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# The Economics of Geographical Indications : Welfare Implications


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# The Economics of Geographical Indications: Welfare Implications

**Abstract**: The debate over the "right way" of protecting geographical indicators (GIs) has resulted in a growing body of literature investigating the welfare effects of GI policies using economic modelling approaches. This paper presents a synthesis of a small yet growing number of analytical studies on GIs. We find that modelling results and related policy conclusions hinge on different assumptions regarding consumer preferences, quality differentiation and weights attributed to producer or consumer welfare measures. Inconclusive results regarding a pareto-optimal design of GI policy leave several unresolved issues to researchers and policy makers assigned with the welfare implications of GI-based market interventions.

**Résumé:** Le débat sur la meilleure façon de protéger les indicateurs géographiques (IG) a fait émerger une litérature en rapide progression ciblant les effets des IG sur bien être de la société calculés à partir de diverses approches de modélisation. Ce manuscrit fait une synthèse des études analytiques portant sur les IG. Nous avançons que les résultats et conclusions dérivés des modèles sont sensibles aux hypothèses quant aux préférences des consommateurs, à la différenciation des produits/modélisation de la qualité et aux poids des mesures de surplus des consommateurs et des producteurs dans la fonction objective du gouvernement, Les résultats non concluants en ce qui a trait à l'élaboration d'une politique IG Pareto-optimale laissent plusieurs questions portant sur les effets des interventions gouvernementales sans réponse.

## Introduction

Consumer uncertainty about product quality is a fundamental feature of many agri-foods markets. It is therefore not surprising that the legislation of Geographical Indications (GIs), aimed at providing credible information on the origin of foodstuffs to the public, has received considerable attention in the economic literature. However, a growing body of policy and more analytically oriented papers agree upon that GIs stand at a "…fine line between the organized cartelization in the public interest and undue barriers to entry set by a small group of producers" (Bureau and Valceschini 2003).

GIs are currently protected in 167 countries and their different regulatory approaches have raised questions about "the right way" of protection (Giovannucci et al. 2009). The United States, Canada, Australia and South Africa use certification marks as well as collective marks, which are special categories of the general trademark system, to protect geographical origin names.[1] In contrast, *sui generis* GI protection systems, which are grounded in Roman law, can be found in the EU (EU regulation No. 510/2006) and several Asian and Latin American countries (i.e., Vietnam, Mongolia, Colombia, Costa Rica) (WIPO 2007). The EU considers GIs as an integral part of its food quality policy with the objectives of protecting consumers against fraud, fostering rural development and securing cultural and biological diversity. In contrast, the U.S. trademark system views GIs primarily as intellectual property rights (IPRs) that can be used by individual producers to enhance their competitiveness (Giovannucci et al. 2009).These fundamental differences in viewpoints and regulations have drawn attention from policy makers and economists alike.

This paper provides a review of selected economic models used to analyze the welfare implications of alternative regulatory approaches. Our main focus is to investigate whether and to what extent these economic models have contributed to a better understanding of the welfare implications of existing GI policies. And more importantly, if and to what extent existing modelling efforts can be applied to advance the current policy debate on GIs.

The existing literature relies on rather different model assumptions with respect to GI quality and producers' ability to control supply. These differences in assumptions are often crucial to the derivation of welfare impacts and related policy conclusions. Moreover, an optimal design of GI policy hinges on the weighting of welfare gains arising from reduced information costs against the possible welfare losses due to restrictive regulations and reduced competition. In such a setting an optimal design of policy seems especially difficult to achieve.

However, questions surrounding a more efficient design of GI policy are highly relevant to the re-orientation of the EU's food and GI policy frameworks as well as the growing interest in local and authentic food systems in the United States. The regulatory framework on GIs is also frequently addressed in bilateral trade agreements between the EU and third-party countries, such as Australia and Canada.[2]

At the same time a growing number economic analyses of GIs have developed into streams that not only differ in their methodological approach, but also appear to be divided over the issue itself. This makes a comprehensive economic analysis of GIs a challenging task (Herrmann and Teuber forthcoming). In particular, formal economic analyses and case studies seem to be disconnected from each other when drawing conclusions about the welfare implications of GIs.

