Quality and International Trade:
What Strategies for EU AOC System

Stéphan Marette (INRA-INAPG, France) and Angelo Zago (University of Verona, Italy)

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Stéphan Marette
UMR Economie Publique INRA-INAPG, Paris

Angelo Zago*
University of Verona - Italy

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Abstract

In this paper we consider the strategies needed to compete on foreign markets and/or to enter into new markets for wines. We model the choices facing producers in regions where both AO (high quality) and table (low quality) wines are produced. By joining forces with other producers to invest in advertising, producers may penetrate into new markets. We show that entering new markets may be profitable according to the relative size of the markets, the fixed costs of advertising, and the market situation in the internal and new markets. We discuss the policy implications of the results, arguing about possible modifications of the AO system to facilitate collective action and improve investment levels.

*Corresponding author: Department of Economics, University of Verona, Viale dell’Università, 4 Verona 37129 Italy. Phone: +39 0458028414, fax -529. Email: angelo.zago@univr.it. All errors are ours. Financial support from MIUR PRIN 2002 (Zago) is gratefully acknowledged.
1 Introduction

The wine-world market is characterized by two different types of organization, namely the European one based on the Appellation of Origin (AO) and the other wines, mainly promoted by new countries, based on the type of grapes. Indeed, the wine producers of Australia, California, Chile, and other emerging wine producing countries, are challenging the AO European leadership in world markets. One question that arises in this evolving market situation is whether the AO system should be reformed or abandoned altogether.

In this paper we consider the role for collective action in advertising investments needed to compete on foreign markets or/and to enter into new markets. We model the choices facing producers in regions where both AO (high quality) and table (low quality) wines are produced. In the initial situation, each region needs to allocate production between these two markets. We assume a fixed supply of land to represent the choices facing the agricultural sector in the short run, and the fact that the land suitable for grapes production in a particular region is given. We thus model producers’ decisions when they choose between growing the low-quality version, e.g., grapes for table wine, and the higher quality version, e.g., grapes for AO wine. In addition, we model a different situation in which producers may consider joining forces to enter into a new market by allocating part of their production to be sold into the new market.

We thus have a multiple-stage game in which producers first choose whether to enter into the new market and how much land to allocate to it. In the new market they have to compete with the producers from the rest of the world. In the traditional market, they have to decide how to allocate production between the AO and the table wines. In these latter markets, they face a market for vertically differentiated wine - in which each region is a monopolist - or a Cournot competition for homogeneous products,
respectively. We determine when it is profitable for producers to join forces to make the fixed investments in advertising needed to enter new markets. We show that entering new markets may be profitable, other things equal, if the size of the new markets is big, the fixed costs of advertising are relatively low, and the market situation in the internal market is relatively bad. We discuss the policy implications of the results, arguing about the possible modifications of the AO system to facilitate collective action and improve investment levels.

2 The AO system and the recent changes in the world market

Wine characteristics may be classified under two categories reflecting consumers’ preferences: vertical and horizontal product differentiations. Under vertical differentiation, if products of differing quality are proposed at the same price, all consumers will only buy products with the highest level of quality. Brands, chateaux or vineyards try to promote quality. Conversely, under horizontal differentiation (tastes), if products with different characteristics are offered at the same price, consumers will choose among the goods according to their individual preferences for the various characteristics. The horizontal differentiation dimension may be taken to explain mainly the two different types of organization, namely the European one, based on the AO, and that of other world countries regarding their wines, based on the type of grapes, e.g., Chardonay or Cabernet. Wines have such a diversity of tastes that, for instance, if a Bordeaux, linked to the AO system, or a Cabernet, linked to the type of grapes, were offered at the same price, there would still be a demand for each of them.

Products promotion and/or the signal of vertical and horizontal characteristics are crucial in this context of multiple options for indicating the wine content. If consumers are not fully informed about product characteristics, they may consume an undesired characteristic or pay a price that does not reflect, for example, the uncertainty associ-
ated with the good in question. Imperfect information concerns search characteristics as they are revealed before purchasing but at a cost that can be high, or experience characteristics as they are revealed after purchasing for wine (Nelson, 1970). Even with search goods, consumers may have difficulty recognising or remembering product quality if the overall quality is defined by a great number of characteristics, or the product’s origin is uncertain. As numerous vineyards exist, the signal of specific characteristics is very difficult for an isolated vineyard. The reason is that an individual vineyard’s ability to implement a signaling strategy or a promotion campaign depends on its profitability, and the more competitive a market, the more difficult it is to signal a high-level of quality via a price or vineyard advertising. Simply, given a perfectly competitive market, a firm needs some economic rent to allow it to finance quality signal, advertising or promotion campaigns. All those difficulties raise the issue of the best individual and/or collective systems for promoting wine in a context of intense competition on the world market.

