine exports

	Value _{f pdt}	Quantity _{f pdt}	Log Price _{f pdt}
	(1)	(2)	(3)
Post _t × USA _d	−0.092*** (0.009)	−0.050*** (0.010)	−0.042*** (0.004)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE fixed	✓	✓	✓
Observations	619,990	619,990	619,990
R ²	0.405	0.421	0.882
Estimator	OLS	OLS	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

A3 Anticipatory trade (pre-piling):

A standard concern in event-study designs is that agents anticipate a known, dated policy change and adjust behavior before it formally takes effect, which would contaminate the pre-treatment reference period used to benchmark post-treatment effects. Because Liberation Day tariffs were announced with some lead time before their April 2025 implementation, we test directly for anticipatory front-loading by interacting an indicator for the three months immediately preceding implementation (January–March 2025) with the USA destination indicator:

$$y_{f\text{pdt}} = \beta_1 (\text{Prepile}_t \times \text{USA}_d) + \delta_{f\text{pd}} + \gamma_t + \varepsilon_{f\text{pdt}} \quad (1)$$

where Prepile_t equals one for $t \in \{\text{January, February, March 2025}\}$. Table A3 reports the results. The coefficient is positive and highly significant across all three outcomes, indicating that USA-bound value, quantity, and price were all elevated in the months immediately preceding implementation, relative to the same months for other destinations. This is consistent with exporters front-loading shipments ahead of the tariff, and it directly corroborates the modest pre-period upward drift visible in the event-study figures (Figure 2). As discussed in Section 5, this finding implies that our baseline treatment-effect estimates, which benchmark against the immediate pre-period, are likely conservative: if the pre-tariff reference period itself reflects elevated anticipatory trade, the true decline in trade relative to an un-inflated baseline is likely larger than our point estimates suggest.

Table A3: Anticipatory trade ahead of Liberation Day (2024–2025)

	<u>Value_{f_{pdt}}</u>	<u>Quantity_{f_{pdt}}</u>	<u>Log Price_{f_{pdt}}</u>
	(1)	(2)	(3)
Pre-piling window _{m=3} × USA _d	0.261*** (0.041)	0.121** (0.051)	0.024*** (0.004)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	3,693,864	3,693,864	568,335
Pseudo R ²	0.817	0.862	0.780
Estimator	PPML	PPML	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

A4 Full sample: 2021 – 2025

Our baseline results in Section 5 restrict estimation to the 2024–2025 window. Table A5 re-estimates our baseline specification (Equation (1)) on the full 2021–2025 sample. The coefficient on $Post_t \times USA_d$ remains negative and statistically significant across all three outcomes, though somewhat smaller in magnitude than the 2024–2025 estimates, consistent with the shorter window more tightly bracketing the tariff’s implementation and excluding earlier, unrelated variations in US-bound trade.

Table A4: Summary statistics for regression variables (full sample)

Variable	Mean	SD	Min	Max	<i>N</i>
Export value (EUR)	2,598.57	46,396.85	0	24,617,046	14,838,900
Export volume (Litre)	721.96	16,274.87	0	7,916,700	14,838,900
Export price (EUR/Litre)	8.03	6.68	1.70	38.50	1,549,992

Table A5: Effect of Liberation Day on export margins (full sample: 2021 – 2025)

	Value _{<i>f p d t</i>}	Quantity _{<i>f p d t</i>}	Log Price _{<i>f p d t</i>}
	(1)	(2)	(3)
Liberation Day _{<i>t</i>} × USA _{<i>d</i>}	−0.161*** (0.038)	−0.118** (0.055)	−0.027*** (0.008)
Firm-Product-Destination FE	✓	✓	✓
Month- Year FE	✓	✓	✓
Observations	14,838,900	14,838,900	1,458,981
Pseudo R ²	0.796	0.840	0.976
Estimator	Poisson	Poisson	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

A5 Relaxed fixed effects

Table A6 reports the estimates underlying the "Alternative sets of fixed effects" robustness check discussed in Section 5.5, replacing our baseline firm-product-destination fixed effect with an additive set of firm, product, country, year, and month fixed effects. We additionally report the coefficient on $Post_t$ alone, which is small and statistically insignificant across all three outcomes, indicating no detectable common shock to Italian wine exports (across all destinations) coinciding with April 2025, once destination-specific treatment is separately identified.