The remainder of the paper is structured as follows. Section 2 highlights the economic rationale for policy interventions in the case of GIs and briefly discusses the differences between EU and U.S. style GI systems. Section 3 presents an analytical review of the economic modelling literature on GI certification schemes. In section 4, we discuss the findings and policy conclusions with regards to the current policy discussion on GIs and an outlook on future research. We specifically focus on the question whether the EU system of GI protection is effective in overcoming consumer information asymmetries and an efficient instrument from a social welfare perspective.

## Geographical Indications – Information Asymmetries, Market Failure and Regulatory Systems

*Information Asymmetries, Market Failure and Governmental Intervention*

The essential feature of a GI is the link between a product's geographical origin and its quality, reputation or other characteristics derived from its origin - generally referred to as quality-origin nexus or *terroir* (TRIPs, Art. 22.1). *Terroir*, the French term for "taste of place", stands for a causal relationship between agronomic conditions, craftsmanship and a product's distinct quality (Giovannucci et al. 2009).

*Terroir* and, hence, geographical origin presents as a credence attribute typical not verifiable by consumers. However, if an origin-quality link results in a distinguishable sensory quality, origin can become an experience attribute. In any case, without credible labelling consumers cannot infer whether a product truly originates from a proclaimed region or whether a given GI claim is fraudulent. This prevalence of asymmetric information has been shown to have important implications for market performance and may result in multiple market equilibria (Spence 2002). For instance, an equilibrium in which producers set a unique price (pooling equilibrium) may exist if qualities are exogenous, the share of low quality producers is small and the costs of signalling are high (ibidem). In this case the mere observation of the price does not provide any information about the quality to consumers. Another possible market outcome is that of Akerlof's (1970) well-known "lemons" problem where only low quality products might be offered; a typical problem of "one-shot" purchases. For instance, olive oil producers may have a strong incentive to cut quality when facing tourists who will likely buy their olive oil only once and will not punish them in subsequent periods. One possible solution to increase product quality in typical "one-shot" purchase situations are: (i) reliable certification labels and/or (ii) informed buyers that exert a positive externality on uninformed buyers.[3] In a repeated purchase setting, however, where consumers learn about desired product attributes after purchase, producers can establish a reputation for

quality via brands. Still, no government intervention is required besides the provision of a functioning regulatory system. Although "one-shot" purchases have some relevance for certain GI products, repeat purchase markets seem to prevail in most GI cases.

Consequently, GIs act very much in the same manner as brands or other certification labels which aim at overcoming the market failure induced by information asymmetry. By implementing a credible certification scheme, the geographical origin turns into a search attribute to consumers and a new equilibrium evolves (Crespi and Marette 2003). Consequently, GI labelling can lower consumer's search cost while at the same time providing incentives for producers to invest in consistent quality production in order to build a reputation (Ragnekar 2004, Bramley, Biénabe and Kirsten 2009).

However, there exist situations where further government intervention may be justified. Josling (2006) argues that a regional public good problem might arise due to the collective nature of a GI. If fixed costs of setting up a credible quality certification scheme are prohibitively high for individual producers, a governmental agency that benefits from economies of scale can ensure that the product is marketed after all; a well-established argument in the economic theory of public and club goods (Cornes and Sandler 1996). Externalities which lead to a suboptimal market outcome can be internalized by governmental interventions in terms of subsidies or taxes in order to improve market efficiency. Even though collective action by producers may enhance total social welfare, this might not be realized without government intervention due to the fact that individual producers do not include consumers' surplus in their production decisions. Collective action is not a specific feature of GIs; in fact it has a long tradition in agricultural markets. Though explicit cooperation among sellers violates antitrust laws, in many countries there are exemptions for farmers (Sexton and Lavoie 2001). This is often based on the "competitive yardstick effect" which implies that in a situation with imperfect competition allowing farmers to collude and act collectively will have a pro-competitive influence on the market (ibidem). The underlying

idea is that collective action, e.g., through a cooperative, can countervail upstream or downstream market power, thereby strengthening the farmers' position in the supply chain. This is a well-established argument for governmental support of cooperatives and their exemptions from antitrust laws (Bergman 1997). A similar justification can be applied to GIs, with one important difference; Sexton and Lavoie (2001) highlight that cooperatives are usually ill-suited to exercise market power, because membership is voluntary and there is seldom a single cooperative controlling the complete market supply of a product. Alternatively, once a GI is registered the producer organization controls the total market supply of that particular GI product, at least in the region where the legislation applies. The debate over the potential trade-off between enabling agricultural producers to protect their products and reputation against deception and the granting of market power to producer groups is at the centre of the GI debate (Bureau and Valceschini 2003).