The European system is now presented. The wine sector in the European Union is based on (1) the Appellation of Origin (AO) for medium and high-quality wines and (2) the table wine for low-quality. Wines in the AO system are often made by blending specific and sometimes local grapes varieties; their grapes production is regulated, with a maximum yield allowed per unit of land; and their production regions are very delimited. In other words, wine-making in the European Union is very regulated and based on tradition, with a big role assigned to local wines which name is generally associated with the production region, e.g., Bordeaux, Chianti, Rioja. The AO system is defined at national and/or European levels. In Europe, Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) link products to their geographic origin, and promote a specific taste or quality linked to a region (EEC, 1992).1

1Those indications of origin may bring about market power at a local dimension. The negative effect of the producers’ market power may be outweighed by the positive effect of quality improvement and signaling (Marette et al., 1999).
Even if European consumers react to these AO based upon regional characteristics, wine in Europe raises the question of the appellations proliferation. Peri and Gaeta (1999) count more than 400 official appellations in the wine sector in Italy alone and 1397 in the wine sector in Europe. Such a profusion assures product diversity but certainly increases buyer confusion (see Consumer Reports, 1997). The recognition of quality labels by French consumers is only 12% for Appellations d’Origine Contrôlée, the French AO system (see Loisel and Couvreur (2001)). One major problem is simply the legibility and clarity of a label, especially one showing some official seal. Although the AO system has proven successful in guaranteeing a good reputation for many European wines and relatively high profits for their wine producers, notwithstanding their typical small vineyards, countries like France, Italy, Spain and Portugal have witnessed a tremendous growth of New World wine-makers in the last few years. Recently, Berthomeau (2002) discusses the difficulty that the various French appellations have had in entering new export markets due to the absence of any clear specification of the label that distinguishes one appellation from another in the consumers’ minds.

Indeed, the wine producers of Australia, California, Chile, and other emerging wine producing countries, are challenging the European leadership in world markets (Anderson, 2001; Economist, 1999). Common characteristics of the emerging wine producing countries are the lack of detailed rules, i.e., the freedom to experiment with new techniques; the production and marketing of wines according to single varieties, e.g., Chardonnay, sometimes associated with the production region; and a very intense use of marketing investments. All those feature appear to be very relevant on the US market (Anderson, 2001). Eventually, size of the farming, wine-making and trading operations in Australia, are much bigger than the European ones. The average vineyard size in France is less than 2 hectares versus 111 hectares in Australia. Four firms are dominating the Australian market, Foster, Southcorp, Hardy and Orlando Wyndham. Moreover, recent international mergers revamp(ed) the international wine trading (Marsch, 2003a and 2003b). In 2000, Foster merged with Beringer, a Californian wine firm. In 2003,
Hardy will merge with Constellation Brands, a US company. As Marsh (2003b) puts it, those mergers "threaten to undermine further Europe’s dominance of the sector."

Contrary to the New World countries, the wine industry in Europe is very fragmented and appears relatively uninterested by the consolidation processes that are taking place worldwide, especially in Australia and the USA. (Economist, 2003; Marsch, 2003a and 2003b). The opportunities for mergers in Europe are limited by ownership structures with very scattered producers, geographic boundaries and/or product diversity. Indeed, apart from some notable exceptions, e.g., the Champagne (Economist, 2003) or Bordeaux regions, the wine industry in Europe is made of many small firms, which may lack adequate capital for the required investments in new technologies and marketing policies (Giraud-Héraud et al., 2002). A partial solution to the size problem, according to some practitioners, may be the collective organization by farmers through cooperatives and other producer groups. Indeed, cooperatives in the European wine industry are very common and in some regions have a considerable market share of production and processing facilities.2

One question that arises in this evolving market situation is whether the AO system should be reformed or abandoned altogether. Although it has been the backbone of the French first and EU wine sectors in the last decades, some argue that the system needs to be reformed (Berthomeau, 2001). The problem is that in many new markets, e.g., the US market, consumers are drinking more wine, getting more aware of international supply of different types of wine, and also preferring those which can be more easily recognized. For example, consumers may prefer to buy wines that are made from a worldwide recognized grapes variety, e.g., Chardonnay or Merlot.