Table A6: Effect of Liberation Day on export margins (relaxed fixed effects)

	Value _{<i>f pdt</i>}	Quantity _{<i>f pdt</i>}	Log Price _{<i>f pdt</i>}
	(1)	(2)	(3)
Post _{<i>t</i>}	−0.025 (0.024)	0.008 (0.033)	−0.004 (0.003)
Post _{<i>t</i>} × USA _{<i>d</i>}	−0.206*** (0.029)	−0.117*** (0.040)	−0.044*** (0.007)
Firm fixed effects	✓	✓	✓
Product fixed effects	✓	✓	✓
Country fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Month fixed effects	✓	✓	✓
Observations	5,694,480	5,694,480	625,495
Pseudo R ²	0.444	0.514	0.507

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

A6 Alternative measures of exposure

As a robustness check on the continuous exposure measure used in Section 5 (Table 6), Table A7 reports estimates using a categorical exposure measure instead. We classify firms with positive 2024 USA export exposure into terciles (Low, Medium, High) and drop firms with no 2024 USA exposure from the sample. Consistent with the continuous specification, effects are negative and significant across nearly all exposure tiers and outcomes, and generally increase in magnitude from the Low to the High exposure tier for value and price. This corroborates the dose-response relationship documented in the main text using a specification that does not rely on a particular functional form for exposure intensity.

Table A7: Effect of Liberation Day on export margins, by categorical USA exposure tier

	Value _{<i>f pdt</i>}	Quantity _{<i>f pdt</i>}	Log Price _{<i>f pdt</i>}
	(1)	(2)	(3)
Post _{<i>t</i>} × USA × Low exposure _{<i>f t−1</i>}	−0.087* (0.048)	−0.040 (0.034)	−0.037*** (0.005)
Post _{<i>t</i>} × USA × Medium exposure _{<i>f t−1</i>}	−0.296*** (0.025)	−0.209*** (0.030)	−0.040*** (0.006)
Post _{<i>t</i>} × USA × High exposure _{<i>f t−1</i>}	−0.326*** (0.090)	−0.116* (0.065)	−0.070*** (0.014)
Firm-Product-Destination FE	✓	✓	✓
Month-Year FE	✓	✓	✓
Observations	3,071,664	3,071,664	489,883
Pseudo R ²	0.822	0.867	

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%. Exposure tiers are constructed from firms' 2024 USA export share among firms with positive exposure; effects are estimated relative to firms with zero 2024 USA exposure.

A7 HS6 sector estimates

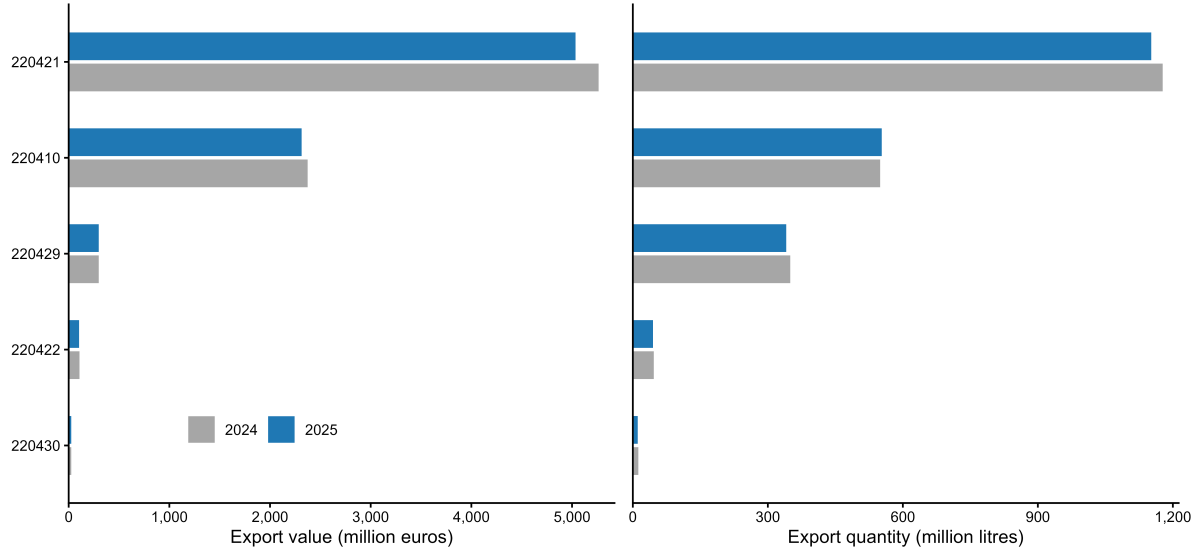


Figure A1: Italian wine exports by HS6 product group in 2024 and 2025

Table A8 re-estimates our baseline specification separately for each of the five HS6 wine sectors in our sample. Effects are negative and statistically significant for the three largest sectors by trade volume (sparkling wine, 220410; and two still-wine categories, 220421 and 220422), with magnitudes broadly consistent with the pooled baseline estimate. Coefficients for the two smallest sectors (220429, 220430) are statistically insignificant, likely reflecting the smaller number of firms and trade flows within these narrower product categories rather than a genuine ineffectiveness of the tariff's effect.

