

CHANGES IN PROTECTED DESIGNATIONS OF ORIGIN IN THE SPANISH WINE SECTOR: MOVEMENTS BETWEEN WORLDS OF PRODUCTION

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I. INTRODUCTION

Given that local factors influence the properties of regionally-produced wine, Protected Designations of Origin (PDOs) are recognised within the European Union to guarantee the entirely local origin of a product with differentiated quality. After the approval of the 2003 *Ley de la Viña y el Vino* (Vine and Wine Law), which incorporates several protection levels within the PDO, the designation creation rate has multiplied in Spain.

On the one hand, there are designations where wine is predominantly produced in small wineries supplied by their own vineyards (Ruiz, 2013). On the other, there are designations where large-scale wineries and cooperatives concentrate on producing wine that is generally made using grapes from a broad network of winegrowers (Sánchez et al., 2010). Where marketing is concerned, as Climent and Sánchez (2015) highlight, some designations focus on elite markets where product personalisation is hugely important. The consumers they target value product attributes above price when choosing their wine. Other PDOs, however, supply large, undifferentiated markets where product personalisation is secondary.

This diversity of situations helps to identify designation groups based on their prevailing model. The worlds of production theory, posited by Salais and Storper (1992), provides a suitable work framework, since it proposes the existence of four product types, 'worlds of production', based on the crossover of two main dimensions: production technology type and destination market type. Adherence to one or the other world of production varies depending on technical changes or market type (Murdoch and Miele, 1999).

Legislative changes have led to a change in composition based on designation type. A comparative analysis between the current situation and the one prior to the approval of the Vine and Wine Law is of interest to assess the law's effects. Given that we have observed that Spanish designations are moving in different directions, identifying homogeneous PDO groups has proved helpful. Using the worlds of production theory as the theoretical framework,

the purpose of this study is to identify the world of production each designation belongs to and the changes recorded in all the Spanish PDOs from the beginning of the 2000s to date.

II. THEORETICAL FRAMEWORK

II.1. Product dimensions

The type of technology used to produce an article can be specialised or standardised. Specialised technologies are characterised by a predominance of economies of scope and the manufacturing knowledge needed is restricted to a small group of experts. In contrast, standardised technologies tend to be automated so economies of scale appear in production. Competitive prices are especially relevant in standardised products, while quality is paramount in specialised ones (Murdoch et al., 2000; Kirwan, 2006).

Market type varies between dedicated and generic markets. Dedicated markets are related to an uncertain demand since product personalisation predominates in them. Generic markets are related to the presence of a large number of anonymous consumers and a predictable demand. Differentiation plays an important role in dedicated markets to compete with other companies, while generic products tend to have similar characteristics to each other.

II.2. Worlds of production

The interpersonal world (specialised-dedicated) concerns personalised products manufactured on a small scale in which quality is essential (Salais and Storper, 1992; Murdoch, 2000). In this world of production, consumers seek specific product properties and these are the main reason why they are chosen. The interpersonal world is integrated by wineries marketing a high-quality product for elite markets (Sánchez et al., 2010).

The market world (standardised-dedicated) concerns products whose production involves economies of scale aimed at a small niche market. There is some duality in this world of production. On the one hand, companies must comply with quality requirements and properties determined by the market niche. And, on the other, the automation trend leads to companies competing strongly on price. The market world in the wine sector is related to large wineries that participate in wine competitions and produce differentiated series (Sánchez et al., 2010).

The innovation world (specialised-generic), in other sectors related to the development of new products, concerns articles produced by a small group of specialists aimed at large-scale markets. Wine is a traditional product and its world of production is linked to wineries and designations dominated by the Château model and to the production of quality wines marketed in standardised series to supply large-scale markets (Esteban, 2016).

The industrial world (standardised-generic) concerns products whose destination is a large, predictable market. The manufacture of these products is highly automated and they are produced in bulk by several companies. Their properties are well defined and attainable by industrial standards, so competition between companies is focused on price. In the wine sector, this world of production is related to the presence of large wineries and cooperatives that produce wine for sale at a low cost in large-scale markets.

II.3. Forms of competition

Production, marketing and negotiation practices differ based on the crossover of technology and market types, in other words, each world of production has its own conventions. These include a company's form of competition whereby the importance given to price and quality varies in every world of production. Price competition is greater in standardised worlds of production, in which the required properties can be attained by industrial processes. In contrast, brand quality and reputation play a more important role in specialised contexts (Salais and Storper, 1992; Murdoch et al., 2000). In dedicated-personalised markets, specific product properties become very important and differentiated quality plays an important role in the competition between companies within this market type (Salais and Storper, 1992; Cazals, 2012).

II.4. Movements between worlds of production

Changes in the way a product is produced or in the destination market generate variations in its world of production. These modifications involve changes in quality conventions and method of competition (Salais and Storper, 1992). The movement between worlds of production can be interpreted as one sector adapting to the new conventions the market demands, which is a form of innovation (Stræte, 2004). Adapting to these changes is essential for long-term success in a sector (Lindkvist and Sánchez, 2008).