In this respect, some AO wines cannot be easily recognized and evaluated by consumers in international markets. Indeed, the opposite is true: given that there are plenty of different AOs to choose from, consumers would be confused since they could

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2 In the early 90s, for instance, in Italy the market share of cooperatives in the wine sector was about 55%, in Spain 70%, and in France about 39-74% (Cogeca, 1998).
face an uncertain quality. In addition, since each AO is provided with a limited supply and hence low market penetration in the usual marketing channels, some argue that the system cannot deal with modern marketing systems and new market demand. One possibility would be to join forces among different regions with AO systems: by producing a common wine, say for instance "Chardonnay de France", and having collective investments in advertising to enter into new markets, the producers in these regions would be able to increase their sales and thus profits.

These previous examples raise the issue of the optimal way to promote products. Our paper does not aim at providing a complete cost-benefit analysis to find out the best system for promoting wine in a context of international competition. However, it underlines the essential role of promotion with economies of scale for reaching new markets. Indeed, very simple assumptions will be considered for isolating the link between the market mechanisms, the promotion cost and the access to foreign market (like the US one) for the European wine producers. Moreover, we abstract from imperfect information issues linked to the advertising. In addition, in our model the role of advertising is simply to make aware consumers about the product and thus to increase its demand. Notwithstanding these simplifying assumptions, this model is a useful starting point for the policy discussion on the possible reform of the European AO system.

3 The model

Suppose we represent the choices of different wine producing regions in the EU. Initially we consider for each of them the choice of land allocation\(^3\) between the AO system and the table wine segment. In the AO system producers are able to market their wine facing a market with a given willingness to pay for quality. In the table wine segment, each region has to face Cournot competition. We assume a fixed supply of land for each

\(^3\)We are dealing with a perennial crop but we are not modelling planting decisions. To be more appropriate, we should refer to production allocation: since we assume that production is given for unit of land, we use both land and production allocation to mean the latter.
region, $X$, corresponding to the choices facing the agricultural sector in the short run and the fact that the land suitable for wine production is given. We consider the same land potential for each region, i.e., symmetric producing regions.

We consider a very simple model of land allocation (figure 1). In the initial situation, each region decides how to allocate land between AO (a fraction $\beta$) and table wines (fraction $1 - \beta$). At a different point in time, the producers may be faced with the opportunity to enter a new market, namely the enter the new market situation. If they enter, they allocate a fraction $(1 - \gamma)$ of the land to the new market and a fraction $(\gamma)$ to the traditional market. In order to enter the new market, however, they have to invest in advertising, which have fixed costs $A$. In order to do so, they need to join forces with other producing regions. Should they decide to enter into the new market, they would face (Cournot) competition from other countries already present in the new market.

We represent the choices for each symmetric region with a three-stage game. In the first stage, each region has to decide whether and how much land it should allocate to the new market (the fraction $1 - \gamma$), where it would face Cournot competition from
other world producers. In the second stage, it decides how much of the land allocated to the traditional market (the fraction $\gamma$), should be allocated to the AO system (a fraction $\beta \gamma$), in which each region behaves as a monopolist, and the table wine segment (a fraction $(1 - \beta) \gamma$) where it would face Cournot competition from other European regions in the traditional markets.

In the last stage of the game, we have market competition: each group would be a monopolist in the AO high quality market and an oligopolist à la Cournot in a homogeneous products market. All the groups together would face the (Cournot) competition of the producers from the rest of the world in the new market. We can solve the game by backward induction (subgame perfect equilibrium). We characterize the different subgames in the next sections.

3.1 The traditional markets

In the subgame for the traditional markets, at stage 3 we have the AO and the table wine markets. The number of symmetric producing regions, $m$, is exogenous. The available land for each region $i$ is $X_i$. For simplicity, one unit of land gives one unit of final product in the low-quality segment, e.g., table wine.

In the AO system, one unit of land gives $k \leq 1$ unit of high-quality wines. $k \leq 1$ takes into account the fact that often in the AO system yields are restricted to allow for higher quality. Trade occurs in a single period, with each region producing either high-quality and/or low-quality wine. Let $s$ denote the level of high quality that is exogenously given and equal for each region, and suppose for simplicity that there is no cost.