*Regulatory Systems*

Two systems of GI protection have emerged over time: *(i)* the EU-style *sui generis* system and *(ii)* a trademark-based system. Though both schemes enable producers to provide information about their product in order to overcome the possibility of consumer confusion due to asymmetric information, there are some noteworthy differences.

The EU system distinguishes between protected designations of origin (PDOs) and protected geographical indications (PGIs) according to the strength of the required origin-quality link. In the case of a PDO, all stages of production must take place in the defined area, whereas in the case of a PGI it suffices that one stage of the production process is carried out in the defined area (European Commission 2007). Applicants to the EU's *sui generis* system are required to provide proof of the production history and the unique quality-origin link which must be accompanied by a detailed product specification. Once a product is registered the producer organization qualifies for EU support in terms of promoting GI labelled products to consumers as well as legal services in infringement cases. In contrast, protection through

certification marks granted under U.S. trademark law can be obtained without qualifications and only serves commercial purposes without additional governmental involvement. Consequently, EU-style GIs can be considered as club goods with governmental support, whereas GI-like certification marks protected under trademark law are considered as club goods with no or little governmental support (Thiedig and Sylvander 2000).

To summarize, trademark-based certification marks differ from *sui generis* GIs in that *(i)* they are not required to meet any predefined public or private minimum quality standards, *(ii)* they are not necessarily linked to a specified geographical origin, and *(iii)* the rules of participation are solely defined by their owner (Giovannucci et al. 2009). However, the quality standard that is ensured under EU-style *sui generis* systems has first been set by producer organizations themselves.[4]

Another EU certification scheme related to GIs that has received little attention in the literature is the Traditional Specialty Guaranteed (TSG) scheme.[5] In contrast to GIs, TSG are not linked to a specific geographical area but they certify a traditional composition or way of production. Largely underused by producers, TSG are similar to trademarks in the sense that their objective is to signal a constant product specification to the market independent of a specific geographical origin.[6]

## Welfare Analysis of GIs

In this section we first describe the theoretical modelling frameworks used in major GI contributions. Second, we focus on the welfare implications of these different contributions.

*Theoretical Modelling Approaches*

There exist numerous case studies that analyze consumers' attitudes, perceptions and willingness to pay (WTP) for GI labelled products (van der Lans et al. 2001; Scarpa Philippidis and Spalatro 2005; van Ittersum et al. 2007) and GI producers marketing strategies (Belletti et al. 2009; Mora and Menozzi 2009). Studies on consumers indicate that preferences

and WTP for GI products are generally driven by two dimensions: a quality dimension and a support-warranty dimension (van Ittersum et al. 2007). The first dimension refers to the fact that most consumers expect GI products to be of a higher quality than non-GI products. The second one implies that consumers prefer domestic over foreign products, which is often referred to as "consumer ethnocentrism." Consumers express strong preferences for domestic products based on an affinity to their home region and the wish to support domestic producers (Lusk et al. 2006). Other consumer studies find that certain consumer segments attach a value to GI products because of their contribution to secure biological and cultural diversity, i.e., tradition and authenticity seem to be important product attributes (Teuber forthcoming).

Apart from a more marketing-oriented literature which mainly focuses on estimating consumers' willingness to pay for certified origin-labelled foods (e.g. Loureiro and Umberger 2003), a small yet emerging literature analyzes the welfare implications of current GI regulatory schemes on producers and consumers. Research questions that have been tackled include self-regulation and collective action (Langinier and Babcock 2008; Zago 1999), collusion and supply control (Zago and Pick 2004; Lence et al. 2007; Mérel 2009), collective reputation (Winfree and McCluskey 2005; Menapace and Moschini 2010), and quality-related issues (Desquilbet and Monier-Dilhan 2008; Saitone and Sexton 2009; Mérel and Sexton 2010). To the best of our knowledge, only a few studies explicitly address the welfare implications of different GI certification systems (Lence et al. 2007; Bouamra-Mechemache and Chaaban 2010; Menapace and Moschini 2010). Despite the common finding that thet EU and U.S. GI systems are not equivalent in terms of their welfare effects, these contributions differ in their modeling approaches, findings and derived policy recommendations.

