Potable Intellectual Property: WTO TRIPS and EU Geographical Indication Wines[*]

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Abstract

The World Trade Organization (WTO) provides protection for Geographical Indication (GI) wines such as Bordeaux and Chianti under its agreement on Trade-Related Aspects of Intellectual Property (TRIPS). However, there is scant empirical evidence on the effectiveness of TRIPS protection of GI wines. A panel data analysis of EU wine exports over the period 1995-2019 does not find a significant effect. When countries accede to the WTO, their import of GI wines does not go up significantly more than that of non-GI wines. Methodologically, the paper innovates by its use of fine-grained trade data, addressing the issue of concordance by constructing indices that cover the same products over time, even as the classification of wines into CN8 codes changes over time. Our findings suggest that the EU policy of also including wine GIs in bilateral agreements is an attempt to improve de facto enforcement of GI protection in third countries.

Keywords: WTO, Intellectual Property, TRIPS, Geographical Indications, Wine

JEL codes: F13 Trade Policy; International Trade Organizations ● O34 Intellectual Property and Intellectual Capital ● Q17 Agriculture in International Trade

[*] The authors gratefully acknowledge help from Karin Latouche in constructing trade indexes with constant product composition over time, as well as research assistance from Willemijn van Dort. We also thank Giulia Meloni for feedback and discussions on EU wine regulations and exports.

1 Introduction

Article 23 of the WTO agreement on Trade-Related Aspects of Intellectual Property (TRIPS) provides strong international protection for so-called Geographical Indication (GI) wines such as Bordeaux, Champagne, and Chianti (Addor & Grazioli, 2005; Barham, 2003; Broadbent & McMillian, 1998; Hughes, 2006; Raustiala & Munzer, 2007; WTO, 1994). In theory, WTO members have to provide legal means to "prevent use of a geographical indication identifying wines for wines not originating in the place indicated by the geographical indication in question […] even where the true origin of the goods is indicated". However, there is scant empirical evidence on whether TRIPS protection of GI wines is effective at actually increasing GI wine exports, for instance by displacing GI imitations. This paper addresses this gap in the literature by analyzing export data of EU wines over the period 1995-2019. It contributes to the literature on trade and intellectual property by identifying the trade effects of TRIPS from WTO accessions. Methodologically, it contributes to the study of wine GIs by constructing indexes of CN8 trade data with constant product compositions over time.

A GI protects a product with "a given quality […] essentially attributable to its geographical origin" (WTO 1994, Art.22). It is a type of collective intellectual property right, entitling only producers within the designated area to use the name (Marette, Clemens, & Babcock, 2008). The EU protects over 1,700 wine GIs, of which over 90% are from the Southern Five: France, Greece, Italy, Portugal, and Spain (Huysmans & Swinnen, 2019). In fact, the current EU system, which also protects foods such as Parma ham or Feta cheese, is based on century-old protection systems for wine in those countries (Haeck, Meloni, & Swinnen, 2019; Meloni & Swinnen, 2018, 2013; Stanziani, 2004). In part because of EU activism, countries worldwide have been setting up and expanding their own GI systems (Biénabe & Marie-Vivien, 2017; Park, 2020; Vandecandelaere, Teyssier, & Barjolle, 2020; Vinayan, 2017; Zappalaglio & Mikheeva, 2021; Zito, 2021). However, the US has been critical of the notion of GIs, seeing them as a tool of EU protectionism (Josling, 2006; Watson, 2016).

Past research has found that GI wines have higher export values and volumes (Agostino & Trivieri, 2014). This may be related to the (perceived) higher quality of GI wines (Crozet, Head, & Mayer, 2012). However, without legal protection and enforcement this also makes GIs attractive targets for imitation or fraud (EUIPO, 2016).

Outside of the EU, GI wines are protected by the WTO. The WTO was founded in 1995 as the follow-up to the General Agreement on Tariffs and Trade. It is the most important international

organization related to trade, having over 160 members and covering the vast majority of world trade.[1] However, some of these members only joined after its creation. Most notably, China joined in 2001 (see e.g. Liu & Ma, 2020) and Russia in 2012. Smaller new members include Bulgaria (1996), Croatia (2000), Vietnam (2007), and Ukraine (2008). Exports to these new joiners can be used to study whether TRIPS increases exports of EU GI wines. Past literature has established that TRIPS has led to a significant increase in patent-intensive exports (Ivus, 2010; Smith, 1999), but to the best of our knowledge there has been no research on TRIPS and GI exports.