Each producing region $i$ is selecting a proportion $\beta_i$ of the total land $X_i$ with $0 \leq \beta_i \leq 1$ allocated to the high-quality production linked to the AO system, and a proportion of land $(1 - \beta_i) \leq 1$ allocated to the low-quality wines, i.e., the table wines. The quality of the AO wine is known by all sellers and buyers. For simplicity, we assume that demands for low - both in internal and new markets - and high quality wines are completely
independent. It may correspond to the wine market where the low-quality products are sold to consumers via the retailing sector, while the high-quality products are sold in specialty shop or in restaurants.

3.1.1 The AO market

In the high-quality wine segment, each AO is a monopolist for its segment or product range. Buyers want to purchase one unit of the good and differ in preferences over quality. Heterogeneous preferences are described by a uniformly distributed parameter $\theta \in [0,1]$. For the sake of simplicity and without loss of generality, the mass of consumers is normalized at unity. For a level of quality $s$, a consumer who buys one unit of product at a price $p$ has an indirect utility equal to $\theta s - p$ (see Mussa and Rosen, 1978).

Before detailing the equilibrium in the subgame, notice that as long as producing regions are symmetric, they apply the same strategy for the choice of $\beta$ and $\gamma$. In stage 3 in the AO market, the price for the high-quality product is determined by the producers (the region) after taking into account the equilibrium between the supply and the demand. On the demand side, the consumer with utility $\theta s - p = 0$ is indifferent between buying and not buying a unit of wine of quality $s$, implying that her taste parameter is $\theta = \frac{p}{s}$. As the distribution of preferences is uniform, the demand for high-quality wine is $D = 1 - \frac{p}{s}$, leading to an inverse demand equal to $p = (1 - D)s$. Taking into account the equilibrium condition, $D = kX\beta$, the profit for each region is the following:

$$\pi_A(s,k) = kX\beta(1 - kX\beta)s.$$

3.1.2 The table wine market

Each region has also to decide whether and how much land to allocate, that is how much to produce, in the table wine market. In this market, wines from different regions are relatively homogeneous and each region competes as a Cournot oligopolist. Suppose the
demand in the market for table wine is the following:

\[ Q = N_1(a - p_t), \]  

(2)

where \( Q \) is the aggregate demand, \( N_1 \) is the number of consumers, \( a \) is the size of the market and \( p_t \) is the price of the table wine. The inverse demand then is the following:

\[ p_t = a - \frac{Q}{N_1}. \]  

(3)

Notice that by our assumption on the supply of land, by the symmetry of each producing region and by noting that the land allocated is a fraction \((1 - \beta)\) for each region, we obtain the following:

\[ p_t = a - \frac{(1 - \beta)mX}{N_1}. \]  

(4)

Thus the profit for each region becomes the following:

\[ \pi_T(a, m) = (1 - \beta) X \left[ a - \frac{(1 - \beta)mX}{N_1} \right]. \]  

(5)

### 3.1.3 The land allocation

In stage 2 of the subgame with traditional markets, each region has to maximize the profits from land allocation between the AO and the table wine market. So the choice for the land may be represented by the following:

\[ \beta^* = \arg \max_{\beta} \pi_A(s, k) + \pi_T(a, m) \]  

(6)

where \( \pi_A(s, k) \) and \( \pi_T(a, m) \) are given by (1) and (5). The optimal solution is:

\[ \beta^* = \frac{kN_1 s + 2mX - aN_1}{2(m + k^2 N_1 s)}. \]  

(7)

It may be easier to interpret the results by letting \( N_1 = m = X = 1 \), so we simplify to:

\[ \beta^* = \frac{ks + 2 - a}{2 + 2k^2 s}. \]  

(8)

Please notice that \( \beta^* \) is increasing with wine quality \( s \) in the AO market \( \left( \frac{\partial \beta^*}{\partial s} = \frac{k(1 + (a - 2)k)}{2(1 + k^2 s)^2} > 0 \text{ iff } \frac{1}{k} > (2 - a) \right) \). Indeed, the higher is the quality in the AO market where each region is a monopolist, the higher is the willingness to pay of consumers.
and thus the profits for a given quantity of wine. So it is natural to increase quantity, i.e., to allocate more land to AO, when quality, and thus willingness to pay, is higher.4

Analogously, the land allocated to AO is increasing with the relative yields of AO wines, \( k \left( \frac{\partial \beta^*}{\partial k} = \frac{(1 + 2(a - 2)k - k^2)s}{2(1 + k^2)s^2} > 0 \right) \) iff \( \frac{1}{k} > 2(a - 2) - ks \). Other things equal, the profitability of AO wines increases with their relative productivity and hence the higher the productivity the higher is the fraction of land allocated to AO.