The main contributions and findings of selected economic analyses of GI certification schemes are presented in tables 1 and 2. Table 1 summarizes studies that investigate the welfare impact of GI regulation compared to a situation with no regulation. The system of

protection itself is not addressed in these contributions. A comparison of different GI systems is explicitly included in the studies presented in table 2.

**<Insert tables 1 and 2>**

The argument of high fixed costs of establishing a GI product and the related potential market failure is discussed in several contributions (Lence et al. 2007 and Moschini, Menapace and Pick 2008). Fixed costs usually occur in the form of registration costs. In general, fixed costs should also include research and development costs. However, in the context of GIs, these costs were borne by producers in previous periods and thus are already sunk which implies that they do not enter the analysis.

Assumptions concerning the market structure and supply side conditions differ across these studies. In most of the papers, imperfect competition is assumed and research questions address either the optimal club size (Langinier and Babcock 2008) or the profit-maximizing choice of quality by a producers organization (Mérel and Sexton 2010). Exceptions are the contributions of Menapace and Moschini (2010) and Moschini, Menapace and Pick (2008) where perfect competition with free entry and exit is assumed. Yet, none of these assumptions seem unrealistic. Indeed, there are so many different GI products that, for each scenario, there is at least one real-world GI example that can justify the chosen assumptions (see tables 1 and 2).

With respect to the demand side, most of these studies use a model of vertical product differentiation, where quality is the considered attribute. Consequently, consumer preferences are modelled as preferences over quality

(1) $U = \theta s - p$,

where $s$ is the level of quality, $\theta$ represents the taste for quality and $p$ the price. It is assumed that consumers' value quality, i.e., $U_s > 0$, and that consumers with higher values of $\theta$ value quality more, i.e., $U_\theta > 0$. In most cases, two quality levels are considered, with consumers buying a high-quality good (i.e., the GI product), a low-quality good (i.e., the generic product)

or nothing at all. The only exception is in Desquillbet and Monier-Dilhan (2008) where consumers value origin *per se*, and have the following preference function

(2) $U = \theta s + rInd(label) - p$

where r is a preference parameter for regional origin and Ind(label) an indicator that takes the value 1 if the good is labelled as a GI and 0 otherwise.[7] It is assumed that all consumers have identical preferences for the regional origin but differ in their taste for quality. Moreover, consumers' utility is additive in the two attributes.

Even though all these studies rely on a model of vertical differentiation, some of them differ in their treatment of the distribution of consumers. In most contributions a uniform distribution of consumers with respect to their taste for quality (i.e., the distribution of θ within the population) is assumed, which implies that the fraction of consumers with low WTP for quality equals the fraction of consumers with high WTP for quality.[8] This assumption is relaxed in Mérel and Sexton (2010) in which several consumer preference distributions are considered. They argue that it is most likely that the fraction of consumers with low or intermediate WTP for GI products is larger than the fraction of consumers with high WTP. Hence, consumer clustering at the lower end of the quality spectrum is introduced. Menapace and Moschini (2010) also consider different preference structures in order to investigate how the structure of demand influences the welfare implications for both producers and consumers.

*Welfare and Policy Implications*

Some of these contributions argue that quantity collusion might be a necessary evil to solve the market failure that arises from high fixed costs of establishing a GI (Zago and Pick 2004, Lence et al. 2007). Though allowing collusion may increase welfare, granting too much market power to producers will reduce it. Hence, in these contributions an optimal level of collusion that maximizes total welfare can be derived. On the other hand, Moschini,

Menapace and Pick (2008) show that collusion will not enhance but reduce welfare, since collusion will decrease the high-quality production, which is already suboptimal, even further. They also consider a scenario in which some production factors (e.g., land) are in scarce supply. In such a setting, GI certification can benefit producers due to returns generated by these scarce production factors. However, in the absence of scarce inputs, producers will not benefit from a GI certification at all. In Moschini, Menapace and Pick (2008), the major beneficiaries are consumers. They also show that the competitive market equilibrium is not Pareto efficient, a result well-known whenever information is imperfect and markets are incomplete (Stiglitz 2000). It is argued that in the case of GIs the failure of the competitive equilibrium to deliver the first-best outcome is caused by high fixed costs of marketing and promotion. In such a situation government interventions (taxes or subsidies) can lead to Pareto improvements (Moschini, Menapace and Pick 2008). According to this argument, financial support granted by the EU to member countries to promote GI certification labels (both in the internal market and in third-party countries) can contribute to the efficient provision of high-quality agri-food products.