III. METHOD

The proposed study outline aims to identify the world of production that the wine designations of origin belong to in Spain between the 2001–02 wine year and the current wine year (2012–13) to analyse its development and assess the effect of the 2003 Vine and Wine Law. First, we need to identify the technology and market types of each designation in this timeframe. After identifying each designation's world of production in each wine year, we checked the coherence of the classification with those posited in the theoretical model based on a comparison of price and differentiated quality data observed in every world of production.

After validating the classification model, the results of each wine year enable us to study the distribution of designation types in both periods and observe designations in every category throughout the timeframe. In a later phase, we conducted an analysis of movements between worlds of production to discover the sector's development.

III.1. Definition of indicators

Two main aspects can be considered in the wine sector when differentiating between specialised and standardised technologies. On the one hand, the size of the winegrowing estate and, on the other, its closeness to the Château model. The first element considers the relationship between work and capital, the role of mechanisation of agricultural tasks. The

second element, the number of winegrowers per winery, helps us establish a comparison between the *Vino de Pago* model (PDO “estate wines”), characterised by homogenous quality production (Ruiz, 2013) and the large cooperative model, which favours the use of economies of scale (Salazar and Galve, 2011).

Size of vineyard and winegrowers per winery can be combined to obtain a unique scale of technology type. For that purpose, Esteban (2016) proposes using the product between both, in other words, producing a surface area indicator per winery. Low surface area values per winery are related to specialisation and high values to standardisation.

The degree of product differentiation is a key factor in discerning market type. Climent and Sánchez (2015) used the number of wine brands each winery produces as an indicator of the degree of differentiation. Murdoch et al. (2000) and Kirwan (2006) emphasise the degree of anonymity of purchasers to analyse market types. Consequently, the average brand size, which gives us an estimate of the destination market size, can be inferred from the differentiation indicator of brand number per winery and the marketed volume (Esteban, 2016). Small brand sizes are related to dedicated, personalised markets, while large brand sizes are related to generic markets comprising a large number of anonymous consumers.

The worlds of production theory posits that the relationship between price and quality differs in every world of production and that several competitive models are established. The average price of wine marketed by every designation can be considered directly to analyse the first issue in which low values mean that competitive prices are extremely important and vice versa. Unlike price, defining a quality indicator is complex, since a multitude of perspectives can be considered when assessing the quality of a product. To have an indicator recognising differentiated quality in relation to production, we have opted to use the ratio between total volume of marketed wine and the number of awards: high scores mean that competing on quality is extremely important and vice versa.

III.2. Information sources and processing

Every winegrowing season, the Spanish Ministry of Agriculture, Food and the Environment provides information on the designation level by publishing figures and data on Protected Designations of Origin. This source enables us to calculate the indicator of surface area per winery (hectares) and the average price of a hectolitre of wine in current euros. The average price has been deflated with data from the consumer price index by class, produced by the *Instituto Nacional de Estadística* (INE – Spanish Statistical Office).

The average number of brands per winery can be obtained from wine directories. We have opted for *El País* wine directory for the estimate as it segments the information by designation of origin. The average brand size is the result of combining the volume the winery markets calculated on ministry data and the number of brands per winery. The number of awards per PDO has been taken from the Bacchus competition. The differentiated quality indicator is calculated by combining the number of awards in each wine year and marketed volume data. It has been expressed as awards per 10,000 hectolitres.

III.3. Classification design and validation

Since the worlds of production are defined as a crossover of technology and market types, a cut-off point must be established to differentiate specialisation from standardisation and another to differentiate between generic and dedicated markets. Using statistical central tendency measures enables us to establish the required cut-off points for the classification. The median context of the entire data series was used for each category. The means of the quality indicators for every world of production were compared to assess the classification coherence with the theoretical model. An analysis of variance (ANOVA) was conducted using the classification as a factor and price as the response variable. The Kruskal-Wallis test was performed for the differentiated quality indicator since the latter does not fulfil the ANOVA assumptions.

Significant differences were found between worlds of production in mean prices and quality indicator. The highest mean prices are in worlds of production characterised by specialised technology and the lowest are in those producing wine for which standardised technologies are used. The highest scores for the differentiated quality indicator are observed in the worlds of production targeted at dedicated markets and less in generic markets. Also observed where specialised technologies prevail are higher scores in the quality indicator than in standardised contexts. The differences found are coherent with the theoretical model and the classification has been validated as far as forms of competition are concerned.

III.4. Movement distribution and identification

The result of the classification has been detailed for both periods. The individual progression of every designation and the national aggregate were analysed in a second phase.

IV. RESULTS

IV.1. Distribution of the worlds of production in both periods

A predominance of standardised technologies and generic markets was observed in the 2001–02 wine year. PDOs often produce wine for undifferentiated markets in which competing on price is highly significant. In 2001–02 the Vine and Wine Law had not yet been approved, so the designation of origin was the only concept. Most active designations in this period have a long trajectory, a high degree of standardisation of their production processes and the cooperative model is also highly significant. Consequently, the industrial world was well established with 48.89% of the PDOs.