Given the optimal choice of \( \beta \), the profit for each region in the traditional markets is the following:

\[
\Pi^T(a, s, k, m) = a^2 + 2ak(2k - 1)s + k(4 + k(s - 4))s \left( \frac{4 + 4k^2s}{4} \right),
\]

which after normalizing, i.e., by letting \( N_1 = m = X = 1 \) and \( k = 1 \), becomes the following:

\[
\Pi^T = \frac{(a + s)^2}{4(1 + s)}.
\]

4 Entering the new market

The increase of income in new countries may offer some opportunities for the producing regions of the EU to enter into new markets. Indeed, the wine producers of the New World are gaining market shares in these markets, and the restructuring taking place in the industry outside the EU has the objective to gain the critical mass to deal with the retailing sector in the new markets (Economist, 2003; Marsh, 2003a and 2003b).

The wine sector in the EU is made of many small firms. Indeed, besides some big Maisons in few regions, e.g., Bordeaux, Champagne, Chianti, the rest of the industry is composed of many small vineyards, with producers selling to private wine producers, of relatively small size as well, or producing for local cooperatives. Since even these latter may lack the critical mass to make the advertising investments needed to enter into the

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4 This simple effect would be mitigated if we had some costs for quality improvement, but the overall effect would be the same.
new market, we consider the possibility for producers of different regions to join forces to be able to make the investments in advertising with a fixed cost $A$.

In addition, as it happens, we assume that consumers in the new market prefer to buy wines based on their grapes variety. For example, they prefer to buy Chardonnay, distinguishing among different producing regions if offered the opportunity, but do not like to buy wines from a blend of different grapes or of peculiar single grapes. In other words, new markets’ consumers do not know and do not buy the wines with an AO, or if they do they are not willing to pay the premium that traditional markets are willing to pay.

The situation we represent thus would have, for instance, all producing regions in France deciding to allocate part of their land to produce a white wine, e.g., Chardonnay, to be sold in the new market as "Chardonnay de France", for example. Each producing region would allocate a fraction $(1 - \gamma)$ of land to the new market, while a fraction $\gamma$ would remain for the traditional market; each would pay a share $(\frac{1}{m})$ of the advertising costs $A$; and each would receive a fraction $(\frac{1}{m})$ of the profits to be made in the new market.

In the new market, the producing regions of the EU would compete with other producers from the rest of the world. We assume that in the new market, in case the regions of the EU decide to enter, there would emerge a duopoly.\(^5\) On one side, the EU regions grouped together as a unique duopolist playing a Cournot game against the rest of the world, on the other side, with the other producers from the New World acting as the other duopolist. The demand faced in the new market is the following:

$$Q_N = N_2(b - p_N),$$

which would lead to an inverse demand:

$$p_N = b - \frac{Q_N}{N_2},$$

\(^5\)We could also consider an oligopolistic market, which would not change the nature and interpretation of results.
where $Q_N = Q_R + mX(1-\gamma)$, with $Q_R$ being the production of the rest of the world ($R$), and $mX(1-\gamma)$ being the total production coming from the EU wine producing regions allocated to the new market. The problem of the two competing duopolists would be to choose quantity - respectively $Q_R$ and $\gamma$ - to maximize their profits:

$$\pi_R = \left( b - \frac{Q_R + mX(1-\gamma)}{N_2} \right) Q_R,$$

$$\pi_N = \left( b - \frac{Q_R + mX(1-\gamma)}{N_2} \right) mX(1-\gamma) - A.$$  

\[ (13) \]

\[ (14) \]