Concerning the differences between the U.S. and EU GI systems, Lence et al. (2007) argue that *ex post* (i.e., conditional on the GI system being already established), the U.S. system leads to higher deadweight losses than the EU system. This finding is based on the assumption that the U.S. system leads to larger technological inefficiencies, because it provides fewer instruments to directly control supply. This creates incentives to distort production practices to limit supply. These indirect forms of collusion, e.g., input and production requirements, lead to large production inefficiencies and society may be better off by allowing producers to collude directly. This line of argument is questioned by Mérel (2009). His analysis highlights that indirect ways of colluding lead to smaller deadweight losses than direct ones (see Annex 1). His results are driven by the assumption that in the case

of indirect collusion practices output prices are less distorted, leading to a smaller loss in consumer surplus compared to pure collusion on output.

With respect to consumer surplus, Menapace and Moschini (2010) conclude that *(i)* a *sui generis* system is more beneficial for consumers with a strong preference for quality, *(ii)* a certification mark based system favours consumers with an intermediate preference for quality, and *(iii)* the EU *sui generis* system outweighs the U.S. certification mark-based system, since it ensures a higher quality level of GI products. Accordingly, a major result of their study is that the consumer demand structure determines which system provides larger welfare gains. With respect to the producer side, Menapace and Moschini (2010) find that producers do not benefit at all or are even harmed by a GI certification scheme. In this context they distinguish between *ex post* and *ex ante* evaluation of GI certification systems. *Ex ante*, i.e., before any investment in reputation has taken place, producers neither benefit nor lose from the introduction of a GI certification system. In contrast, producers who have already invested in reputation (e.g., well-known brands) might be harmed by the introduction of a GI certification (*ex post* analysi*s*). This result is closely related to the findings of Crespi (2007) and Crespi and Marette (2002) who analyze the effects of generic advertising on product differentiation. If generic advertising or a GI certification scheme reduces the perceived product differences within a producer group, high-quality producers may lose market shares to lower-quality producers.

## Discussion and future research

Because the economic literature on GIs does not provide clear guidance in terms of policy implications, the task of policy makers in deciding the appropriate regulation of GIs is not easy. Some questions need to be clarified: Which economic model should be favoured? What policy implications seem more relevant?

In this last section we discuss the relevance of modelling frameworks, of some of the assumptions and results. Based on the existing models and their findings, we attempt to provide direction for future research when we believe there is a need to fill a gap.

First, restricting output via product specifications and allowing producers to collude must always be weighed against possible welfare losses due to less competition in the market. Though conceptually it should be possible to determine the optimal levels of information and protection, in practice the situation is more complex and in most of the theoretical studies presented above this problem is assumed away. This is fully in line with a conclusion by Fink and Maskus (2006) who state that it may be difficult to strike an optimal balance between consumer needs and producer gains in designing GIs, a well-known problem in the design of IP tools in general. The preamble of the EU regulation states that one of the major objectives of the GI regulation is to reduce consumer search costs and avoid consumer confusion. Considering the present EU GI system from this perspective, exclusive rights attached to a GI can be overly strong if they exclude alternative users that could enter the market and compete without confusing consumers. Are consumers really misled and confused by a label stating "Feta-style cheese, produced in Denmark"? If they are not, it seems reasonable to infer that the current EU GI system is "overprotecting" consumers and domestic producers might be able to extract economic rents from this absolute protection level.

Second, comparing different regulatory approaches raises the question of transfer efficiency. This question has been partly addressed by Mérel (2009) who argues that if policy-makers can choose between an output and an input quota to transfer sufficient rents to producers to cover fixed costs, the last option should be preferred since it is associated with lower welfare costs. These results are especially important given the recent discussion on the future of the EU's food quality policy, particularly the future of the GI and TSG scheme. Several GI producer organizations in Europe have asked for more rights to control production, e.g., by implementing production quotas (Commission of the European Communities 2009,

Fischer Boel 2008). The analysis presented by Mérel (2009) indicates that if policy makers allow more control, social welfare would be reduced. Apart from that, the signal arising from such policies would be detrimental to the overall goal of lowering agricultural support and putting more emphasis on competitiveness in terms of quality instead of relying on governmental intervention to secure producers' income.