Since the WTO affords weak international protection for food GIs, it is not surprising that the EU has sought to expand protection for its food GIs through bilateral free trade agreements (Curzi & Huysmans, 2021; Evans & Blakeney, 2006; Huysmans, 2020; Moir, 2016; Slade, Michler, & Josephson, 2019). More puzzling is that the EU regularly includes wine GIs in annexes of trade agreements, even though they are supposed to already be strongly protected internationally based on Article 23 of TRIPS. In addition, in 2019 the EU acceded to the Geneva Act of the Lisbon Agreement on Appellations of Origin and Geographical Indications, which entered into force in February 2020.[2] This act facilitates international registration of GIs at the World Intellectual Property Organization. A reason for the EU seeking additional means of protection beyond WTO TRIPS could be the lack of effectiveness and enforcement of WTO provisions. Hence it is important to ask: what has been the effect of WTO TRIPS protection on GI wine exports?

EU wine export data presents both an advantage and a challenge in light of our research question. The advantage is that the EU's detailed CN8 classification of trade data clearly separates GI wines and non-GI wines, which is not the case for food. The challenge is that changes in the classification codes have been frequent and many. The challenge will be addressed in this paper by constructing indices covering varying CN8 codes but the same underlying products over time (Le Roy, Harel, Latouche, Gaigné, & Turolla, 2014).

This paper contributes to the literature on international trade and trade agreements by zooming in on specific provisions, rather than looking at the overall effect of trade agreements, which we know by now to be positive (Baccini, 2019). More specifically, it looks at intellectual property, an area of growing attention and importance (see e.g. Osgood and Feng, 2018). It

[1] See https://www.wto.org/english/thewto_e/thewto_e.htm for the latest numbers.
[2] For background on the Lisbon Agreement and how it relates to TRIPS, see Gervais (2009).

contributes to the literature on the regulation of food and wine (see e.g. Meloni, Anderson, Deconinck, & Swinnen, 2019; Swinnen & Vandemoortele, 2011) by identifying the effect of international intellectual property standards on wine exports.

2 Data and methods

The goal of the analysis is to identify whether TRIPS protection of GI wines gives rise to increased exports of EU GI wines, above and beyond the general effect of importers acceding to the WTO. To accomplish this, a Pseudo-Poisson Maximum Likelihood (PPML) regression is run. A battery of fixed effects (exporter-time, importer-time, product-time) control for confounders. For instance, importer-time effects control for the general trade-promoting effects of WTO accession through lower tariffs, while the product-time fixed effects control for increased worldwide popularity of certain wines.

The data covers exports of wine (Harmonized System trade code 2204) by the biggest 7 EU exporters (representing over 90% of exports) to the biggest 100 importers (representing over 99% of imports), over the period 1995-2019. The identification of the TRIPS effect is based on variation at the importer-product-time level, in particular variation in the sales of GI wines in countries that acceded to the WTO during the observation window. Notably, both China and Russia acceded to the WTO during this period, in 2001 and 2012 respectively.

At the level of eight-digit Combined Nomenclature (CN8) trade lines, GI and non-GI wines can be separated, as well as prices and quantities. However, as in US tariff lines (Pierce & Schott, 2012), the assignment of products to CN8 codes changes over time. To address this issue of concordance, the method of Le Roy et al. (2014) was used, grouping CN8 codes into indices. The indices are constructed such that they cover the same products over time.

2.1 Data

Trade data is internationally organized in the Harmonized System, with three levels of detail and respectively 2, 4, and 6-digit trade codes: HS2, HS4, HS6. For instance, the HS2 chapter ‘22’ refers to beverages, spirits and vinegar. Within that, the HS4 code ‘2204’ covers wine, and the HS6 code ‘220410’ covers sparkling wine. More fine-grained trade codes differ internationally. The EU uses an 8-digit system called the Combined Nomenclature (CN8). For instance, in the year 2019, CN8 code ‘22041011’ refers to Champagne.