## 4.1 The land allocation

At stage 1, each group has to decide whether to enter into the new market and how much land to allocate to it (the fraction $1-\gamma$). Let us first rewrite the problem for the subgame of the traditional markets considering now that only a fraction $\gamma$ of land can be split into AO (hence a total fraction of $\gamma\beta$) and table wine (a total fraction of $(1-\beta)\gamma$):

$$\max_{\beta} kX\gamma(1-kX\gamma)s + (1-\beta) \gamma X \left[ a - \frac{(1-\beta)\gamma mX}{N_1} \right],$$

which solution, similar to the one calculated in the previous section, but now taking into account also that only a fraction $\gamma$ goes to the traditional markets, is the following (again, letting $N_1 = m = X = 1$ and $k = 1$ to simplify the interpretation):

$$\beta^*(\gamma) = \frac{2\gamma - a + s}{2\gamma(1+s)}.$$  

\[ (15) \]

\[ (16) \]

Now the problem for the choice of the land to be allocated to the new market for each region, assuming all regions behave symmetrically, may be represented in the following fashion:

$$\max_{\gamma} \pi_A(\beta^*) + \pi_T(\beta^*) + \frac{\pi_N}{m},$$

\[ (17) \]
where

\[
\pi_A(\beta^*) = kX\beta^*\gamma(1 - kX\beta^*\gamma)s \\
\pi_T(\beta^*) = (1 - \beta^* \gamma)X \left[ a - \frac{(1 - \beta^*)\gamma mX}{N_1} \right] \\
\pi_N = \left( b - \frac{Q_R + mX(1 - \gamma)}{N_2} \right) mX(1 - \gamma) - A.
\]

The solution of the problem, solved together with the problem with the rest of the world duopolist, is the following (letting \( N_1 = N_2 = m = X = 1 \) and \( k = 1 \) for ease of interpretation):

\[
\gamma^* = \frac{3 + (5 + 2a)s - b(1 + s)}{3 + 7s}, \quad \frac{2s}{3 + 7s} > 0; \\
Q_R^* = \frac{b + (a - 1)s + 3bs}{3 + 7s}, \quad \frac{3 + 7s}{3 + 7s} > 0.
\]

which also gives the optimal land allocated to AO:

\[
\beta^* = \frac{6 + 7s - 3a - 2b}{6 - 2b + 10s + 4as - 2bs}.
\]

As one would expect, notice that \( \gamma^* \), the optimal land allocated to the traditional markets, is increasing with the size of the traditional market \((\frac{\partial \gamma^*}{\partial a} = \frac{2s}{3 + 7s} > 0)\); decreasing with the size of the new market \((\frac{\partial \gamma^*}{\partial b} = -\frac{1 + s}{3 + 7s} < 0)\); and increasing with the exogenous quality in the AO markets \((\frac{\partial \gamma^*}{\partial s} = \frac{6a - 6 + 4b}{(3 + 7s)^2} > 0 \text{ iff } 6a - 6 + 4b > 0)\). Indeed, the higher is the quality in the AO market, the higher are the profits for a given quantity of wine and hence producers would increase the production in those markets.

Analogously, the optimal land allocated to AO (\( \beta^* \)) with within the traditional markets is increasing with the size of the traditional market \((\frac{\partial \beta^*}{\partial a} = \frac{(b - 3 - 2a)(3 + 7s)}{2(b + bs - 5s - 3 - 2as)^2} > 0 \text{ iff } (b - 3 - 2s)(3 + 7s) > 0)\); decreasing with the size of the new market \((\frac{\partial \beta^*}{\partial b} = -\frac{(a - s)(3 + 7s)}{2(b + bs - 5s - 3 - 2as)^2} < 0 \text{ iff } (a - s)(3 + 7s) > 0)\); and increasing with the exogenous quality in the AO markets \((\frac{\partial \beta^*}{\partial s} = \frac{6a^2 + 9b + a(3 + b) - 9 - 2b^2}{2(b + bs - 5s - 3 - 2as)^2} < 0 \text{ iff } 6a^2 + 9b + a(3 + b) - 9 - 2b^2 > 0)\). Again, the higher is the quality in the AO market, the higher are the profits for a given quantity of wine and hence producers would increase the production in that market.
5 Results and policy implications

Given the optimal choices of $\beta$ and $\gamma$, we can calculate the increment in profit for each region when it moves from staying in the traditional market to going also to the new market:

$$\Pi^\Delta(a, b, s, A) = \Pi^{N+T}(\cdot) - \Pi^T(\cdot) = \frac{(1 + 2s)(b + 2s + bs - 2as)^2 - A(1 + s)(3 + 7s)^2}{(1 + s)(3 + 7s)^2},$$

where $\Pi^{N+T}(\cdot)$ are the total profits, i.e., those in the traditional plus those in the new markets; and $\Pi^T(\cdot)$ are the profits for each group when they do not decide to enter the new market. It is then profitable to join the other regions to make the collective investment in advertising and enter into the new markets when, other things equal, the size of the new market (the intercept $b$) is relatively big, when the traditional market (the intercept $a$) is relatively small and when the size of the fixed investment in advertising $A$ is relatively small as well.