Third, given the empirical evidence about consumers' attitudes towards GI products, the inclusion of origin *per se* in consumers' utility function seems to be a promising approach to extend existing studies. As mentioned before, consumer ethnocentrism or the support-warranty dimension has been found to be important in consumers' purchase decision for local food in general and GI products in particular.[9] However, it seems questionable that all consumers have identical preferences about origin per se as assumed in Desquilbet and Monier-Dilhan (2008). It is more likely that only some consumers located inside and outside the production area value this attribute, whereas other consumers do not value origin or/and a GI label at all. Consumers may even attach a value to a label itself, a phenomenon well-known for brands. Moreover, the consumer research literature has highlighted that agri-food products provide a bundle of product attributes and possess several quality dimensions. Even though these different quality attributes might be complementary in most cases, there might be trade-off effects as well. These aspects seem to be particularly relevant for the EU claw back initiative. The so-called claw back initiative refers to a list of geographical names for which the EU wishes to prohibit use by non original producers. Many of the names on this list do not benefit from a GI protection in certain jurisdictions, as they are considered to be generic terms falling under the common-language exception of the TRIPS Agreement (Fink and Maskus 2006). Non-EU consumers may have a preference for an original GI product, because it is authentic and tastes better, while at the same time they prefer to buy domestically produced foods, i.e., a GI-variety or a generic product. In such a setting it is unlikely that the vertical product differentiation requirement will hold, i.e., all consumers agree on a clear

ranking of products if offered at the same price. It seems more reasonable to assume that the original GI product and the domestically produced GI variety are horizontally differentiated, since some consumers prefer the domestic one while others prefer the original product. The crucial point in the discussion on the EU claw back initiative is to know whether the costs of re-naming and re-labelling domestic products that producers have to bear can be offset by the increase in consumers' welfare due to this policy.

Fourth, another interesting point addressed in the study of Bottega, Delacote and Ibanez (2009) on voluntary quality labels is to understand the objective pursued by a third-party certifier. They distinguish between a *wide public policy*, in which the demand for the high-quality product is maximized, and a *global quality policy*, in which the overall quality of the market is maximized. This seems closely related to understanding whether the EU GI system provides too much quality, which is whether the product quality level provided by the regulation exceeds the quality level that maximizes societal welfare (Mérel and Sexton 2010). Their results are especially interesting if considered jointly with the results of Menapace and Moschini (2010). The findings of the latter are driven by the assumption that the EU GI system provides higher-quality products than a US-style system due to stricter product requirements. This can be true, but it does not have to be. There exist examples of U.S. certification marks which have strict product and process requirements in order to ensure a high-quality (e.g., Vidalia onions). The fact that in the U.S. producers are free to choose their quality requirements can lead to a situation in which producers establish even stricter requirements than those necessary to provide a certain quality level. Following the argument of Mérel and Sexton (2010), this might result in an excess in quality compared to the socially optimal level. Though Mérel and Sexton (2010) do not explicitly analyze the U.S. system, their model set-up can be used to infer that the EU system outperforms the U.S. certification system in terms of social welfare, since it is more regulated and producers are not totally free to choose their product specifications. In other words, the strict EU regulations inhibit

producers from choosing product specifications that only restrict supply without improving quality which would result in even more excess of quality. Accordingly, the conclusion to favour an EU *sui generis* system over a certification mark system would be confirmed with both model approaches. However, the underlying reasons are totally different. In Menapace and Moschini (2010) the EU system is favoured because it provides higher quality, whereas in Mérel and Sexton (2010) it is because it leads to a reduction of the excessive quality relative to the social optimum.

To summarize, both systems seem to be effective in terms of overcoming the market failure caused by information asymmetry. However, the efficiency of both systems remains an open question. Is there overregulation to the benefit of producers or do consumers attach such a strong value to these products that absolute protection as granted under the EU regulation and the governmental support in suing free-riders can be justified from a societal welfare perspective? Is there a regional public good involved so that private regulations do not suffice? These questions are still not fully answered and will remain major points in discussions on the right way to protect GIs. Other aspects that have not been included in theoretical models so far are the more diffuse objectives of protecting biodiversity, traditional knowhow and authenticity. The empirical evidence from GI case studies is rather inconclusive; both positive and negative cases have been reported in case study contributions (Herrmann and Teuber 2010). To what extent GI regulation supports issues surrounding the protecting of biodiversity, traditional knowledge, or authenticity still needs to be further analyzed to address the efficiency of GI policy instruments in supporting these goals.