The analysis covers all CN8 codes in the HS4 class 2204 (wine), from the years 1995 to 2019. Throughout these years, several changes have been made in the classification of wines into CN8

codes. The reasons vary, e.g. new member states with new wines joining or a desire to have trade data available at a different level of detail. Products may be merged, split out, or simply reassigned (Le Roy et al., 2014; Pierce & Schott, 2012). Changes are documented in the EU system RAMON, and annual CN8 tables can be found on the website of the Finnish customs department.[3] For instance, since 2017 Cava has CN8 code '22041013' and Prosecco '22041015'. Before 2017, both were part of code '22041093' for other sparkling wine. And before 2010, those same products were in code '22041099'.

Since CN8 codes represent different products over time, it is necessary to aggregate the data into families or indexes of CN8 codes which cover the same products over time. For every year, a mapping needs to be made of CN8 codes to index codes, so that the indices cover the same products over time. To establish these indices, the approach of Le Roy et al (2014) was used, resulting in 18 indices. Their procedure is similar to Pierce & Schott (2009), who refer to synthetic codes rather than indices.

To identify whether an index covers only GI products, only non-GI products, or both, all CN8 codes for each year were classified in their level of protection, namely PDO/PGI protection, or no protection.[4] Out of 18 indices, 13 are pure with respect to GIs: over the entire period, they cover only GI wines, or only non-GI wines. The remaining 5 indices mix GIs and non-GIs. Data for the 5 mixed indices will not be used for the estimation, since one cannot disentangled what value share corresponds to GIs.

In order to limit the amount of constant zero observations (which lack identifying variation), a selection of exporting and importing countries was made, based on the 2019 export numbers, for HS4 code 2204. On the exporting side, the Southern Five (France, Greece, Italy, Portugal, and Spain) were complemented with the next biggest EU exporters, i.e. Germany and the United Kingdom. Together, these 7 countries cover approximately 93% of 2019 wine exports. On the importing side, the biggest 100 importing countries were retained, covering over 99% of 2019 EU wine exports.

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[3] See http://ec.europa.eu/eurostat/ramon/ and https://tulli.fi/en/statistics/combined-nomenclature-cn/previous-years.

[4] Prior to 2008, EU wines were classified into two categories: "quality wines produced in specified regions" and "table wines". In 2008, they were reclassified into either "wines with a GI" (all of the former quality wines plus table wines that obtained a PGI, such as the French *Vin de Pays* or Italian *Indicazione Geografica Tipica*) or "wines without a GI". The CN8 trade codes underwent a major restructuring in 2009, taking effect in 2010. As a result, the indices containing the CN8 codes granted a PGI in 2008 mix GI and non-GI products.

Annual CN8 trade data 1995-2019 for the 7 exporters and the 100 importers was taken from Eurostat Comext.[5] The CN8 export data were aggregated at the index level by summing for each year the values of the CN8 codes belonging to the index in that year. Over the 25-year period, a total of 2,495 CN8-years are involved, i.e. each year about 100 CN8 codes were in use on average. The yearly aggregation of CN8 codes resulted in 13 unmixed indices covering the same products over time. With 7 exporters, 100 importers, 13 indices, and 25 years of data, 227,500 observations result.

For importing countries, their year of WTO accession was taken from the WTO website.[6] This was used to construct the dummy variable *TRIPS*, which is 1 for observations covering exports of GI indices to partners that have joined the WTO at the latest 1 calendar year earlier. In order to account for the time needed to implement the TRIPS rule, the main estimation will use the lagged *TRIPSlag*, where the WTO was joined at the latest 2 calendar years earlier.