The increase in profits is also a complex function of the exogenous quality $s$ and of the $k$ parameter. To go further with the discussion of individual regions’ incentives to join the collective undertaking in advertising, it would be useful to investigate more on the effects of $k$ and $s$ and consider the possible heterogeneity of producing regions. This would be beyond the scope of the paper, but we could reasonably guess that when quality is higher - thus having higher willingness to pay, because we do not have any costs for quality here - we should have also lower land allocated to table wine, either in the traditional or in the new market. More difficult is to guess the effect of $k$, since a increase in productivity for the AO system may increase its profitability but could also

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6 In the comparison of the profits received from a traditional market strategy and those with a more aggressive strategy with collective advertising, we have considered each region as behaving symmetrically and jointly with other regions. In fact, one may need to consider the individual incentives faced by the region when deciding whether to join the collective undertaking in advertising. In other words, the decision of individual regions may resemble that of a firm joining a cartel. If a region does not join the collective advertising, i.e., it free rides, it may save on its share of the fixed costs and still benefit from an amelioration of market conditions in the traditional Cournot market.
require less of its production, presumably.

We may also expect different outcomes according to the initial situation in the traditional markets. If we started from a situation in which \( s \) is high and the AO is relatively profitable, with relatively low production and land allocated to the table segment, the profit increase from entering the new market would be probably low. In the opposite case, with low willingness to pay for quality in a particular AO and a relatively high fraction of production allocated to the table wine market, one could reasonably expect a higher increase in profits. This would explain why the good AO regions, e.g., Bordeaux, Alsace, Champagne, may not be interested in joining the "Chardonnay de France" project, which could be instead a viable solution for the market problems of lower quality wine regions.

Looking at the policy implications, we need to start from the principles that guide policy interventions in the wine sector in the EU. Since the traditional forms of intervention, e.g., market intervention through public distillation of low-quality wines, are not sustainable, the EU is shifting more responsibilities to producers and their organizations, i.e., more self-regulation. Given this trend, one may wonder whether decisions left with producers of different regions, with possible differences among regions, would lead to a better equilibrium for the industry. Results on this matter are still controversial (see Zago, 2002), but the idea that emerges is that decisions based on majority-voting among heterogeneous agents may lead to suboptimal equilibria.

An alternative would be a reform based on public intervention, i.e., some kind of benevolent dictator. Such decision-maker could consider the overall effect on the industry, and would not be necessarily involved with the political bargaining that may emerge when decision-making is left to the group of producers and regions. In addition, contrary to regulation based on industry decisions, public regulation should take into consideration also consumers’ welfare.
6 Conclusion

The labelling system of European Union quality wines, based on the Appellation d’Origine regulation, is under consideration for possible reforms. After helping small and big producers alike to survive and make profits in the last decades, it is now seen as an obstacle to the road to restructuring and consolidation in the European wine industry. Giving origin to a plethora of many different labels of local wines, it would impede to reach the critical mass to make the necessary investments to enter into new markets.

We consider the role for collective action in advertising investments and the profits that may result from the more aggressive marketing strategy of entering into new markets. Other things equal, there is a bigger profits increase by joining forces with other regions when the size of the new markets is big, the fixed costs of advertising are relatively low, and the market situation in the internal market is relatively bad. When producing regions are different in their potential for quality wine, they may have also different incentives to switch from more traditional marketing choices and enter into new markets. We also argue that the possible modifications of the AO system to facilitate collective action and improve investment levels may be difficult to come from a self-regulating industry with heterogeneous regions. In addition, public initiative may be preferred when consumers’ concerns need to be taken into account.

The paper shows preliminary results based on a model with very simple assumptions. For example, we consider that quality is given and cost-less, when in some cases the quality level may be a strategic variable but costly to obtain. Moreover, to have results more useful for the policy discussions, we believe that we should consider explicitly the impact on consumers’ welfare. In addition, to consider whether self-regulation would lead to better equilibria, we should allow for heterogeneous regions and model the individual incentives to participate in the collective undertaking.
References