[1] A certification mark refers to a 'word, symbol, name or device' used by someone other than the owner of the certification mark to certify certain product characteristics, such as the geographical origin or certain processing practices. Certification marks are typically owned by governmental institutions.

[2] A discussion of the role of GIs in international trade policy can be found in Fink and Maskus (2006).

[3] Informed buyers are for example the readership of reviews or consumer reports. However, it has been shown by Mahenc (2004) that informed buyers are a necessary but not a sufficient condition to resolve the lemons problem.

[4] The choice of the appropriate product specification is often a crucial point in the application process. There are several examples in which applications were not submitted because producers could not agree on one product specification or subgroups emerged that did not join the GI producer group (Tregear et al. 2007).

[5] For more detailed information see EC regulation No. 509/2006 and 510/2006.

[6] In the recent consultation on the future of the EU's agricultural quality policy it was discussed to abolish the TSG scheme due to the very low utilization rate. Since its establishment in 1992, only 30 products have been registered compared to over 800 PDO/PGI products. However, the European Parliament (2010) recommends to keep this instrument and to simplify the rules for registration in order to make it more attractive to producers.

[7] This indicator is included because origin is a credence attribute and can only be revealed by public labelling. At the same time this specification implies that the utility functions are identical whether consumers care for origin or the label itself.

[8] This distribution is often adopted for tractability reasons.

[9] Consumer ethnocentrism and support-warranty dimension are closely connected but not equal. Consumer ethnocentrism does always imply that products from the home region or home country are preferred, whereas the support-warranty dimension can also mean that foreign products are preferred over domestic ones, e.g. fair trade products.

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**Table 1: Overview of the analytical literature comparing the situations GI Regulation vs. No regulation**

| Authors | Model Assumptions | Market Structure<br>*Real-world examples* | Results / Welfare Impacts | Policy Implications |
|---|---|---|---|---|
| Zago and Pick (2004) | Quality is exogenous,<br>GI production is costlier,<br>FC of certification borne by high-quality producers | (i) PC<br>(ii) MP | High-quality producers clearly benefit; Ambiguous welfare impacts on consumers and total welfare depending on the magnitude of administrative costs, quality differences and degree of supply control | Particular care should be given to the analysis of the degree of competition in specialty product markets. |
| Moschini, Menapace and Pick (2008) | Quality is endogenous,<br>GI production is costlier,<br>FC and variable monitoring costs on a per-output basis borne by high-quality producers, | (i) PC<br>(ii) PC with scarce inputs<br>*Italian olive oil and wine GIs* | GIs can support the competitive provision of quality and lead to clear welfare gains. Consumers are the main beneficiaries, whereas producer surplus depends on the presence of scarce factors that they own. However, the competitive equilibrium is not Pareto efficient, because it under provides the high-quality good. | The competitive equilibrium fails to provide the first-best outcome due to external economies at the industry level. This failure can be corrected by certification subsidies. SC cannot enhance welfare. |
| Langinier and Babcock (2008) | Quality is exogenous,<br>MC of production are zero,<br>GIs are club goods | (i) No certification<br>(ii) Full revelation certification regime<br>(iii) Partial revelation regime | Level of certification costs determine whether the gains to high-quality producers offset the losses to low-quality producer; both consumers with high and low WTP gain from certification: | There may be overprovision of labels compared to what is socially desirable for a certain range of certification costs. |
| Mérel and Sexton (2010) | PO chooses the product specification that maximizes aggregate profits;<br>Supply control increases quality;<br>MC increase faster than AC when quality increases | PO as Monopoly<br>*Comté cheese* | Profit-maximizing choice of the GI quality by a PO will generally exceed the quality level that maximizes social welfare | EU regulation is likely to produce excessive quality. |

AC = Average Costs, FC = Fixed Costs, MC = Marginal Costs, MP = Market Power, FC=Fixed Costs, LR = Land Restrictions, PC = Perfect Competition, PO = Producer Organization, SC= Supply Control.
Source: Own presentation.