[5] See http://epp.eurostat.ec.europa.eu/newxtweb/. The REPORTER being one of the seven exporting countries identified previously, the PARTNER being the 100 biggest importing countries identified previously, the PRODUCT being all CN8 codes in the 2204 category. The PERIOD used was 1995 up to and including 2019. Lastly, EXPORT was expressed in the value in euros and the quantity in 100 kilograms (hectoliters).
[6] https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm

2.2 Descriptive graphs

As the descriptive graphs in this section show, GI exports have increased a lot over the period concerned. To be identified is what portion of this growth, if any, can be attributed to TRIPS specifically. Figures 1 and 2 show a more than threefold increase for the main exporters France and Italy. Non-GI exports from unmixed indices are low and flat in comparison. Note that these graphs, just like the regressions later, exclude indices that mix GI and non-GI wines.

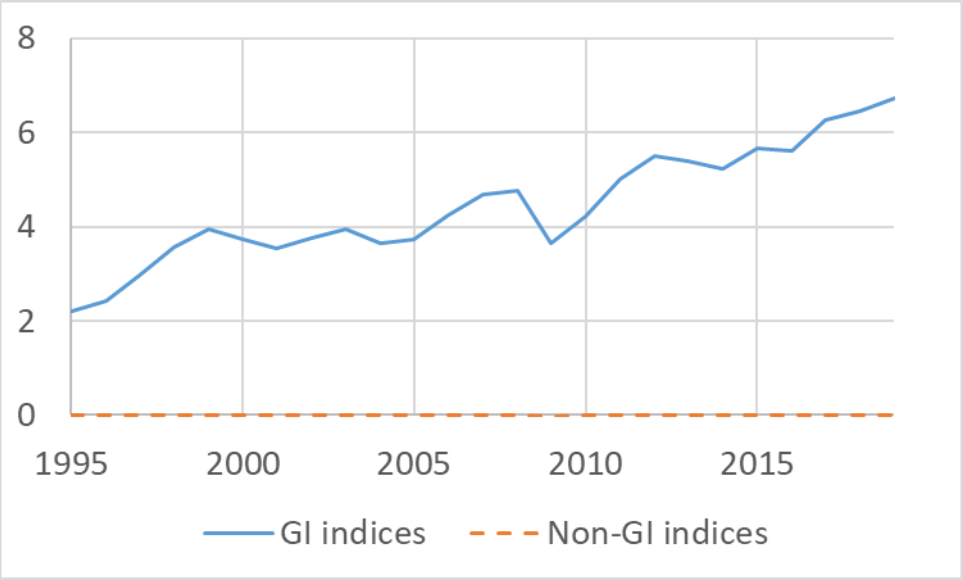

Figure 1. Wine exports of France in B€.

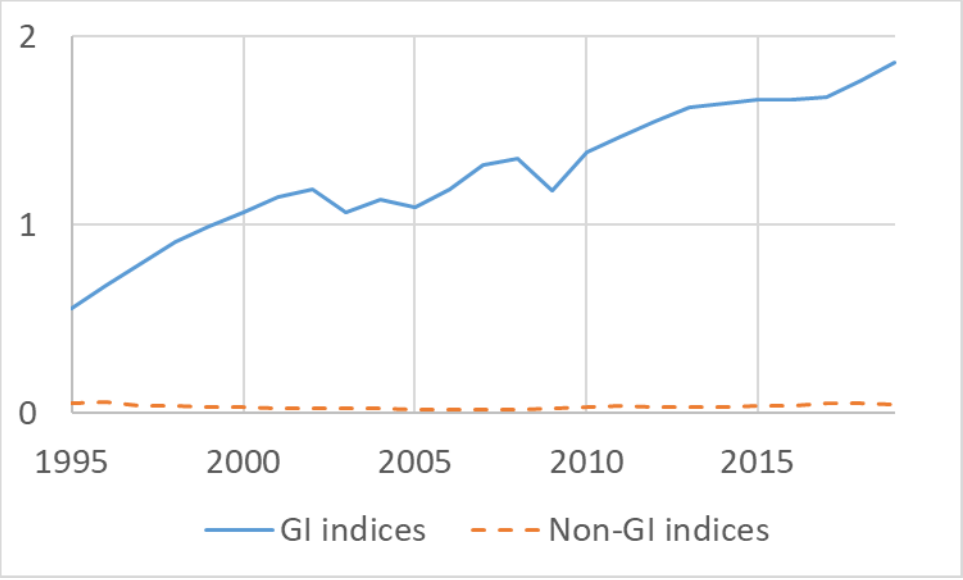

Figure 2. Wine exports of Italy in B€.