Table A8: Effects of Liberation Day tariffs by HS6 product group

		Value _{<i>f pdt</i>}	Quantity _{<i>f pdt</i>}	Log Price _{<i>f pdt</i>}	Observations
		(1)	(2)	(3)	
220421	Post _{<i>t</i>} × USA _{<i>d</i>}	−0.220*** (0.036)	−0.138*** (0.033)	−0.041*** (0.007)	
220410	Post _{<i>t</i>} × USA _{<i>d</i>}	−0.191*** (0.054)	−0.157*** (0.061)	−0.032*** (0.008)	
220422	Post _{<i>t</i>} × USA _{<i>d</i>}	−0.212* (0.119)	−0.136 (0.103)	−0.102** (0.047)	
220429	Post _{<i>t</i>} × USA _{<i>d</i>}	0.080 (0.155)	0.143 (0.216)	0.027 (0.039)	
220430	Post _{<i>t</i>} × USA _{<i>d</i>}	−0.159 (0.181)	−0.376* (0.219)	0.019 (0.040)	

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

A8 Price as an alternative measure of quality

Table A9: Effect of Liberation Day tariffs on export margins by product quality

	Value _{<i>f</i> <i>pdt</i>}	Quantity _{<i>f</i> <i>pdt</i>}	Log Price _{<i>f</i> <i>pdt</i>}
	(1)	(2)	(3)
Post _{<i>t</i>} × USA _{<i>d</i>}	−0.253*** (0.045)	−0.142*** (0.047)	−0.042*** (0.010)
Post _{<i>t</i>} × USA _{<i>d</i>} × Lower value wine _{<i>p</i>}	0.087* (0.047)	0.037 (0.043)	−0.008 (0.007)
Firm-Product-Destination FE fixed effects	✓	✓	✓
Month-Year FE fixed effects	✓	✓	✓
Observations	3,693,504	3,693,504	632,821
Pseudo R ²	0.818	0.862	0.762
Estimator	Poisson	Poisson	OLS

Notes: ***, ** and * denote statistical significance at 1%, 5%, and 10%.

A9 Other figures

Figure A2 shows Italy's ten largest wine export destinations by value in 2024 and 2025, referenced in Section 3. Figure A3 shows average export prices for GI and non-GI wine over the same period, referenced in the discussion of geographical-indication heterogeneity in Section 5.