**Table 2**: **Overview of the analytical literature comparing different GI systems**

| Authors | Model Assumptions | Considered Scenarios *Real-world examples* | Results / Welfare Impacts | Policy Implications |
|---|---|---|---|---|
| Lence et al. (2007) | Quality is exogenous,<br>FC of certification borne by high-quality producers | (i) PC - *Idahoe potatoes*<br>(ii) Monopoly - *Benchmark*<br>(iii) SC via LR - *Lentils from Castellucio di Norcia*<br>(iv) SC via PS - *U.S. marketing orders*<br>(v) SC via LR and PS - *Brunello di Montalcino wine* | If FC of development is high, allowing producers to collude can enhance social welfare, since the benefits from consuming the high-quality good may outweigh the losses.<br>Both from the producer and the societal perspective the EU system is more favourable than the US system. | The EU rules dominate the US system in terms of ex ante societal surplus, since the latter one leads to large technical distortions due to fewer instruments to control supply directly |
| Desquillbet and Monier-Dilhan (2008) | GI region, non-GI region<br>One producer in each region<br>Demand side: gustatory quality and origin | (i) No labelling<br>(ii) Binding labelling<br>(iii) Non-binding labelling | The GI product is not necessarily the higher quality product. | n.s. |
| Menapace and Moschini (2010) | Quality is endogenous,<br>Comparative advantage of the GI technology in the upper-quality range, free entry/exit | (i) TM only,<br>(ii) TM plus *sui generis* system<br>(iii) TM plus CM system with (without) QR | Welfare gains depend on the distribution of consumer types. Since a *sui generis* system lowers prices in the upper part of the quality spectrum, it favours consumers with high values of θ. Ex post introduction is only desirable, if consumer gains are larger than the losses in reputation of established brands. | *Sui generis* schemes generally disclose more information than a certification mark scheme (why?) |
| Bouamra-Mechemache and Chaaban (2010) | GI labels involve technological constraints which impose higher variable costs of production.<br>Private common labels only require FC (R&D expenses); | (i) Public certification *PDO Brie*<br>(ii) Collective private common label *Collective TM* | Efficiency of the GI label compared to a private label depends on the interplay between the variable production costs under a GI regime and the fixed costs of the private label. Production capacity constraints and higher variable costs related to a GI | Even if GIs are efficient from a producer perspective, a society might be better off with less stringent techniques of quality signalling, relying on private |

| | | | |
|---|---|---|---|
| | Endogenous quality choice | system should play central role in the welfare analysis of GIs | collective certification. |

Notes: AC = Average Costs, CM= Certification Mark, FC = Fixed Costs, MC = Marginal Costs, MP = Market Power, FC=Fixed Costs, LR = Land Restrictions, PC = Perfect Competition, PD=Price Discrimination, PO = Producer Organization, PDO = Protected Designation of Origin, PS = Product Specification, QR = Quality Requirements, SC= Supply Control, TM = Trademark, WTP = Willingness to pay; n.s. not specified.

Source: Own presentation.

## Annex 1: Miscellaneous studies on GI regulations

| Authors | Model Assumptions | Considered Scenarios | Results / Welfare Impacts | Policy Implications |
|---|---|---|---|---|
| **Transfer Efficiency (Input vs Output Quotas)** | | | | |
| Mérel (2009) | Both policies generate sufficient rents to cover fixed costs. | (i) Output quota<br>(ii) Input quota | Provided that both policies generate sufficient rents to cover fixed costs, an input quota is socially preferable to a producer-optimal output quota. | The request by several POs in the ongoing reorganization of the EU's agricultural policy to strengthen their ability to control supply directly should be evaluated on the presented findings. |
| **Economics of the Claw-Back Initative** | | | | |
| Benavente (2010) | Two countries: Home – Foreign<br>Three varieties: Foreign GI-original good, Home GI-variety good, generics<br>Consumers value the GI label and the origin per se<br>Only equilibrium at home is analyzed | Two regimes:<br>(i) GI taken as generic<br>(ii) GI protected as IPR<br>Two scenarios for foreign firms:<br>(i) Fringe of Competitiors<br>(ii) Monopolistic Competition | There might be a potential global welfare gain of the claw-back initiative if the valuation for variety is low and the valuation of origin is high. However, consumers with a low WTP for origin and a high valuation of the GI-variety are the major losers. | Industrialized countries with sophisticated consumers and high relative costs of production tend to lose less from protecting foreign GIs than developing countries with less sophisticated consumers and lower relative costs. |

Source: Own presentation.