The designations of the innovation world accounted for 22.22% in 2001–02. These are highly prestigious designations producing wines in which the acknowledgement of quality plays an important role. The archetypal designation of origin of the innovation world is Rioja, with a high level of specialisation and an average size for a large brand. The less frequent worlds of production in 2001–02 are the interpersonal world and the market world with 17.78% and 11.11% of PDOs, respectively.

In the 2012–13 wine year, 43.94% of the designations are in the interpersonal world. This world of production is prominent on the islands, in north-western Spain and among *Vinos de Pago*, a concept begun with the 2003 Law. The second most frequent world of production is the industrial world, with 25.76% of the PDOs. The industrial world is concentrated in the centre and east of the country, especially La Mancha and Valdepeñas. The market and innovation worlds have only 15.15% of the designations each. However, although the innovation world is not very frequent, the designations it includes market significant volumes of wine.

IV.2. Development between 2001-02 and 2012-13

Between the 2001–02 and 2012–13 wine years the designation types in the whole of Spain varied considerably with an increase above 25% in interpersonal PDOs. There is a trend towards more specialisation and more dedication, in other words, a search for markets where competition based on product quality predominates. The industrial world, where competition essentially revolves around prices, has been hit hard by the recession and the number of designations classified in this world has dropped by 23.13%.

There are two main factors to consider when analysing composition changes recorded between 2001–02 and 2012–13: the world of production of the new designations incorporated in the classification in 2012–13 and the development of designations that have been classified in both periods, including those that have changed and those that have remained stable. Despite identified variations in the composition, only 15 designations of the 43 classified in both wine years have experienced some kind of movement between worlds of production. The legislative framework established in 2003 has fostered the creation of small, highly specialised designations targeted at quality markets. This fact explains an essential part of the increase recorded by the interpersonal world. The 2012–13 wine year saw the classification of 23 designations that had not been classified in 2001–02 and 65.22% of them moved to form part of the interpersonal world.

No changes were recorded in 65.12% of the designations classified in both periods. The world of production where most designations have remained stable is the industrial world, despite its loss of relative significance in the study period. In total, 63.63% of the designations in the industrial world in 2001–02 have not registered any changes between worlds of production. Some of these designations have increased their score in the standardisation indicator, which strengthens their position within the industrial world.

All the designations classified in the interpersonal world in 2001–02 have remained stable. Designations such as Rioja, Rías Baixas, Chacolí de Getaria and Montilla-Moriles in the innovation world have not undergone any changes either. The market world is the world that has shown the smallest number of stable designations: Lanzarote and Ribera del Guadiana.

The percentage of analysed designations registering changes in the world of production in 2001–02 and 2013 is 34.88%. Changes based on technological changes have less significance than market-type changes: 73.33% of registered movements have been related to an increase in dedication, in other words, the designations that have varied their world of production have mostly targeted more specific market niches by differentiating

their production. The most frequent movement has been from the industrial world to the market world. The designations involved in this change are found in the north-east and the Penedés PDO is the worthiest of note. The interpersonal world has been the destination of designations from all the worlds of production; however, most have come from the innovation world. Changes in technology type have not been very frequent and, in general, quite short lived.

V. CONCLUSIONS

The worlds of production theory can be used to characterise Spanish wine designation of origin types by adopting a quantitative method as proposed by Climent and Sánchez (2015). Using the surface area ratio per winery as an indicator of technology type and average brand size as an indicator of market type has provided results coherent with the theoretical framework and similar to the ones obtained by Esteban (2016). Every world of production has a different relationship between price and quality: The significance of competitive prices increases in standardised contexts rather than specialised ones. Similarly, competing on differentiated quality is more important in dedicated markets than in generic ones.

A clear predominance of generic markets was observed in the 2001–02 wine year and designations targeting personalised markets were not very frequent. In this wine year, the industrial world covered most of the peninsula and La Mancha PDO especially stood out. In the same period, designations such as Rioja, whose quality enjoys widespread recognition, were already in the innovation world. There were very few designations with dedicated markets in worlds of production in 2001–02; examples in the interpersonal world are island and Priorat wines.

In the 2012–13 wine year, with the protection concepts created by the Vine and Wine Law already operational, important differences were observed compared with 2001–02. Most striking was the increase in the number of designations in the interpersonal world and the relative decrease in the industrial world. Most of the designations established in the study period have now become part of the interpersonal world, especially Vinos de Pago. This fact confirms the role played by the Vine and Wine Law in diversifying the sector.

The PDOs classified in the industrial world have seen few changes in the world of production and we have observed internal adjustments towards more standardisation to become more competitive in price. The interpersonal world is more significant in north-western Spain, the islands and in Vinos de Pago. In this world, designations focus on elite markets and their competitive model is based on quality. Tensions are observed in the market world between differentiation and competing on price. Few PDOs are in this world of production. The innovation world includes highly prestigious designations, such as Rioja, Ribera del Duero and Cava; these specialised designations have a production type capable of supplying large markets in which quality plays a fundamental role. The number of designations in the innovation world is small, even though these designations market high volumes. In Spain as a whole, we can observe a twofold scenario with a clear differentiation between designations focusing their competition on quality and designations that tend to base their marketing on large volumes of wine at affordable prices.