Figures 3 and 4 show imports in billion euros for China (joined the WTO in 2001) and Russia (joined in 2012). For both, GI imports clearly increase over time. They also go up more than non-GI imports, which are more or less flat. Yet to be identified is whether, after WTO accession specifically, they also go up more than GI imports in other countries which did not join the WTO.

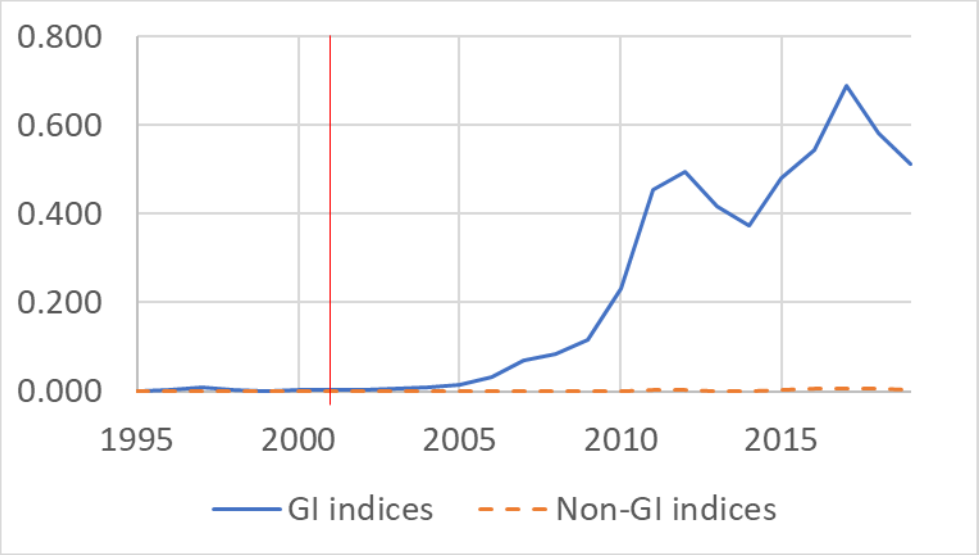

Figure 3. Wine imports of China in B€.

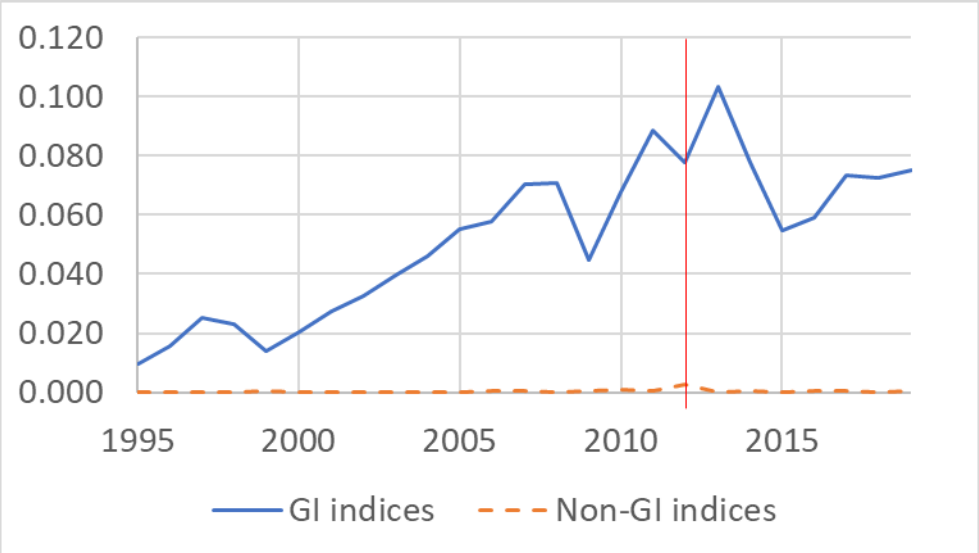

Figure 4. Wine imports of Russia in B€.