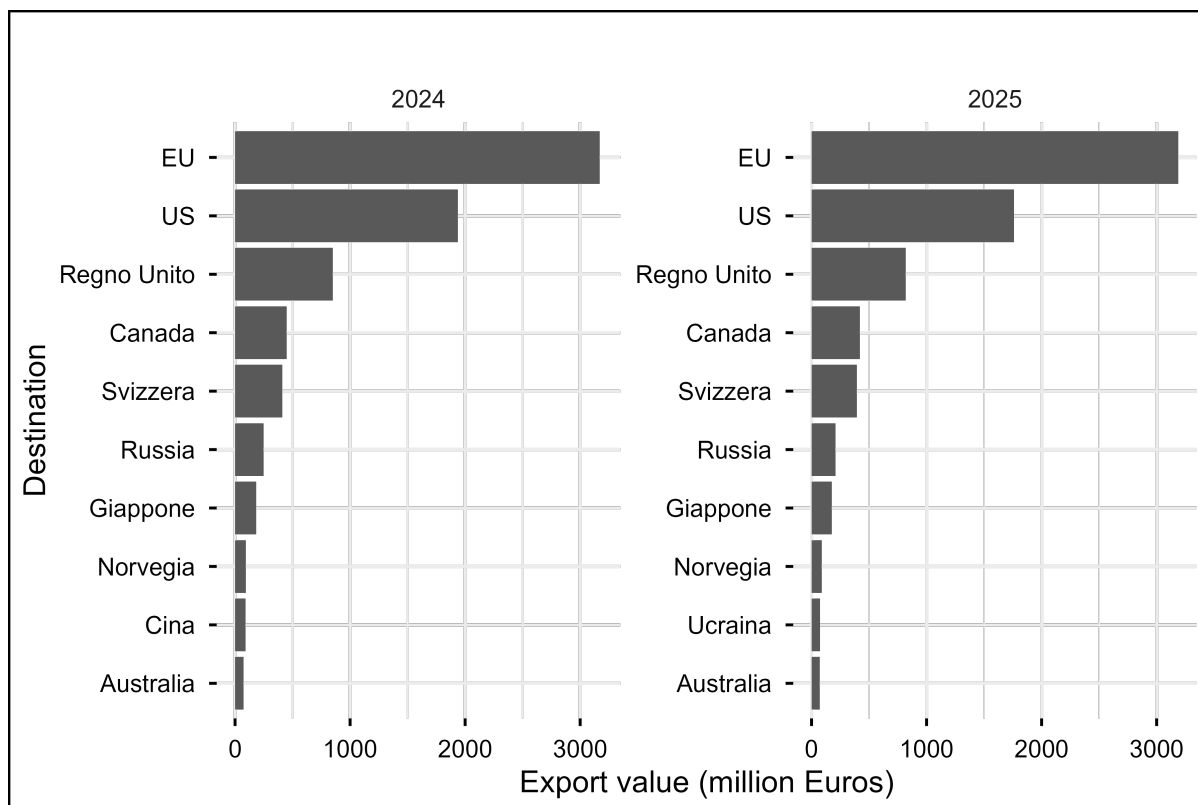
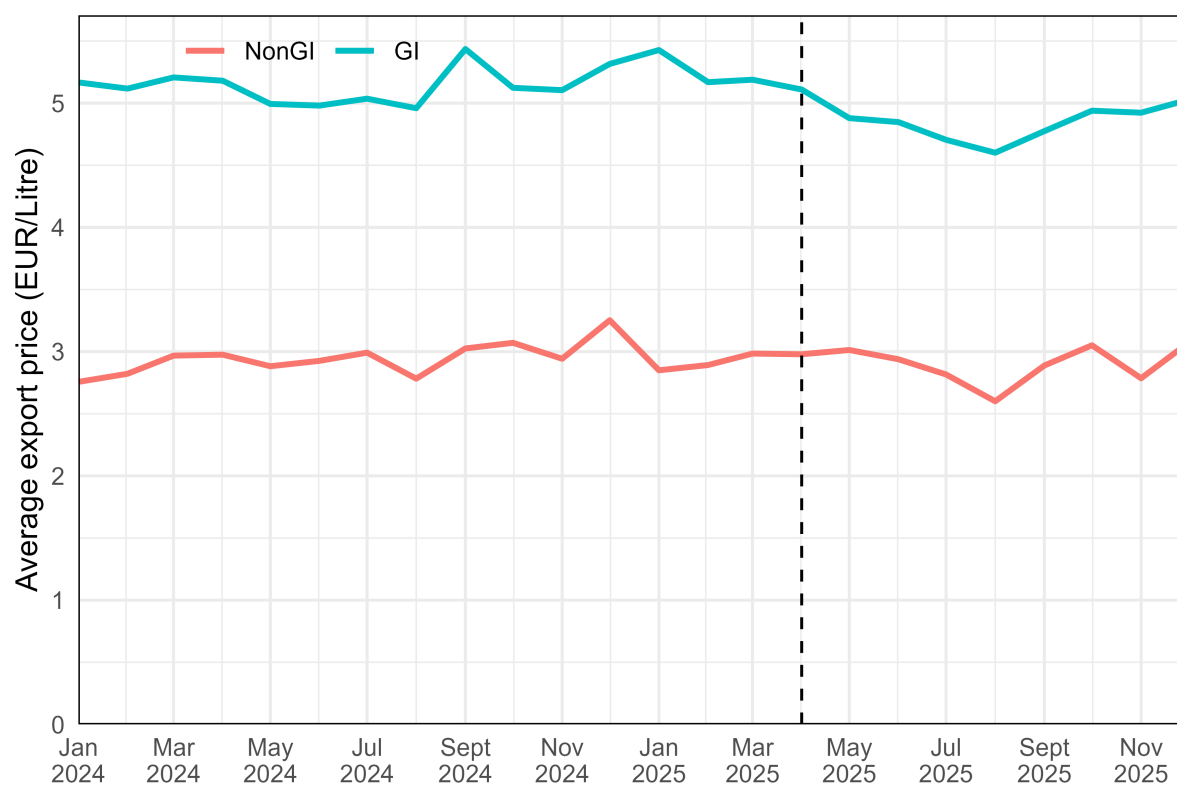


Figure A2: Top ten Italian wine export destinations by value



Notes: The figure plots average monthly export prices (€/kg) for geographical-indication (GI) and non-GI wine from January 2024 to December 2025. The dashed vertical line marks Liberation Day (April 2025).

Figure A3: Export prices by geographical indication status