Padua 2017 Abstract Submission

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Keywords
Wine; export determinants; gravity model; panel data; Hausman-Taylor estimator; Douro region

Research Question
Study the main export determinants of wine, a globalised and competitive market, using as a case study the Douro region.

Methods
A panel data of the 20 top importer countries of Douro wines between 2006 and 2015 is used to estimate an expanded gravity model through Hausman-Taylor (1981) estimator.

Results
The main determinant of wine exports is GDP per capita with a positive effect. There are differences between the results for each typology and quality from the Douro region.

Abstract
As other southern European countries, Portugal is one of the oldest worldwide wine producer. In 2015 Portugal is ranked in 11th in terms of production and 9th in exports (OIV, 2016). Port wine makes an important contribution to wine exports, representing, 24% of the quantity and 43% of the value also in 2015. Port wine constitutes a typical case of a globalized product, sold in the world market for over two hundred years and more than 84% of its production is exported. Conversely Portuguese still wines have a much lower share of exports over their total production.
The Portuguese wine production is divided in different demarcated regions, being the most famous, the Douro Region, demarcated since 1756 and located in the northern interior of Portugal. This region produces, simultaneously and on the same proportion, Port wine and still wines (Appellation d'Origine Contrôlée Douro wine), fitting the typical terroir model (Rebelo and Caldas, 2013). Before the entrance of Portugal in the European Economic Community, almost all of the still wines were transformed in brandy which is used in the production of liquorous Port wine. In the beginning of the 1990s, following the intense globalization witnessed in the wine industry, a high number of Douro grape-growers start to bottle their Douro wine, developing their own label, but selling essentially in the domestic market. It was only in the mid of the first decade of the 21st century that these new wine market producers developed significant efforts to gain a relevant position in the international market. The entry in the foreign markets became quite difficult, as the Douro wine, as well as this region, are not known at all, and therefore did not represent a category to be included in the wine lists and shelves (Rebelo and Muhr, 2012).
Looking to the recent evolution of exports of Douro wine, we can say that we are in the presence of a new entrant

in the international wine market, similar to what happens in a new world wine country, but with the threats and opportunities of an old wine region that fits the typical terroir model, dominated by micro and small enterprises.
Since 2006, the first year for which there are reliable records, the exports of Douro wine have grown at a yearly average rate of almost 13% in value, generating in 2015 a turnover of more than 50 million euro at an average price of 4.10€ per litre, representing a share of 7% of total Portuguese exports, in value, and 4% in volume.
In 2015, many countries (114) were the destination of these exports, but five countries represent more than 56% of the total exports in value of Douro wine: Canada (15%), Angola (11%), USA (11%), Brazil (10%) and Switzerland (9%). These data show that the most important export destination of Douro wine are different from those of Port wine (France, 25%; United Kingdom, 16%; Netherlands, 14%; Belgium, 11%; and USA 11%), meaning that possibly the markets of wine vary according to typology – liquorous or still – and, eventually, to quality.
The main objective of this study is to analyse the macroeconomic determinants of Douro wine exports and to compare them with those of Port wine, since both wines are produced in the Douro Region. To achieve this goal an expanded gravity model is estimated through Hausman and Taylor (1981) estimator. The dependent variable is Douro wine, differentiated according to the following growing quality order: Standard, Reserve and Grand Reserve.
This work goes in line with the recent literature that applies the gravity model to the wine industry (Dal Bianco et al., 2015; Castillo et al., 2016; Gouveia et al., 2016; Lombardi et al., 2016). In terms of explanatory variables, in addition to the traditional economic size (here represented by gross domestic product - GDP) and distance (between capitals) other variables are included, namely importer's consumption per capita of wine, GDP per capita, exchange rate (amount of local currency unit per euro), total imports and exports of wine, tariffs, common official language, Portuguese emigrant community and landlockedness.
Consumption per capita and GDP per capita are used as market size variables and the last one is as a proxy for purchasing power. The exchange rate is taken into account to analyse the competitive situation of these wines in terms of exports (Gómez and Milgram, 2010). As a proxy for country wine demand we use the volume of wine imports of the country (Lombardi et al., 2016). The volume of wine exports of the importer country is an indicator of high-level of production (the domestic supply) (Dascal et al., 2002) and it can be seen as a way of exploring the effect of competition between producers. Tariffs are commonly treated as potential barriers to international trade (Castillo et al., 2016) so it is important to estimate their effect on wine exports. Common official language is a heritage of historic colonial relationship which may mean less cultural differences (Spring and Grossman, 2016). Furthermore, it can be a facilitator in trade negotiations. The same logic could be applied in countries with large Portuguese emigrant communities. Finally, the use of a dummy variable for countries without access to ocean is common on the literature of gravity model (Gómez and Milgram, 2010) upon the logic that it will restrain the transportation of merchandise and possibly increase costs.
The database available is a balanced panel data for the top 20 countries (Angola, Austria, Belgium, Brazil, Canada, China, Denmark, France, Germany, Japan, Luxembourg, Macao, Netherlands, Norway, Poland, Spain, Sweden, Switzerland, United Kingdom and United States of America) of destination for Douro wine, from 2006 to 2015. The main data sources are IVDP, Instituto da Vinha e do Vinho (IVV), International Organisation of Vine and Wine (OIV), World Development Indicators from World Bank and GeoDist from Centre d'Études Prospectives et d'Informations Internationales (CEPII).
The results are clear in relation to the positive impact of the GDP per capita on Douro wine exports, whether the exports are measured in terms of volume or value. In addition, the results show specific determinants by categories such as the negative effect of total wine exports of the destination country – for Reserve and Grand Reserve – and exchange rate – for Reserve – and the positive effect of total wine imports of the destination country – for Grand Reserve.
Comparing to Port wine results (Gouveia et al., 2016), GDP per capita is a common significant export determinant with positive effect. However, cultural affinity is not linked to an increase of Douro wine exports, as well as landlockedness does not have a significant barrier effect.
In this context, some strategies suggested by Gouveia et al. (2016) can be applied to Douro wine, as the increase of exports of high quality wines (Reserve and Grand Reserve categories) to markets showing tendency to increase imports of wine and to fast-growing economies.
In terms of structure, after an introduction, this paper presents a literature review on determinants of wine exports. Follows an analysis of the recent influence in the competitive global wine market of the Douro wine. Then, the model, data and results are presented and some concluding remarks are made.
The contribution of this paper is the enrichment of macroeconomic determinants of wine exports literature using as an example the recent successful case of a new entrant producer. This could benefit any other region endowed of a terroir model and largely composed by micro and small enterprises, supporting entrepreneurs and

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DYNAMICS OF WINE EXPORTS: EMPIRICAL EVIDENCE OF A PORTUGUESE (DOURO) WINE REGION

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