2.3 Methods

Our main specification is a structural gravity model with fixed effects. Traditional gravity models use control variables like distance and the GDP of exporter and importer. Structural gravity models replace these controls by fixed effects (see e.g. Baier & Bergstrand, 2007). For instance, a product-time fixed effect controls for worldwide changes in the trade in a given product at a given time.

The overall positive effect of WTO accession due to lower tariffs and non-tariff barriers will be eliminated using importer-time fixed effects. These effects also eliminate non-GI specific increases in wine imports due to globalization and changing tastes (K. Anderson & Pinilla, 2021). Similarly, the overall positive effect of GIs will be eliminated using product-time fixed effects. Finally, production shocks such as reforms of planting rights (see e.g. Meloni et al., 2019) or global changes in taste for wine from different exporters will be eliminated using exporter-time fixed effects. The remaining effect will measure whether trade in GI wines goes up more after WTO accession than non-GI wines to the same importer and the export of GI wines to non-acceding countries.

We use the regression technique of Pseudo-Poisson Maximum Likelihood, the state-of-the-art technique in trade models, where zero trade flows often occur (J. E. Anderson & Van Wincoop, 2003; Correia, Guimarães, & Zylkin, 2020; J. M. C. Santos Silva & Tenreyro, 2011; J. Santos Silva & Tenreyro, 2006).

3 Results

Table 1 shows the results of a PPML model with exporter-importer-time (ijt) and product-time (ct) fixed effects. For the full sample, a null effect of TRIPS protection on GI exports is found. Note that both importer-time and exporter-time nest importer-exporter-time fixed effects; our three-way fixed effect specification is even more stringent than including both two-way fixed effects. Overall, when countries accede to the WTO, the export of GI wines does not go up more than that of non-GI wines and GI wines to other countries. This suggests that, when looking across the board, the strong protection of wine GIs in TRIPS does not seem to generate in practice the effect that the EU had hoped for it.

More detailed analyses will consider heterogeneous effects across products, e.g. with different initial market shares or quality, and across markets with different tastes. As Model 2 in Table 1 shows, when restricting the importers to China and Russia a significant effect is found.

However, this may be an overestimation of the causal effect of TRIPS. If the taste for quality GI wines specifically has gone up more in China and Russia in the period after joining the WTO than it has worldwide, our specification could spuriously identify TRIPS as the cause of this increase in GI exports.

Table 1. PPML fixed-effects regressions 1995-2019.

PPML on Export (ijct)	(1)	(2)
	Full sample	China & Russia
TRIPSlag	-0.231	0.928**
	(0.280)	(0.368)
Exporter-Importer-Time ijt FE	Yes	Yes
Product-Time ct FE	Yes	Yes
Observations	183,131	3,498

*, **, *** indicate significance at 90%, 95% and 99% confidence levels, with standard errors clustered at the importer-time level. Dimensions of data: i= 7 exporters, j= 100 importers, c= 13 unmixed indices, t= time.

4 Conclusion

We find that exports of GI wines do not go up more to WTO-joiners than non-GI wines to those joiners and GI wines worldwide, i.e. there seems to be no causal effect of the TRIPS provisions in the WTO on GI wine export increases.

The results suggest that either there were not a lot of GI imitations to begin with in the countries concerned, or the enforcement of GI protection is limited even after WTO accession. Judging from the EU's actions, it seems to be worried mostly about the latter. Indeed, even though on paper TRIPS Article 23 protects GI wines very strongly, the EU often lists individual GI wines for protection under bilateral trade agreements or GI-specific agreements. A case in point is China: in 2021, 20 years after its WTO accession, through a separate bilateral agreement China has agreed to protect a list of 100 EU GIs, including some GI wines that should already have been protected under TRIPS (Ferrante, 2021).

To conclude, the protection of GI wines under WTO TRIPS Article 23 is very strong on paper, but a fine-grained PPML fixed-effects analysis of EU wine exports over the period 1995-2019 does not find a significant effect on GI wine exports. In this light, the EU policy of including wine GIs in bilateral agreements can be seen as an attempt to improve de facto enforcement of GI protection in third countries.

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